

**Cortical correlates of cardiac deceleration in preparation for skilled action**

Gallicchio, Germano; Ryu, Donghyun; Pecunioso, Alessandra; Jackson, Robin

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# FEPSAC

17<sup>TH</sup> CONGRESS

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ABSTRACT  
BOOK

15/07 - 19/07/24  
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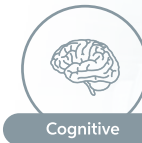
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## INTRODUCTION

In Innsbruck we will concentrate on our congress topic “Performance under pressure” and we are excited to share with you and our colleagues the newest scientific and applied insights. We will bring together some of the leading experts in performance psychology to discuss, debate and celebrate the impact of pressure on individual and team performances in different settings, and we’d love to see you there.

Performing under pressure is a common challenge for individuals in various domains, including sports, performing arts, business, and high-stakes professions (police, military, medicine etc.). Pressure situations can elicit stress, anxiety, and a range of emotions that can impact performance. However, with the right strategies and mindset, individuals and teams can learn to thrive and excel under pressure. We love to enhance our client’s abilities to perform at their best in challenging situations.

We will have participants and presenters from sports, military, police, performing arts, medicine and business settings. At our congress we connect the most influential people from these areas.

We will feature over 100 workshops, oral sessions and symposia, delivering continuing education on the latest techniques and practices in our field. For colleagues who are interested in deeper education we will have an intense pre-congress-programme covering hypnosis in sports, mindfulness in Olympic sports and a fine educational programme for becoming sport psychologists in professional and elite sports.

## WELCOME



*Congress President Christopher Willis*

Dear FESPAC Members, Esteemed Colleagues, and Respected Friends of our Global Sport and Performance Psychology Community, FEPSAC (European Federation of Sport Psychology) stands as the premier organization for sport psychology in Europe. On behalf of the Division of Sport Psychology of the Professional Association of Austrian Psychologists, the Center of Mental Excellence GmbH, and the PCO Tyrol Congress, we are thrilled to announce that we have been granted the privilege of hosting the FEPSAC Congress 2024 in the beautiful city of Innsbruck, Austria, for the very first time.

Innsbruck, a city with a remarkable history of hosting the Olympic Games three times, is no stranger to international sporting excellence. In 1964 and 1976, it welcomed the world

for the Winter Olympics, and the 1st Youth Olympic Winter Games in 2012 were a splendid celebration of competitive sport and joyful camaraderie. In 2020, Innsbruck played host to the Winter World Masters Games, the world’s largest winter sports festival, bringing together elite athletes and enthusiasts over 30. Given Innsbruck’s legacy of exemplary performance under pressure, it is the ideal setting for engaging in discussions and presenting the latest research and applications in the field of sport and performance psychology, with a particular focus on “performance under pressure.”

Our vision for this congress is to advance this theme through a programme that combines scientific rigor with practical relevance. We are committed to featuring exceptional keynote speakers, captivating symposia, hands-on workshops, as well as individual oral and poster presentations. Additionally, we are excited to introduce a scientific slam and an applied slam to further enrich our offerings. We have received overwhelmingly positive responses from esteemed colleagues who have graciously agreed to join the scientific and applied committees. Furthermore, we are actively collaborating with leading national and international associations in sport and performance psychology to elevate the profile of the congress.

In light of Innsbruck's rich history and tradition in professional sports, we anticipate significant media and public interest in the FEPSAC Congress 2024. We are confident that we will deliver an exceptional programme in collaboration with our local sports organizations, complete with an engaging social and athletic agenda. We believe that the FEPSAC Congress 2024 in Innsbruck, Austria, will create enduring scientific, applied, and social memories for all our participants. We consider hosting the 17th FEPSAC Congress in Innsbruck, situated in the heart of the Alps, as a unique opportunity to promote and advance our field, particularly within Europe and in collaboration with our colleagues worldwide.

We eagerly look forward to welcoming you to Innsbruck.

With warm regards,  
Christopher Willis

## WELCOME



*FEPSAC President Maurizio Bertollo*

Dear colleagues!

Welcome to the exciting world of sport and exercise psychology! In Innsbruck is the 17<sup>th</sup> FEPSAC Congress that brings together professionals, researchers, and enthusiasts passionate about the intersection of sports and psychology. Whether you're attending our congress to learn about the latest research in our field, network with fellow experts, or gain insights into improving athletic performance and well-being through psychological techniques, you're in for a rewarding experience. The representatives of the National Association of Sport and Exercise Psychology affiliated to FEPSAC will have the opportunity to share their local experience with the entire community.

Our FEPSAC Congress 2024 offers a platform to explore topics such as mental toughness, motivation, performance anxiety, team dynamics, and the psychological aspects of coaching and sports management, but also the fields of physical and mental health of individuals and groups. If you are looking for concepts and tools to promote motivation, self confidence, cognitive abilities and social connection in these areas you should attend the congress.

Overall, the FEPSAC Congress in Innsbruck will be an excellent opportunity to connect with colleagues, learn from experts, and contribute to the field of sport and exercise psychology. Make the most of this event, and I hope it leads to valuable collaborations and insights for you and your peers!

I wish you a wonderful Congress!  
Maurizio Bertollo

## WELCOME



*President of the Professional Association of Austrian Psychologists  
Beate Wimmer-Puchinger*

Dear colleagues,

on behalf of the Professional Association of Austrian Psychologists, which boasts nearly 6,000 members, it is our immense pleasure to extend our support to the FEPSAC Congress in Innsbruck. Over the past few years, the number of sport psychologists in Europe working with professional teams, national and Olympic training centers, and universities has seen a dramatic increase. Furthermore, our division of sport psychology, comprising more than 200 members, has been highly active, establishing standards of practice, ensuring quality, and safeguarding clients against malpractice and harm. Throughout Europe, various initiatives are underway to promote sport psychology, estab-

lish professional training, and practice pathways within the field. The field of sports psychology is gaining increasing societal significance, particularly in the realms of health promotion and secondary prevention of mental disorders. Additionally, it plays an active preventive role in the context of sexual violence.

We firmly believe that hosting this congress in Austria presents a remarkable opportunity to further advance and strengthen the discipline of sport psychology in Europe.

We eagerly anticipate your presence in Innsbruck and warmly welcome you to this exciting event.

Beate Wimmer-Puchinger

## KEYNOTE SPEAKERS



**Daniel Gould**

*Michigan State University, East Lansing,  
United States*

**Coaching Today's Athlete: Meeting Them Where They Are and Taking Them Where They Need to Go.**



**Cecilie Thøgersen-Ntoumani**

*University of Southern Denmark, Odense,  
Denmark*

**Why is it so difficult when you have to, and so easy when you want to? The role of motivational factors for physical activity promotion**



**Stiliani "Ani" Chroni**

*Inland Norway University of Applied Sciences,  
Rena, Norway*

**Our Duty to Safeguard Sport: From Ignorance and Silence to Knowledge and Practice**





**Duarte Araújo**

*University of Lisbon, Lisbon,  
Portugal*

**The ecological dynamics of cognizant bodies in  
expert sport performance**



**Mia Stellberg**

*University of Helsinki, Helsinki,  
Finland*

**Sport psychology in Esports**



**Kristoffer Henriksen**

*University of Southern Denmark, Odense,  
Denmark*

**Performance excellence under pressure:  
Reflections of a scientist practitioner**

## CONGRESS OVERVIEW

Time	Info	Monday July 15	Tuesday July 16	Wednesday July 17	Thursday July 18	Friday July 19	Time
07.30 – 08.00	R						07.30 – 08.00
08.00 – 08.30	E						08.00 – 08.30
08.30 – 09.00	G		KEYNOTE	KEYNOTE	KEYNOTE	KEYNOTE	08.30 – 09.00
09.00 – 09.30	S		Cecilie Thøgersen-Ntoumani	Stiliani "Ani" Chroni	Duarte Araújo	Mia Stellberg	09.00 – 09.30
09.30 – 10.00	T	Parallel Sessions	Poster Session & FEPSAC	Poster Session	Poster Session	Poster Session	09.30 – 10.00
10.00 – 10.30	R	Parallel Precongress	Group Picture				10.00 – 10.30
10.30 – 11.00	A	workshops	Break	Break	Break	Break	10.30 – 11.00
11.00 – 11.30	T	FEPSAC Managing Council	Parallel Sessions	Parallel Sessions	Parallel Sessions	Parallel Sessions	11.00 – 11.30
11.30 – 12.00	I	(closed) Meeting			Young Researcher Award		11.30 – 12.00
12.00 – 12.30	O		Break*	Break*	Break*	Break*	12.00 – 12.30
12.30 – 01.00	N	Break					12.30 – 01.00
01.00 – 01.30	A		Parallel Sessions	Parallel Sessions	Parallel Sessions	Parallel Sessions	01.00 – 01.30
01.30 – 02.00	L	Parallel Sessions					01.30 – 02.00
02.00 – 02.30	D		Parallel Sessions	Parallel Sessions	Parallel Sessions	Parallel Sessions	02.00 – 02.30
02.30 – 03.00	A	Break	Break	Break	Break	Break	02.30 – 03.00
03.00 – 03.40	Y	Parallel Sessions	Parallel Sessions	Parallel Sessions	Parallel Sessions	Parallel Sessions	03.00 – 03.40
03.40 – 04.10	S	Break	Break	Break	Break	Break	03.40 – 04.10
04.10 – 04.30		Parallel Sessions	Parallel Sessions	Parallel Sessions		Break	04.10 – 04.30
04.30 – 05.10		Break	Break	Break			04.30 – 05.10
05.10 – 05.30			FEPSAC General Assembly	VIP reception	Social activities	KEYNOTE	05.30 – 06.00
05.30 – 06.00			and Ema Geron Award			Kristoffer Henriksen	06.00 – 06.45
06.00 – 06.30						AWARDS	
06.30 – 07.00		OPENING CEREMONY	FEPSAC Young Practitioner			Closing Ceremony of	06.45 – 07.00
		KEYNOTE	Presentation, BÖP Award			the Academic	
		Daniel Gould				Programme	
07.00 – 07.30		WELCOME COCKTAIL					07.00 – 07.30
07.30 – 08.00						Conference Dinner	07.30 – 08.00
08.00 – 08.30							08.00 – 08.30
08.30 – 09.00							08.30 – 11.30

\* parallel meetings

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# ABSTRACTS

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# GIMME FIVE PRESENTATIONS

## Testing the Effects of an institutionalized Intervention on Youth Ice Hockey Coaches Needs Supportive and Thwarting Styles

**Dennis Bengtsson**<sup>1</sup>, Andreas Stenling<sup>2</sup>, Jens Nygren<sup>1</sup>, Krister Hertting<sup>1</sup>, Andreas Ivarsson<sup>1</sup>

<sup>1</sup>Halmstad University, Halmstad, Sweden <sup>2</sup>Umeå University, Umeå, Sweden

Gimme Five presentation 01: Coaching & Elite sports and expertise & Emotion & Ethics in applied settings, Hall Tirol, Juli 15, 2024, 16:10 - 17:10

**Objectives:** This study investigates the effects of an institutionalized self-determination theory based (SDT) intervention on youth ice hockey coaches' interpersonal styles. The primary objective is to empirically test whether the intervention would increase the coaches' self-rated needs-supportive style and decrease their needs-thwarting style over a one-year timeframe.

**Methods:** The participating coaches (n 52, mean age 36.71, SD 9.27) underwent a 2-day institutionalized coach education focusing on their needs-supportive and needs-thwarting styles. This included power-point based lectures, group discussions and online handouts. Additionally, the coaches elaborated on needs-supportive behavioral goals and exercised role-playing tasks. The module was delivered through trained coach educators from the Swedish Ice Hockey Association. The coaches received the interpersonal behaviors questionnaire-self (IBQ-self; Rocchi et al., 2017) prior to the intervention (baseline), one and a half weeks, three weeks, and one year after baseline. Latent growth models (LGCM) were used to analyze the change trajectories of the self-rated needs-supportive and thwarting styles.

**Results:** The results from the LGCM analysis showed a statistically significant increase in the coaches self-reported needs-supportive style ( $\Delta .09$ , SE .03, p .010), but no statistically significant decrease in their needs-thwarting style ( $\Delta -.04$ , SE .04, p .274).

**Conclusion:** The intervention successfully increased the coaches' self-rated needs-supportive style but did not decrease their needs-thwarting style over a year. In future SDT-based interventions, coaches can also set behavioral goals on the needs-thwarting style, present examples of such behaviors, and discuss in groups of how to mitigate the needs-thwarting style in favor of a needs-supportive style (Reeve, 2009). Our results support the benefit of an SDT-based coach intervention on self-rated behavior change (Raabe, 2019; Reynders et al., 2019), informing about its potential to equip youth ice hockey coaches with adequate needs-supportive skills via institutionalized pathways.

Raabe, J., Schmidt, K., Carl, J., & Höner, O. (2019). The effectiveness of autonomy support interventions with physical education teachers and youth sport coaches: A systematic review. *Journal of Sport and Exercise Psychology*, 41(6), 345–355.

<https://doi.org/10.1123/JSEP.2019-0026>

Reeve, J. (2009). Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive. *Educational psychologist*, 44(3), 159-175. <https://doi.org/10.1080/00131644.2009.339281>

[doi.org/10.1080/00461520903028990](https://doi.org/10.1080/00461520903028990)

Reynders, B., Vansteenkiste, M., Van Puyenbroeck, S., Aelterman, N., De Backer, M., Delrue, J., De Muynck, G. J., Fransen, K., Haerens, L., & Broek, G. Vande. (2019). Coaching the coach: Intervention effects on need-supportive coaching behavior and athlete motivation and engagement. *Psychology of Sport and Exercise*, 43, 288–300. <https://doi.org/10.1016/j.psychsport.2019.04.002>

Rocchi, M., Pelletier, L., & Desmarais, P. (2017). The validity of the interpersonal behaviors questionnaire (IBQ) in sport. *Measurement in Physical Education and Exercise Science*, 21(1), 15–25. <https://doi.org/10.1080/1091367X.2016.1242488>

## Does basic psychological needs satisfaction during the day enhance athletes' sleep quality and reduce their sleep deficit?

Patricia Frytz<sup>1,2</sup>, Anne-Marie Elbe<sup>1</sup>

<sup>1</sup>Leipzig University, Leipzig, Germany <sup>2</sup>University of Salzburg, Salzburg, Austria

Gimme Five presentation 01: Coaching & Elite sports and expertise & Emotion & Ethics in applied settings, Hall Tirol, Juli 15, 2024, 16:10 - 17:10

**Objectives:** Athletes need sufficient restorative sleep to meet the demands of competitive sports. However, due to late competitions, early and intense training sessions, as well as dual demands from sports and work or education, athletes often experience a sleep deficit (Walsh et al., 2021). Behavioral strategies aimed at enhancing sleep hygiene are frequently employed to reduce this sleep deficit (Bartel et al., 2015). In addition to these strategies, studies indicate that psychological determinants may also improve sleep quality. Campbell et al. (2015) provide initial evidence that the satisfaction of basic psychological needs (autonomy, competence, relatedness; Ryan & Deci, 2000) during the day is also associated with better sleep quality at night. This study is the first to investigate this relationship in a cohort of competitive athletes (N=48).

**Methods:** Thirty-two female and 16 male athletes (M=20.00 years, SD=4.44) from individual and team sports wore actigraphs (Motionwatch 8) for 14 nights (total sleep nights=672) to measure objective sleep parameters (sleep onset latency, sleep duration, sleep efficiency). Individual sleep deficit and subjective sleep quality were recorded via morning sleep logs. In daily evening logs, athletes reported their basic needs satisfaction, pre-sleep arousal and training load. One-time questionnaires at the beginning of the study also captured general sleep quality (PSQI), chronotype (D-MEQ), and satisfaction of needs in sports (PNSEG) and sleep.

**Results:** Data collection for the study is completed, and the data analysis is ongoing. Preliminary results show a correlation between better general sleep quality (PSQI) and satisfaction of needs in sport (autonomy, competence, relatedness) and in sleep (autonomy, competence). Multilevel analysis will determine whether daily basic needs satisfaction has the expected positive impact on athletes' sleep quality and reduces their individual sleep deficit.

**Conclusion:** The results aim to unravel the sleep dynamics of athletes and to highlight potential interventions for optimizing athletes' sleep.

Bartel, K. A., Gradisar, M., & Williamson, P. (2015). Protective and risk factors for adolescent sleep: A meta-analytic review. In *Sleep Medicine Reviews* (Vol. 21, pp. 72–85). W.B. Saunders Ltd. <https://doi.org/10.1016/j.smr.2014.08.002>

Campbell, R., Vansteenkiste, M., Delesie, L. M., Mariman, A. N., Soenens, B., Tobbac, E., van der Kaap-Deeder, J., & Vogelaers, D. P. (2015). Examining the role of psychological need satisfaction in sleep: A Self-Determination Theory perspective. *Personality and Individual Differences*, 77, 199–204. <https://doi.org/10.1016/j.paid.2015.01.003>

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>

Walsh, N. P., Halson, S. L., Sargent, C., Roach, G. D., Nédélec, M., Gupta, L., Leeder, J., Fullagar, H. H., Coutts, A. J., Edwards, B. J., Pullinger, S. A., Robertson, C. M., Burniston, J. G., Lastella, M., le Meur, Y., Hausswirth, C., Bender, A. M., Grandner, M. A., & Samuels, C. H. (2021). Sleep and the athlete: Narrative review and 2021 expert consensus recommendations. *British Journal of Sports Medicine*, 55(7), 356–368. <https://doi.org/10.1136/BJSPORTS-2020-102025>

## Emotion regulation and coping in active military personnel: a systematic review

**Rebecca Kirkham**<sup>1</sup>, Joshua F. Wiley<sup>1</sup>, Eugene Aidman<sup>2</sup>, Murat Yücel<sup>3,4</sup>, Lucy Albertella<sup>1</sup>

<sup>1</sup>Turner Institute for Brain and Mental Health, School of Psychological Sciences, Monash University, Clayton, Australia <sup>2</sup>Defence Science and Technology Group, Adelaide, Australia <sup>3</sup>QIMR Berghofer Medical Research Institute, Herston, Australia <sup>4</sup>Department of Psychiatry, School of Clinical Sciences, Monash University, Clayton, Australia

Gimme Five presentation 01: Coaching & Elite sports and expertise & Emotion & Ethics in applied settings,  
Hall Tirol, Juli 15, 2024, 16:10 - 17:10

Objectives: Emotion regulation (ER), the use of strategies to change and manage emotions, is crucial to optimal performance and task execution for military personnel. While considerable evidence exists on the relationship between ER strategies, mental health, and performance, particularly in fields like sport, the scope, and outcomes of ER within actively serving military populations remain unknown.

This systematic review examines the literature to date on ER in relation to health and performance in actively serving military personnel to understand (1) What measures are used to assess ER and coping, (2) What outcomes are examined in relation to ER and coping, and (3) How ER and coping strategies are connected to health, performance, and related variables.

Method: PsycINFO, Ovid MEDLINE/OVID MEDLINE All, Scopus, Military database, and Web of Science Core Collection were searched for English-language, empirical studies on ER and coping strategies in actively serving military participants. The search retrieved 3,134 unique articles, of which 46 met the inclusion criteria.

Results: The leading measures for assessing ER are the Emotion Regulation Questionnaire (n=12), the COPE (n=9) and the Cognitive Emotion Regulation Questionnaire (n=5). ER strategies such as reappraisal and suppression were most measured. ER variables were most often examined alongside outcomes in clinical mental health (n=14), personality (n=10), and mental health and wellbeing (n=9), with one study exploring ER and job performance. The statistical relationship between ER and other variables will be further discussed.

Conclusions: The literature on ER in actively serving military populations is limited, highlighting a significant research gap in understanding ER's impact on military personnel performance. Additional conclusions will be drawn regarding the impact of ER on variables examined in the existing literature to date. The implications of the existing evidence on the impact of ER on health and wellbeing outcomes will be discussed.



## The scope of Relational Frame Theory in understanding performance behaviour

Tanuj Kohli<sup>1</sup>

<sup>1</sup>Loughborough University, Loughborough, United Kingdom

Gimme Five presentation 01: Coaching & Elite sports and expertise & Emotion & Ethics in applied settings, Hall Tirol, Juli 15, 2024, 16:10 - 17:10

Relational Frame Theory (RFT), a theory of human language, has the potential to explain performance behaviour through behavioural rather than cognitive processes (Hayes & Grundt, 1997; Leeming, 2016). The scope of RFT in performance psychology has not been previously explored, therefore, the objectives of the scoping review were to: 1) explore RFT processes underpinning performance behaviour 2) highlight gaps in third wave performance psychology research that RFT based research can help bridge; 3) understand methodological incompatibility with underlying philosophy is third wave psychology research and; 4) formulate a meaningful RFT based research question. A reflective thematic analysis on secondary data that included empirical and theoretical studies related to RFT, research into performance psychology and third wave approaches across domains, was conducted inductively (Braun, & Clarke, 2021). The scoping review identified seven themes: 1) scope for theoretical integration, 2) RFT based measurement tools, 3) RFT processes for performance, 4) directives for RFT research, 5) philosophically compatible research designs, 6) gaps in research that RFT can bridge and 7) understanding of RFT incompatible approaches. The findings highlighted that RFT processes of derived relational responding, reinforcement and rule governance can explain performance behaviour and that internal experiences are associated symptoms (Palm Reed et al., 2018; Sandoz et al., 2017; Smith et al., 2019). It can be posited that third wave performance psychology research has made little progress in understanding processes of change as hypothesis testing based on incompatible cognitive theories remain (Birrner et al., 2021). The key recommendations are to test RFT principles for performance behaviour and then test the efficacy of processes within third interventions and importantly the retention effects. This can provide detailed insight into the mediating processes of change for performance behaviour and a direction for future RFT studies in the performance domain.

Birrner, D., Röthlin, P., & Morgan, G. (2012). Mindfulness to enhance athletic performance: Theoretical considerations and possible impact mechanisms. *Mindfulness*, 3(3), 235-246.

Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis?. *Qualitative research in psychology*, 18(3), 328-352.

Hayes, S. C., & Grundt, A. M. (1997). Metaphor, meaning and relational frame theory. In *Advances in Psychology* (Vol. 122, pp. 117-146). North-Holland.

Leeming, E. M. (2016). *Mental Toughness: An Investigation of Verbal Processes on Athletic Performance*. University of Nevada, Reno.

Palm Reed, K. M., Cameron, A. Y., & Ameral, V. E. (2018). A contextual behavior science framework for understanding how behavioral flexibility relates to anxiety. *Behavior Modification*, 42(6), 914-931.

Sandoz, E. K., Butcher, G., & Protti, T. A. (2017). A preliminary examination of willingness and importance as moderators of the relationship between statistics anxiety and performance. *Journal of Contextual Behavioral Science*, 6(1), 47-52.

Smith, P., Leeming, E., Forman, M., & Hayes, S. C. (2019). From form to function: Values and committed action strengthen mindful practices with context and direction. *Journal of Sport Psychology in Action*, 10(4), 227-234.

## Calling it out: sources of pressure, perceived stress and emotional intelligence among international tennis umpires

**Clare Stevinson<sup>1</sup>**, Ronny Wilson<sup>1</sup>

<sup>1</sup>Loughborough University, Loughborough, United Kingdom

Gimme Five presentation 01: Coaching & Elite sports and expertise & Emotion & Ethics in applied settings, Hall Tirol, Juli 15, 2024, 16:10 - 17:10

**Objectives:** Emotional intelligence is recognised as a vital attribute for sports officials to ensure effective communication, decision making and conflict management in pressurised competitive settings. This study identified the unique pressures experienced by international tennis umpires and examined associations with perceived stress and differences based on emotional intelligence.

**Methods:** International Tennis Federation umpires (n = 167) reported the strength of 18 sources of pressure based on the Sources of Acute Stress Scale for Sports Officials, modified for the context of tennis umpiring. Participants also completed the 10-item Short Stress Overload Scale and the 19-item version of the Emotional Intelligence Scale validated for use in sport. Based on a median split of total scores, participants were classed as higher ( $\geq 70$ ) or lower ( $< 70$ ) in emotional intelligence. Non-parametric analyses were used to examine associations between sources of pressure and stress and differences based on emotional intelligence.

**Results:** The greatest sources of pressure related to making incorrect calls (78.5% reported at least moderate pressure), making crucial calls (63.5%) and receiving verbal abuse from players (62.3%). Moderately strong relationships existed between total sources of pressure scores and perceived stress ( $\rho = .42$ ;  $p < .001$ ) and between all four pressure sub-scales (match context, criticism, peer pressure, external factors) and stress. Participants with lower emotional intelligence scores reported more pressure ( $U = 1873.00$ ;  $p < .001$ ) and greater stress ( $U = 2054.00$ ;  $p = .001$ ) than those with higher emotional intelligence. No relationships were observed between certification level or years of experience and scores for perceived pressures, stress or emotional intelligence.

**Conclusion:** Emotional intelligence may confer some protection from common pressures experienced by international tennis umpires and associated stress. Additional research is needed to indicate the merit of including interventions for strengthening emotional intelligence in the training and development of sports officials.

## The Relationship between Pride with Teammate Prosocial Behavior, Antisocial Behavior, and Sports Friendship among Adolescent Athletes

**Chi-Lun Tsai<sup>1</sup>**

<sup>1</sup>Leipzig University, Leipzig, Germany

Gimme Five presentation 01: Coaching & Elite sports and expertise & Emotion & Ethics in applied settings, Hall Tirol, Juli 15, 2024, 16:10 - 17:10

Adolescence is pivotal for personality and values development (Steinberg, 2017), with sports playing a key role in shaping self-awareness and social interactions (Eccles & Barber, 1999). Previous research emphasizes the crucial role of pride in adolescent mental health and social adaptation (Tracy & Robins, 2007). Pride, categorized into authentic and hubristic types, stems from genuine satisfaction or external validation (Tracy & Robins, 2007). Yet, the impact of pride on social relationships and behaviors in adolescent athletes remains less explored, especially regarding its influence on camaraderie and sports friendships with teammates.

This study aims to investigate the manifestations of authentic and hubristic pride among adolescent athletes and examine their influences on teammate prosocial behavior, antisocial behavior, and sports friendship. The study employed Pearson correlation coefficients and structural equation modeling to analyze the data, with a sample of 204 adolescent athletes from various sports domains.

The results show that authentic pride is positively correlated with prosocial behavior ( $r = 0.25$ ,  $p < 0.001$ ), while hubristic pride is positively correlated with antisocial behavior ( $r = 0.20$ ,  $p < 0.01$ ). Further structural equation modeling analysis revealed that authentic pride indirectly reduces antisocial behavior among adolescent athletes by increasing prosocial behavior ( $\beta = -0.15$ ,  $p < 0.05$ ) and directly enhances sports friendship ( $\beta = 0.30$ ,  $p < 0.001$ ). However, hubristic pride directly increases antisocial behavior ( $\beta = 0.25$ ,  $p < 0.01$ ) with no direct effect on sports friendships.

In summary, this study elucidates the differential effects of authentic and hubristic pride on the behavior and social relationships of adolescent athletes, highlighting their implications for the psychological well-being and social adaptation of adolescent athletes.

Eccles, J. S., & Barber, B. L. (1999). Student council, volunteering, basketball, or marching band: What kind of extracurricular involvement matters? *Journal of Adolescent Research*, 14(1), 10-43.

Tracy, J. L., & Robins, R. W. (2007). The psychological structure of pride: A tale of two facets. *Journal of Personality and Social Psychology*, 92(3), 506.

Steinberg, L. (2017). A social neuroscience perspective on adolescent risk-taking. In M. R. DeLisi & M. G. Vaughn (Eds.), *Biosocial theories of crime* (pp. 435-463). Routledge.

## How Can Structured Sport Interventions Enhance the Mental Health of Adolescents with Mild to Moderate Mental Health Problems?

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Gimme Five presentation 02: Talent identification/development & Well-being and quality of life & Social cognition & Youth, Hall New Orleans, Juli 17, 2024, 14:40 - 15:40

Structured sport interventions can support adolescents with mild to moderate mental health problems. However, more research is needed to understand the mechanisms of how outcomes are achieved, specifically within well-designed interventions tailored to specific sports, populations, and mental health outcomes. This qualitative study aimed to explore factors that influence adolescents' (aged 10-19 years) engagement with a sport intervention aimed at improving mental health. Semi-structured interviews were conducted (N = 24; n = 8 service users; n = 8 parents/carers; and n = 8 mental health charity staff). Inductive reflexive thematic analysis identified four themes: 1) 'The Perceived Value of Sport'; 2) 'Holistic Social Support'; 3) 'The Personal Characteristics of the Deliverer'; 4) 'The Dynamic Nature of Mental Health'. Findings highlight that having sport as part of a mental health intervention was the most pertinent reason for adolescents' engagement as it was perceived beneficial for both mental and physical health, without focusing on the mental health problem. However, some schools and parents/carers did not consider it a serious mental health intervention due to the sport element. Achieving holistic social support (emotional, esteem, informational, and tangible support) from various sources of support were found to be important in the recruitment and continued engagement to the intervention. Furthermore, the deliverers' personal characteristics were important to engage adolescents' better with the intervention. The dynamic nature of mental health played a significant part in whether adolescents wanted to come to the sessions or whether they enjoyed the sessions on any given week. This work provides novel insight into factors influencing engagement to a sport mental health programme. However, more research is needed to understand how engagement influences the effectiveness of sport and exercise interventions in enhancing the mental health of adolescents with mild to moderate mental health problems

## The Relationship between Cognitive Flexibility and Attained Senior Performance Levels of Youth Elite Soccer Players

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Gimme Five presentation 02: Talent identification/development & Well-being and quality of life & Social cognition & Youth, Hall New Orleans, Juli 17, 2024, 14:40 - 15:40

While researchers and practitioners attribute an important role to executive functions (EFs) for soccer performance, there is an ongoing debate about their empirical predictive relevance as a potential talent criterion (e.g., Furley et al., 2023). In particular, the transferability of related diagnostics to actual soccer performance and thus, the contribution of EFs to expertise remains unclear, as conflicting findings have been reported on associations between EFs and success in elite sport (e.g., Scharfen & Memmert, 2019). Therefore, this study aims to explore the potential prognostic value associated with the core EF of cognitive flexibility through regression analyses. Based on evidence for a higher validity of domain-specific tests to determine differences between higher and lower skilled athletes (meta-analysis by Kalén et al., 2021), we hypothesize a better prediction through sport-specific tasks. Given the age-dependent development of EF (e.g., Heilmann et al., 2022), we would also expect better predictability for older players as shown for general juvenile performance (see Barth et al., 2023). In 2019, we tested 77 players (Mage = 15.41, SDage = 1.38) of a German youth academy using the classical number-letter-task and an adapted version with a soccer-specific response (Musculus, Lautenbach et al., 2022). As an indicator of the players' development and expertise in soccer, we have tracked data on the leagues in which they are playing in the season of 2023/2024. Thus, the analyses contribute to the understanding of the extent to which cognitive flexibility can predict senior football performance and the prognostic value of domain-specific or domain-general tests. Data analysis is still in progress. Thus, results and practical implications will be presented at the conference. Regardless of the results, we acknowledge that solely considering EFs is insufficient to predict soccer expertise and intend to encourage discourse on the incorporation of cognitive data into multifaceted approaches.

Furley, P., Schütz, L. M., & Wood, G. (2023). A critical review of research on executive functions in sport and exercise. *International Review of Sport and Exercise Psychology*, 1-29.

Scharfen, H. E., & Memmert, D. (2019). Measurement of cognitive functions in experts and elite athletes: A meta-analytic review. *Applied Cognitive Psychology*, 33(5), 843-860.



Kalén, A., Bisagno, E., Musculus, L., Raab, M., Pérez-Ferreirós, A., Williams, A. M., ... & Ivarsson, A. (2021). The role of domain-specific and domain-general cognitive functions and skills in sports performance: A meta-analysis. *Psychological bulletin*, 147(12), 1290.

Heilmann, F., Wollny, R., & Lautenbach, F. (2022). Inhibition and calendar age explain variance in game performance of youth soccer athletes. *International journal of environmental research and public health*, 19(3), 1138.

Barth, M., Güllich, A., Macnamara, B. N., & Hambrick, D. Z. (2023). Quantifying the extent to which junior performance predicts senior performance in Olympic sports: a systematic review and meta-analysis. *Sports Medicine*, 1-10.

Musculus, L., Lautenbach, F., Knöbel, S., Reinhard, M. L., Weigel, P., Gatzmaga, N., ... & Pelka, M. (2022). An assist for cognitive diagnostics in soccer: two valid tasks measuring inhibition and cognitive flexibility in a soccer-specific setting with a soccer-specific motor response. *Frontiers in psychology*, 13, 1332.

## ‘One size fits all’ – or should it? An individualised approach to enhancing talent development environments

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Gimme Five presentation 02: Talent identification/development & Well-being and quality of life & Social cognition & Youth, Hall New Orleans, Juli 17, 2024, 14:40 - 15:40

**Objectives:** The non-linear, dynamic, and highly variable nature of talent development (TD) and the importance of environmental factors within TD is now widely acknowledged. Despite the emerging body of TD literature, a void exists concerning the development of interventions to enhance the TD environment (TDE). Intervention strategies previously utilised assume a ‘one size fits all’ approach and whilst this may help resolve generic problems within the TDE, it ignores the highly individualised nature of athlete development. Such approaches are simplistic in nature and arguably misguided when we consider the pervasive moderating effect of personality in most domains of human behaviour. Therefore, the aim of this study was to investigate an individualised approach to enhancing the TDE.

**Methods:** A mixed-method approach, incorporating the TDE questionnaire-5 (TDEQ-5) was administered to seven semi-professional rugby union players to help identify perceived areas for enhancement within the TDE. Semi-structured interviews based on the Holistic Ecological Approach and participant observations were used to provide further insight into the TDE. An athlete psychosocial survey was employed to capture insight into player’s psychological profile. Intervention plans were developed in accordance with TDEQ-5 responses with psychological profiles used to help inform and guide interventions.

**Results:** Results demonstrated tangible differences in the manner in which the TDE was influenced between individual players, according to their personality profiles. Findings revealed the benefits of adopting an individualised approach to enhancing the TDE.

**Conclusion:** This approach enables practitioners to develop bespoke interventions informed by players’ personality profiles, enhancing the likelihood of these interventions having an applied impact. Similarly, findings reinforce the value of coaches and practitioners having greater understanding of their athletes and the contexts that they practice and perform in. The framework may aid the development of individualised intervention strategies when aiming to enhance the TDE.

## Development and Field Test of a Survey to Measure Self-Presentation Concerns in Sport

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Gimme Five presentation 02: Talent identification/development & Well-being and quality of life & Social cognition & Youth, Hall New Orleans, Juli 17, 2024, 14:40 - 15:40

**Objectives:** The way we present ourselves to others can have significant implications for our outcomes in life (Goffmann, 1959). By conveying a certain impression to an individual or group, we hope to reach our desired objectives (Leary, 1992). Self-presentation concerns (SPC) relate to individuals' fears of being negatively evaluated by others. They are particularly relevant in sport and might have the potential to explain underlying factors of performance anxiety and choking. However, SPC in sport appear to lack a consistent definition, and likely subsequent, lack a set standard for their assessment. The aim of this study is to develop and test a comprehensive measure for the assessment of (trait) SPC in competitive sports.

**Methods:** In a first step, we identified 13 different measures from the literature and used their items to create an initial item pool of 247 items. In a second step, in two Delphi-rounds, we presented the item pool to four experts to pick the most suitable items for a preliminary item pool.

**Results:** Agreement between experts was very high on 51 items we then selected for further evaluation. This item pool is currently presented to a target sample of N=500 athletes and the data will be subjected to exploratory factor analyses.

**Conclusion:** With the new measure, we plan to test how self-presentation concerns are connected to individual factors, such as traits and needs, as well as situational factors like social stressors. We also want to investigate whether they precede different types of social state anxiety. Our intention is to show that self-presentation concerns are an interactional outcome and prerequisite for social state anxiety, which would make them a promising focus area for targeted interventions. By supporting individuals to deal with their self-presentation concerns we hope to uncover a new and time-efficient approach to treat social state anxiety.

Goffmann, E. (1959). *The presentation of self in everyday life*. New York: Doubleday.

Greendorfer, S. L. (1992). Sport socialization. In T. S. Horn (Ed.), *Advances in sport psychology* (pp. 201-218). Champaign, IL: Human Kinetics.

Leary, M. R. (1992). Self-Presentational Processes in Exercise and Sport. *Journal of Sport & Exercise Psychology*, 14, 339-351.

## Advancing Athlete Assessment: How to Improve Scouts' Judgments of Performance?

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Gimme Five presentation 02: Talent identification/development & Well-being and quality of life & Social cognition & Youth, Hall New Orleans, Juli 17, 2024, 14:40 - 15:40

**Objectives.** Research in selection psychology suggests that consistent combination of performance predictors -the cues- improves judgment accuracy<sup>1</sup>. How does this principle pertain to athlete assessment by scouts? To investigate this, we applied a classic model from human judgment research: The Lens Model<sup>2</sup>. We studied which weights a soccer scout assigns to cues (i.e., their weighing policy) when judging players, how consistently a scout weighs the cues across players, and whether their accuracy would have been higher if they weighed the cues with perfect consistency.

**Methods.** Eighteen scouts of a professional Dutch soccer club each provided 50 judgments of players' market value based on player profiles containing four skill ratings: tackling, intercepting, sprinting speed, and game insight (i.e., the cues). Multiple linear regression generated a 'model of the scout' reflecting the weighting policy of each scout. Consistency in cue weighting was calculated as the correlation between the observed judgments and predicted judgments from their model. The accuracy of the scout was calculated as the correlation between the scout's judgment and actual market value.

**Results.** Scouts showed inconsistency in the weighting of the skill ratings across players. Average judgmental accuracy was moderate ( $r = 0.61$ ). However, the scouts would have been significantly more accurate ( $r = 0.68$ ) if they had applied their own weighing policy consistently across all the players they judged ( $\Delta = .07$ ; 95% CI [.05; .09]).

**Conclusion.** This Lens Model study provides new insights into the sports setting: When a scout inconsistently applies weights to cues across athletes, they introduce a form of noise that reduces the accuracy of their judgments. To improve athlete assessment and selection, we recommend using a formula to combine performance cues to ensure consistency and reduce the noise introduced by human judgment.

1. Kuncel, N. R., Klieger, D. M., Connelly, B. S., & Ones, D. S. (2013). Mechanical versus clinical data combination in selection and admissions decisions: A meta-analysis. *Journal of Applied Psychology*, 98(6), 1060-1072. <https://doi.org/10.1037/a0034156>

2. Brunswick, E. (1952). *The Conceptual Framework of Psychology*. University of Chicago Press.

## How to facilitate and enhance thriving in high-performance athletes

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Gimme Five presentation 02: Talent identification/development & Well-being and quality of life & Social cognition & Youth, Hall New Orleans, Juli 17, 2024, 14:40 - 15:40

This study investigated the potential of interventions to enhance thriving among athletes, defined as the simultaneous perception of peak performance and well-being (Brown et al., 2018). Thriving is predicted by the satisfaction of basic psychological needs and challenge appraisal (Brown, Arnold, Standage, Turner, & Fletcher, 2021). Aiming to address the research gap, we explored whether interventions targeting these constructs could increase the experience of thriving. Specifically, we examined the effects of a 3-week intervention on subjective performance and subjective well-being in enhancing thriving. The intervention included ten exercises to satisfy basic psychological needs and six motivational general imagery exercises to facilitate challenge appraisal. A sample of 25 athletes from the Austrian national team in team gymnastics participated in a randomized control trial with a waiting list design. To assess thriving, well-being, and subjective performance, we analyzed responses to various questionnaires at four time points. Although no statistically significant interaction effects between group membership (intervention or control) and time (pre, mid, post, follow-up) were found, descriptive statistics indicated enhancements in thriving, well-being, and subjective performance over time and between groups for the intervention group. These trends align with previous research (Behzadnia & FatahModares, 2020; Brown et al., 2021; Hammond et al., 2012), suggesting a beneficial role for thriving-supportive exercises in athletic training. Future studies with larger samples are warranted to further investigate these findings. Nevertheless, an integration of thriving supportive exercises in athletic training could have benefits for performance athletes.

Behzadnia, B., & FatahModares, S. (2020). Basic Psychological Need-Satisfying Activities during the COVID-19 Outbreak. *Applied Psychology. Health and Well-Being*, 12(4), 1115–1139. <https://doi.org/10.1111/aphw.12228>

Brown, D. J., Arnold, R., Reid, T., & Roberts, G. (2018). A Qualitative Exploration of Thriving in Elite Sport. *Journal of Applied Sport Psychology*, 30(2), 129–149. <https://doi.org/10.1080/10413200.2017.1354339>

Brown, D. J., Arnold, R., Standage, M., Turner, J. E., & Fletcher, D. (2021). The prediction of thriving in elite sport: A prospective examination of the role of psychological need satisfaction, challenge appraisal, and salivary biomarkers. *Journal of Science and Medicine in Sport*, 24(4), 373–379. <https://doi.org/10.1016/j.jsams.2020.09.019>

Hammond, T., Gregg, M., Hrycaiko, D., Mactavish, J., & Leslie-Toogood, A. (2012). The Effects of a Motivational General-Mastery Imagery Intervention on the Imagery Ability and Sport Confidence of Inter-Collegiate Golfers. *Journal of Imagery Research in Sport and Physical Activity*, 7(1). <https://doi.org/10.1515/1932-0191.1066>

## Supporting a National Team during the Overwatch World Cup: Three Confessional Tales

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Gimme Five presentation 03: E-Sports & Exercise psychology & Group dynamics and team sports & Research methods (incl. qualitative & quantitative), Hall Tirol, Juli 18, 2024, 13:30 - 14:30

Many national sporting governing bodies have expanded their scientific support staff by integrating Sport Psychology Practitioners (SPPs) during the preparation and competitive phases of events such as the Olympic Games (see McCann, 2008), and World Cup (see McGregor & Winter, 2017). The performance domain of organised competitive digital gaming, known as “esports” also features World Cup and World Championship events across various game titles. One popular event watched by millions of spectators globally (Turtiainen et al., 2016) is the Overwatch World Cup. As in traditional sport, SPPs also offer support to Overwatch players and teams before and during international competitions. Yet, there is a lack of knowledge on how SPPs navigate the nuances of working within esports, apply their knowledge in this domain and adjust to the unique nature of these events in esports in the applied sport psychology literature. Therefore, the current case study provides three confessional tales, which aim to outline the unique experiences of two sport and exercise psychologists in training working with a national Overwatch team during the World Cup preparation period. To address the team’s lack of (a) team cohesion/dynamics; (b) players’ self-regulating strategies, and (c); role clarity, we devised a four-week programme of work to players. In the form of confessional tales, we share a series of critical reflections concerning the challenges and nuances we experienced delivering services within the esports context. Specifically, we discuss (a) the challenges associated with working within a limited time frame to deliver our services, (b) the misalignment in values experienced with organisation members, and (c) working with players without non-verbal communication due to the absence of visual cues. We conclude this case study by providing a series of recommendations for practitioners seeking to work with elite esports teams preparing for high-level competitions while delivering ethical and effective services.

McCann, S. (2008). At the Olympics, everything is a performance issue. *International Journal of Sport and Exercise Psychology*, 6(3), 267–276. <https://doi.org/bnhpcc>

McGregor, P., & Winter, S. (2017). A reflective case study of sport psychology support at the lacrosse World Cup. *Case Studies in Sport and Exercise Psychology*, 1(1), 40–51. <https://doi.org/jpqn>

Turtiainen, R., Friman, U., & Ruotsalainen, M. (2018). “Not only for a celebration of competitive overwatch but also for national pride”: Sportificating the overwatch World Cup 2016. *Games and Culture*, 15(4), 351–371. <https://doi.org/gd54ct>

## Understanding the Prevalence and Burden of Harassment Faced by Female Esports Players

Jessica Hayburn<sup>1</sup>, Gareth Jowett<sup>1</sup>, Adam Gledhill<sup>1</sup>

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Gimme Five presentation 03: E-Sports & Exercise psychology & Group dynamics and team sports & Research methods (incl. qualitative & quantitative), Hall Tirol, Juli 18, 2024, 13:30 - 14:30

**Background and Objectives:** The esports industry has continued to see exponential growth in recent years (Statista, 2023). Despite this growth, there are concerns about the experiences of women in esports, primarily female esports players. For example, women in esports often experience harassment and discrimination online (Ruvalcaba et al., 2018). Additionally, a recent non-academic, commercial survey also found almost 60% of female gamers have experienced abuse online, with 30% experiencing sexual harassment and exclusion from games (Bryter, 2020). Despite the clear presence of harassment within the esports industry, there is a lack of extensive, empirical research on the frequency and potential implications of such incidents specifically within esports literature on female players. This lack of research makes it challenging to fully comprehend the scale of the problem and develop effective strategies to address it. The aim is to investigate the extent of harassment experienced by female esports players and consequences on player performance and participation.

**Methods:** A cross-sectional design will be used to conduct a prevalence and burden study (Capili, 2021) on current female esports players to understand their experiences of harassment through esports participation. An online questionnaire will be implemented to assess and examine the overall frequency of harassment experienced by female players, and the subsequent burden associated with their willingness to participate in esports, potential time loss in participation from harassment, perceptions of gender identity, and their self-rated performance.

**Results:** Preliminary findings concerning the frequency of harassment and implications on female esports players will be discussed in the presentation.

**Conclusion:** The project intends to address the gap in quantitative literature on female esports players, and potentially encourage stakeholders and governing bodies to consider what steps can be taken to develop an environment in which women feel safe to thrive in esports.

Bryter. (2020). Bryter Female Gamer Survey. Bryter-Female-Gamers-Survey-2020-12.11.20-SHORT-no-quotes.pdf (womeningames.org).

Capili, B. (2021). Overview: Cross-Sectional Studies. *The American Journal of Nursing*, 121(10), 59-62. <https://doi.org/10.1097/01.NAJ.0000794280.73744.fe>

Ruvalcaba, O., Shulze, J., Kim, A., Berzenski, S. R., & Otten, M. P. (2018). Women's experiences in esports: Gendered differences in peer and spectator feedback during competitive video game play. *Journal of Sport and Social Issues*, 42(4), 295-311. <https://doi.org/10.1177/0193723518773287>

Statista. (2023). Esports - Worldwide. Esports - Worldwide | Statista Market Forecast.

## Understanding Clutch Moments in Sport: How do Athletes Perform Well Under Pressure?

Jacob Hufton<sup>1</sup>, A/ Stewart Vella<sup>1</sup>, Matthew Schweickle<sup>1</sup>

<sup>1</sup>Global Alliance Of Mental Health And Sport, University of Wollongong, Australia

Gimme Five presentation 03: E-Sports & Exercise psychology & Group dynamics and team sports & Research methods (incl. qualitative & quantitative), Hall Tirol, Juli 18, 2024, 13:30 - 14:30

**Objectives:** The term “clutch moment” has recently been used to refer to athletes performing successfully during important periods in sport (e.g., Hufton et al., 2023; Schweickle et al., 2021). Specifically, these moments are of high pressure to the athlete, where their performance may have significant impact on the outcome of the contest. Whilst the occurrence of these moments is crucial to athlete performance, few studies have qualitatively explored the specific factors that lead to these moments occurring. Accordingly, this study aimed to interview athletes after having recently performed well under pressure in a sporting event, to understand how, and in what contexts, clutch moments occur.

**Method:** Fourteen athletes, ranging in expertise from recreational to world class, participated in event-focused, semi-structured interviews soon after achieving a clutch moment. These interviews focused specifically on the context in which these athletes performed well under pressure, and the strategies and psychological factors preceding the occurrence of these moments. Data were analysed through reflexive thematic analysis (Braun & Clarke, 2019).

**Results:** Two themes were generated: (1) clutch moments occur in different sporting contexts (i.e., fast-paced, reactive environments, and self-paced, closed-setting environments); and (2) core antecedents of clutch moments (i.e., increased confidence, increased task-focused attention, and increased familiarity).

**Conclusion:** This study suggests that clutch moments can occur in both self-paced, and reactive sporting environments. Additionally, athletes considered clutch moments to be preceded by increased confidence, task-focused attention, and familiarity. Finally, athletes noted utilising varying strategies to enhance the abovementioned factors (e.g., imagery, pre-performance routines, self-talk). Potential limitations of the present study include the primarily Australian sample and the inability to generalise the findings outside the context of the sports studied. Future research should consider the occurrence of clutch moments in varying sports settings and explore how the abovementioned factors influence extended clutch performances.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(1), 589-597. <https://doi.org/https://doi.org/10.1080/2159676X.2019.1628806>

Hufton, J. R., Vella, S. A., & Schweickle, M. J. (2023). A qualitative exploration of coaches' perceptions of performance under pressure in sport. *Sport, Exercise, and Performance Psychology*, 12(4), 274-289. <https://doi.org/10.1037/spy0000324>

Schweickle, M. J., Vella, S. A., & Swann, C. (2021). Exploring the “clutch” in clutch performance: A qualitative investigation of the experience of pressure in successful performance. *Psychology of Sport and Exercise*, 54. <https://doi.org/10.1016/j.psychsport.2021.101889>

## Reflections on working with a sporting organisation in a participatory research approach to co-creating an organisational mental health intervention.

**Daniel Ogden**<sup>1</sup>, Jamie Barker<sup>1</sup>, Carolyn Plateau<sup>1</sup>

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Gimme Five presentation 03: E-Sports & Exercise psychology & Group dynamics and team sports & Research methods (incl. qualitative & quantitative), Hall Tirol, Juli 18, 2024, 13:30 - 14:30

**Objectives:** The key objectives of this presentation are to outline phases 1-3 of our Participatory Action Research (PAR) study and to reflect on the benefits, opportunities, and challenges of this methodological approach.

**Methods:** PAR focuses on bringing the people for whom the intervention aims to help into the creation process and working with them to collectively act and produce change that is beneficial for them within their context (Loewenson et al., 2014). Our PAR study is running through 4 phases, with reflections on phases 1-3 making up this presentation. During phase 1 we recruited and ran a focus group with an organisational steering group made up of key stakeholders where we discussed the topic and generated intervention goals. Phase 2 involved interviews and informal conversations with the wider organisation (e.g., players, support staff, key stakeholders) where we generated ideas about intervention content, format, and delivery. Phase 3 is currently ongoing and involves intervention development using the evidence base created in phases 1 and 2. Phase 4 will involve the steering group being presented with the proposed intervention and evaluating/refining the final product.

**Results:** Key challenges, benefits and opportunities arose associated with the PAR methodological approach to intervention development within a sporting organisation. Specifically, key reflections were gaining organisational buy in, participant recruitment and engagement, immersion, managing differences across different parts of an organisation, consent, insider vs outsider, flexibility and methodological approaches.

**Conclusion:** Two key takeaways from this novel research approach have been the powerful opportunity and benefit of immersion and informal conversations along with the challenges around recruitment and getting buy in and thus, the importance of flexibility and patience within the process. This presentation will provide key insights to other researchers and practitioners wishing to pursue this novel and powerful methodological approach, especially within a sporting context.

Loewenson, R., AC, L., C, H., D'Ambruoso, L., & Shroff, Z. (2014). Participatory Action Research in Health Systems: A Methods Reader.

## An Examination of the Inter-relationships Amongst Shared Athlete Leadership, Teamwork, and Thriving

**Eesha Shah**<sup>1</sup>, Rachel Arnold<sup>1</sup>, Lee Moore<sup>1</sup>, Shohei Takamatsu<sup>2</sup>, Yujiro Kawata<sup>3</sup>, Nicholas de Cruz<sup>4</sup>, Monique Adedeji<sup>4</sup>, Patricia Jackman<sup>5</sup>, Desmond McEwan<sup>6</sup>

<sup>1</sup>University of Bath, Bath, United Kingdom <sup>2</sup>Kobe Shinwa University, Kobe, Japan <sup>3</sup>Juntendo University, Chiba, Japan <sup>4</sup>University of Surrey, Guildford, United Kingdom <sup>5</sup>University of Lincoln, Lincoln, United Kingdom <sup>6</sup>University of British Columbia, Vancouver, Canada

Gimme Five presentation 03: E-Sports & Exercise psychology & Group dynamics and team sports & Research methods (incl. qualitative & quantitative), Hall Tirol, Juli 18, 2024, 13:30 - 14:30

**Objectives:** Athletic thriving can be observed through the joint experience of a high level of wellbeing and a perceived high level of performance. To facilitate thriving, researchers have focused on examining personal enablers (e.g., one's cognitions) and contextual enablers (e.g., social support). We propose a third type of enabler, group-based enablers. Two potential group-based enablers, shared athlete leadership and teamwork, have been found to contribute positively to team performance and members' wellbeing, though neither has been investigated in relation to thriving. Via their leadership, team members may influence teamwork and its behaviours which, in turn, may influence athletic thriving through direct and indirect pathways; the purpose of this study was to investigate these relationships. This study is underpinned by the conceptual framework for teamwork and team effectiveness in sport (McEwan & Beauchamp, 2014) which provides an appropriate input-mediator-outcome structure within which to explore the inter-relationships between shared athlete leadership (input), teamwork (mediator), and thriving (outcome). We hypothesised that (a) team members with higher perceived leadership quality would report higher thriving; (b) those with higher self-reported teamwork would report higher thriving; and, (c) teamwork would play a mediating role in the leadership-thriving relationship.

**Methods:** We adopted a quantitative cross-sectional design, measuring all variables at one point during teams' competitive seasons. We aimed to recruit at least 192 athletes, nested within their sports teams. Participants completed measures on perceived leadership quality (Fransen et al., 2020), teamwork (McEwan et al., 2023), satisfaction with one's performance, and wellbeing. A multilevel modelling approach will be undertaken to test each hypothesis.

**Results:** Data collection will be completed by May 2024, giving us enough time to discuss findings at FEPSAC.

**Conclusion:** Our findings could inform the service provision of practitioners in team sport to adjust leadership structures and teamwork behaviours to improve athletic thriving.

Fransen, K., Haslam, S. A., Steffens, N. K., & Boen, F. (2020). Standing out from the crowd: Identifying the traits and behaviors that characterize high-quality athlete leaders. *Scandinavian Journal of Medicine & Science in Sports*, 30(4), 766-786. <https://doi.org/10.1111/sms.13620>

McEwan, D., & Beauchamp, M. R. (2014). Teamwork in sport: a theoretical and integrative review. *International Review of Sport and Exercise Psychology*, 7(1), 229-250. <https://doi.org/10.1080/1750984x.2014.932423>

McEwan, D., Shah, E. J., Crawford, K. L., Jackman, P. C., Hoffmann, M. D., Cardinal, E., Bruner, M. W., McLaren, C. D., & Benson, A. J. (2023). The psychometric properties of two brief measures of teamwork in sport. *Journal of Sport & Exercise Psychology [Ahead of Print]*. <https://doi.org/10.1123/jsep.2023-0147>



# NETWORK MEETINGS

## European Network of Young Specialists in Sport Psychology (ENYSSP): 20 years and counting

Laur Nurkse<sup>1</sup>, Pia Zajonz<sup>2</sup>, Ionut Alexandru Iscru<sup>3</sup>, Helena Schmitz<sup>4</sup>, **Fabrizio Sors**<sup>5</sup>, Zsafia Szekeres<sup>6</sup>, Grzegorz Wieclaw<sup>7</sup>, Sanja Petric<sup>8</sup>, Evangelos Manolopoulos-Dekaris<sup>9</sup>, Bernadette Ramaker<sup>10</sup>

<sup>1</sup>Estonian Military Academy, Tartu, Estonia <sup>2</sup>Humboldt-University of Berlin, Berlin, Germany  
<sup>3</sup>Ovidius University of Constanta, Constanta, Romania <sup>4</sup>German Sport University Cologne, Cologne, Germany <sup>5</sup>University of Trieste, Trieste, Italy <sup>6</sup>Cardiff Metropolitan University, Cardiff, United Kingdom <sup>7</sup>Independent practice,, Poland <sup>8</sup>Independent practice,, Croatia <sup>9</sup>Independent practice,, Greece <sup>10</sup>Independent practice,, Netherlands

Network meeting (open) 02: Professional development and mentoring,  
Hall Strassburg Nord, Juli 16, 2024, 16:10 - 17:10

The purpose of the present meeting is to make students and young practitioners/researchers aware of the existence of a network that can actively support them in their pursuit of a career in the field of sport and exercise psychology. The idea to create a community for young specialists in sport psychology was born in 1999 during the FEPSAC Congress in Prague. The first managing council of the European Network of Young Specialists in Sport Psychology (ENYSSP) was elected in 2003 during the FEPSAC Congress in Copenhagen, and the statute was officially established in 2004. Since then, six managing councils have been in place, which were led by presidents Xavier Sanchez, Caroline Jannes, Fredrik Weibull, Peter Schneider, Grzegorz Wieclaw, and the current president Bernadette Ramaker. In 2017, ENYSSP was legalized as an international non-profit association according to EU Law. The aim of ENYSSP is to support up-and-coming specialists with an interest in education, research, and/or professional practice in the field of sport and exercise psychology by offering them possibilities to engage in an active role in this field. To achieve this aim, ENYSSP pursues various objectives, e.g., coordinating European links between young researchers, educators and professional practitioners, promoting and facilitating a cross-national cooperation for education, research and applied work in sport and exercise psychology, etc. During the meeting, the members of the current managing council will illustrate the activities and opportunities offered by ENYSSP, from the annual conference to various online services (e.g., peer consultation sessions, webinars, etc.). Moreover, they will also provide insights about how the association contributed to their professional – as well as personal – development. Backed by 20 years of experience, ENYSSP strives to contribute to the strengthening and professionalization of the field of sport and exercise psychology.

## Towards sustainable research and knowledge mobilization initiatives in safe sport research

**Sylvie Parent**<sup>1,2,3,4,6</sup>, Mrs Émilie Beley-Ranger<sup>1,2,3,4</sup>, Melanie Lang<sup>2,7</sup>, Ohlert Jeannine<sup>2,8</sup>, Ashley Stirling<sup>2,9</sup>, Tine Vertommen<sup>2,3,5,6</sup>

<sup>1</sup>Université Laval, Québec, Canada <sup>2</sup>Research Chair on Safety and Integrity in Sport/ Université Laval, Québec, Canada <sup>3</sup>Interdisciplinary Research Center on Intimate Relationship Problems and Sexual Abuse (CRIPCAS), Montréal, Canada <sup>4</sup>Équipe Violence Sexuelle et Santé (ÉVISSA), Montréal, Canada <sup>5</sup>Thomas More University of Applied Sciences, Antwerp, Belgium <sup>6</sup>International Research Network on Violence and Integrity in Sport, Antwerp, Belgium <sup>7</sup>Edgehill University, Edgehill, United Kingdom <sup>8</sup>German Sport University Cologne, Cologne, Germany <sup>9</sup>University of Toronto, Toronto, Canada

[Network meeting \(open\) 03: Sexual violence, sexual harassment and sexual abuse, Hall Strassburg Süd, Juli 17, 2024, 16:10 - 17:10](#)

**Introduction.** In recent years, we have witnessed a rapid growth in academic and social attention to interpersonal violence (IPV) against athletes in sport and also more generally to safe sport issues. This effervescence observed in our field amplifies an already crying need in our scientific community for the development of multidisciplinary scientific events, networking and association structures, and a common place for academic publication of scholarly research, collectively to support sustainable research networks, collaborations and knowledge mobilization in advancing safe sport. So far, these structures are limited and do not seem to meet the needs of the scientific community.

**Objectives.** The general objective of this network meeting is to create a space for discussion with researchers and graduate students working in the field of safe sport research, particularly with regard to structuring initiatives to promote research and knowledge mobilization in this field. More specifically, the objectives of the meeting will be to 1) present and discuss the status of the organization of the 1st International Congress on Safe Sport Research (ICSSR), 2) discuss the mission and role of an International Safe Sport Research Association and 3) discuss the development of a new scientific journal (International Journal on Safe Sport).

**Conclusion.** We believe that structuring scholarly initiatives to join forces and mobilize knowledge in the field of safe sport is an important milestone in optimizing research and the mobilization of research data in the sports community. The discussions held during this exchange will help guide the further work required to carry out these activities.

## The Development and Goals of the Specialist Certificate in Sport Psychology (EFPA)

**Chris Harwood**<sup>1</sup>, Rosaleen Mcelvaney<sup>2</sup>

<sup>1</sup>Nottingham Trent University, Nottingham, United Kingdom <sup>2</sup>Dublin City University, Dublin, Ireland

[Network meeting \(open\) 04: Best practice, Hall Aalborg, Juli 17, 2024, 16:10 - 17:10](#)

In collaboration with FEPSAC, the European Federation of Psychologists (EFPA) has formulated a specialist certificate in sport psychology for psychologists. At the EFPA Congress in Brighton 2023, the establishment of a EuroPsy Specialist Certificate in Sport Psychology and the recognition of 'Sport Psychology' as a field of practice were endorsed by the General Assembly of EFPA. This marked a significant milestone for the representation of sport psychology within EFPA. We invite colleagues from key international and national associations to this network meeting to learn about the development and discuss the future steps of the new S-EAC in Sport Psychology within EFPA.

## Sports psychology in the German soccer system

**Christoph Herr**<sup>1</sup>, Claire Schulz<sup>1</sup>, Jan Spielmann<sup>2</sup>, Christian Luthardt<sup>3</sup>, Moritz Hirmke<sup>4</sup>

<sup>1</sup>DFB-Akademie, Frankfurt a.M., Germany <sup>2</sup>TSG 1899 Hoffenheim, Zuzenhausen, Germany <sup>3</sup>FC Bayern München, Munich, Germany <sup>4</sup>University of Bamberg, Bamberg, Germany

Network meeting (open) 05: Elite sports and expertise,  
Hall Tirol, Juli 19, 2024, 14:40 - 15:40

Since the early 2000s, sports psychology has been a part of the German Soccer system. Today the DFB is one of the leading examples implementing a scientific-based concept of sports psychology in a soccer system. We want to give you an impression of our sport psychological work in national teams and the psychological program within the soccer coach education. We also want to discuss differences between a psychological work in national teams and soccer clubs. You will also get an overview of how to implement psychological diagnostics in team sports. We will be a team of five experts working in national teams, for the DFB and for professional soccer clubs like FC Bayern München or TSG Hoffenheim. Let's come together to share our experiences. After a short introduction of each speaker, we want to get in an exchange with you.

This network event is open to everybody who is interested in soccer, team sports, national teams, or sports associations.

Psychologie (dfb-akademie.de)

## Open network meeting: Law Enforcement And Performing under Pressure (LEAPP)

**Vana Hutter**<sup>1</sup>, Judith Andersen<sup>2</sup>

<sup>1</sup>Netherlands Study Center for Criminology and Law Enforcement (NSCR), Amsterdam, Netherlands <sup>2</sup>Health Adaptation Research on Trauma (HART) Lab, Department of Psychology, University of Toronto, Mississauga, Ontario, Canada

Network meeting (open) 06: Military, police and tactical populations,  
Hall Innsbruck, Juli 19, 2024, 14:40 - 15:40

Although police officers were always expected to perform under pressure, current changes in society add both pressure (e.g., heightened levels of terrorism threats, increased prevalence of mental health crises, emergence of frequent disruptive protests), and performance demands (e.g., scrutiny of police actions and calls for police reform, emphasis on de-escalation by police, various technological advancements adding to the action possibilities of both offenders and officers).

Both law enforcement agencies and scholars are increasingly interested in the role of stress in policing, and how to work with that. Interestingly, a substantial amount of researchers and practitioners have a background in sport psychology, thus embracing the idea of performance psychology for a broader population than athletes.

For this network meeting we invite anyone interested in performing under pressure in policing. We will present the LEAPP (Law Enforcement And Performing under Pressure) consortium that was founded last year in at the ESC in Florence and in which we would welcome additional partners. The main focus of the LEAPP consortium is on competencies needed to consistently perform under pressure, in the context of police.

The aim of the network is fourfold:

- Getting to know experts that are active, or have concrete plans to be active, in the area of performing under pressure in police.
- Introducing the LEAPP consortium and enable expansion of the consortium
- Present a Delphi study that we aim to undertake, and potentially enroll collaborators for the Delphi study
- Explore interest in partnership in a Marie Skłodowska-Curie Action grant (FEPSAC may be a partner in this effort as well, we are looking into that with the Managing Council)

# ORAL PRESENTATIONS

## The development of an evidence-based intervention to enhance the psychology of coaching adult athletes

**Bettina Callary**<sup>1</sup>, Catalina Belalcazar<sup>2</sup>, Scott Rathwell<sup>3</sup>, Bradley Young<sup>2</sup>

<sup>1</sup>Cape Breton University, Sydney, Canada <sup>2</sup>University of Ottawa, Ottawa, Canada <sup>3</sup>University of Lethbridge, Lethbridge, Canada

Oral presentation 01: Coaching & Professional development and mentoring,  
Hall Tirol, Juli 15, 2024, 13:30 - 14:30

**Objectives:** This presentation shows the comprehensive, stage-based development of an evidence-based intervention (EBI) from an adult-oriented sport coaching research program. A quality sport experience for adults includes mastery, feelings of empowerment and validation, intellectual stimulation, meaningful competition, testing oneself, and quality relationships (Young et al., 2021). These outcomes can be fostered through adult-oriented sport coaching practices, as defined by the Adult-Oriented Sport Coaching Survey (AOSCS; Rathwell et al., 2020). Using the AOSCS, coaches can reflect on how they support athletes' motives, and seek options for development (Callary et al., 2024).

**Methods:** From 2019-2023, the AOSCS was used with hundreds of coaches from 11 sport organizations in Canada, USA, Australia, and Colombia in a series of workshops (in-person/online) and group/individual debriefs. Fifty-nine coaches were interviewed to discuss their use, comprehension, and valuing of AOSCS content, the instrumentality of the workshop(s), and ideas for ongoing development. We conducted a content analysis that led to three developmental phases of the EBI.

**Results:** Phase one explored intervention formats in-person (pre-COVID). Phase two standardized the intervention as one online presentation, a scorecard and individual debriefs (during COVID). Phase three involved online workshops that included group debriefs. Across the phases, coaches claimed age-tailored coaching intervention were needed, noting an absence of adult sport specific coach education opportunities. A scorecard and debrief (phase two) helped with comprehension and interest in the AOSCS; however, coaches suggested using group debriefs instead (phase three). Coaches recommended an informational booklet that outlines their AOSCS approaches, the connections to quality sport outcomes for athletes (e.g., closeness, commitment, relatedness, autonomy), and how their approaches align with athletes' preferences.

**Conclusion:** It is important to consider future steps to sustain this intervention and improve its reach. This presentation offers valuable insights into a research-to-practice process that delivers tailored psychological coaching support to adult athletes.

Callary, B., Belalcazar, C., Rathwell, S., & Young, B. W. (2024). A self-reflective toolkit of adult-oriented coaching practices in masters sport. *International Sport Coaching Journal*, 11(1), 53-62. <https://doi.org/10.1123/iscj.2022-0069>

Rathwell, S., Young, B. W., Callary, B., Motz, D., Currie, C., & Hoffmann, M. D. (2020). The adult oriented sport coaching survey: A measurement tool designed to assess coaching behaviors tailored for adult athletes. *Journal of Sport and Exercise Psychology*. 42, 368-385 <https://doi.org/10.1123/jsep.2020-0031>

Young, B. W., Rathwell, S., & Callary, B. (2021). Giving Due Deliberation to Masters Athletes: The Time has Come. *SIRCUIT magazine*. Retrieved from <https://sirc.ca/blog/giving-due-deliberation-to-masters-athletes/>

## Pedagogical approaches to developing future practitioners' capacity to perform under pressure

**Charlotte Chandler**<sup>1</sup>, Andy Hooton<sup>1</sup>

<sup>1</sup>University Of Derby, Derby, United Kingdom

Oral presentation 01: Coaching & Professional development and mentoring,  
Hall Tirol, Juli 15, 2024, 13:30 - 14:30

**Objectives:** The presentation will share approaches to developing practitioners' capacity to perform under pressure as delivered on a postgraduate sport and exercise science (SES) programme of study. Postgraduate courses offer a concentrated period of contact time with students who are starting their journey into applied SES careers, and therefore the opportunity to deliver learning experiences that support their development as both people and practitioners.

**Theoretical background:** "Elite athletes do not live in a vacuum; they function within a highly complex social and organisational environment, which exerts major influences on them and their performances" (Hardy, Jones, & Gould, 1996, p. 239–240). The same is true for practitioners in a wide range of roles and contexts, and it is important that they are able to practice effectively within, and often in spite of, these complex environments. Effective practice in these contexts can be influenced by a practitioner's capacity to make decisions, manage their emotions, and cope with adversity – all of which can be considered representative of performing under pressure (Beilock & Gray, 2007).

**Approach:** The presentation will share insight into pedagogical approaches that support students to develop their capacity to perform under pressure. This will include an account of discussion-based teaching (Henning, 2008) and how it can encourage debate, reflection, and constructive challenge. Data from a pilot study on students' understanding of performance under pressure and self-compassion will also be shared.

**Results and discussion:** As educators, whilst we cannot expose students to the reality of high-performance environments, we can offer learning experiences that promote their self-awareness and develop their ability to cope when exposed to pressure within their careers. Providing a safe space for students to share ideas, be challenged, make mistakes, and reflect is key to their development and subsequent ability to be effective and remain accountable in pressured environments.

Beilock, S. L., & Gray, R. (2007). Why do athletes choke under pressure? In G. Tenenbaum & R. C. Eklund (Eds.), *Handbook of sport psychology* (pp. 425–444). John Wiley & Sons, Inc.

Hardy, L. J., Jones, G., & Gould, D. (1996). *Understanding psychological preparation for sport: Theory and practice of elite performers*. John Wiley & Sons

Henning, J. E. (2008). *The Art of Discussion-Based Teaching: Opening Up Conversation in the Classroom*. Routledge.

## Delivering ProjectSCORE in Portugal: Coaches' and Athletes' Perspectives

**Marta Ferreira**<sup>1,2</sup>, Fernando Santos<sup>1,3</sup>, Maria Fernández-Villarino<sup>2</sup>, Jason Mergler<sup>4</sup>, Leisha Strachan<sup>4</sup>, Dany J. MacDonald<sup>5</sup>

<sup>1</sup>Higher School Of Education Of The Polytechnic Institute Of Porto, Porto, Portugal <sup>2</sup>Faculty of Education and Sports Sciences, University of Vigo, Vigo, Spain <sup>3</sup>cinED, Centro de Investigação e Inovação em Educação, Escola Superior de Educação, Instituto Politécnico do Porto, Porto, Portugal <sup>4</sup>Faculty of Kinesiology and Physical Education, University of Manitoba, Manitoba, Canada <sup>5</sup>Department of Applied Human Sciences, University of Prince Edward Island, Prince Edward Island, Canada

Oral presentation 01: Coaching & Professional development and mentoring,  
Hall Tirol, Juli 15, 2024, 13:30 - 14:30

Researchers agree that sports provide a favourable environment for fostering positive youth development (PYD)<sup>3</sup>. Portuguese researchers have worked to offer coach education programs (CEPs) focused on PYD, aiming to provide coaches with essential skills for fostering PYD outcomes<sup>2</sup>. To develop CEPs, ProjectSCORE was created to help coaches cultivate confidence, competence, connections and character in athletes<sup>1,4,5</sup>. However, there is a significant gap in sport season research examining the long-term effects of ProjectSCORE on coaches and athletes. Conducting a study that allows for understanding the effectiveness of this program during a sporting season framework is needed. Therefore, the purpose of this study was to assess ProjectSCORE's effectiveness by tracking changes in coaches' and athletes' PYD perceptions. Several questionnaires were administered before and after the implementation of ProjectSCORE. Coaches completed the Portuguese Coaching Life Skills in Sport Questionnaire while athletes completed the (i) Prosocial and Antisocial Behavior in Sport Scale; (ii) the Sport-Confidence Inventory; (iii) the Coach-Athlete Relationship Questionnaire; and (iv) the Trait Robustness of Self-Confidence Inventory for athletes. Thirteen coaches (average age = 25,6 years; SD = 7) and 81 athletes (average age = 14,02 years; SD = 2,1) participated. A total of 71 practices were observed throughout a 21-week period between January and May 2023. Findings showed there were various positive changes in both coaches' and athletes' PYD perspectives. For instance, significant statistical differences when comparing coaches' intentionality toward life skills and life skills transfer from pre- to post-intervention were found. There were also statistically significant differences on the quality of coach-athlete relationships after ProjectSCORE implementation, especially on the commitment and complementarity subscales. However, for robust self-confidence levels and antisocial behavior related to opponents, there were no statistically significant differences. Moving forward, more PYD-focused CEPs are needed to further understand how to positively impact coaches' and athletes' PYD perceptions and behaviors.

This work is funded by SSRCH/SPRI, as well as National Funds through the FCT - Fundação para a Ciência e a Tecnologia, I.P., under the scope of the project UIDP/05198/2020 (Centre for Research and Innovation in Education, inED).

1.Bean, C. N., Kendellen, K., & Forneris, T. (2020). Moving beyond the gym: exploring life skill trans-



fer within a female physical activity-based life skills program. *Journal of Applied Sport Psychology*, 32(3), 273-290. <https://doi.org/10.1080/10413200.2015.1124155>

2. Camiré, M., Trudel, P., & Forneris, T. (2019). Coaching and positive youth development. In N. L. Holt (Ed.), *Positive youth development through sport* (2nd ed., pp. 117-128). Routledge.

3. Holt, N. L., Neely, K. C., Slater, L. G., Camiré, M., Côté, J., Fraser-Thomas, J., ... & Tamminen, K. A. (2017). A qualitative study of positive youth development in sport. *Journal of Sport Psychology in Action*, 8(1), 1-14. <https://doi.org/10.1080/1750984X.2016.1180704>

4. Strachan, L., MacDonald, D., & Côté, J. (2016). Project SCORE! coaches' perceptions of an online tool to promote positive youth development in sport. *International Journal of Sports Science & Coaching*, 11(1), 108-115.

5. Strachan, L., Santos, F., & MacDonald, D. (2020). Insights into creating and implementing Project SCORE!: lessons learned and future pathways. *Journal of Sport Psychology in Action*, 12(2), 114-126

## A case study of perceived change in coaching behaviour after participating in the “Growth Talent Mindsets for Sports Coaches’ Intervention”

**Dag André Nilsen**<sup>1,2</sup>, Lars Bjørke<sup>1</sup>, Anne Marte Pensgaard<sup>2</sup>, Thorsteinn Sigurjonsson<sup>1</sup>

<sup>1</sup>Inland Norway University Of Applied Sciences, Elverum, Norway <sup>2</sup>Norwegian School of Sport Sciences, Oslo, Norway

Oral presentation 01: Coaching & Professional development and mentoring,  
Hall Tirol, Juli 15, 2024, 13:30 - 14:30

A need to develop sport coaches' behaviours has been identified while it, at the same time, has been found difficult to change behaviour through education or interventions. To address this, we designed and developed the “Growth Talent Mindsets for Sports Coaches’ Intervention” (the GrowTMindS Intervention) through a two-part study, implemented into a coach education program to develop coaches' growth talent mindsets with appurtenant growth-promoting behaviour. Interpreting the quantitative and qualitative data indicated that the GrowTMindS Intervention 2.0 successfully altered the coaches' mindsets and developed their behaviour; however, considering the potential disconnect between the coaches' self-perceived behaviour and the athletes' experiences, there is uncertainty as to whether this change is real and to what extent it is perceived as positive. Against this background, we conducted a qualitative case study of perceived change in coaching behaviour, where the case is investigated through semi-structured interviews of two coaches recruited from the intervention and focus group interviews with their respective athlete groups consisting of nine athletes (5 girls; 4 boys) from 13 to 17 years of age. Drawing on collective qualitative analysis, the findings substantiate that the coaches developed their behaviour by embracing a new strategy for growth-promoting coaching. By adopting a metacognitive perspective, they became more aware of themselves and the significance of their coaching behaviour, leading them to take a stance on who they wanted to be. This involves a more athlete-centred coaching approach influencing how they, for instance, conduct training sessions and value athletes' improvement. Nonetheless, the athletes' experiences reveal some potential pitfalls associated with growth-promoting coaching related to a meticulous focus on minor details or challenges when working with athletes who may hold a more fixed mindset towards their talent. Results and conclusion will be presented, and coaching development and potential implications associated with coach behaviour will be discussed.

## A Systematic Review of the Nature and Efficacy of Rational Emotive Behaviour Therapy Interventions: A Sport and Exercise Focus.

**Jamie Barker**<sup>1</sup>, Miss Ailish King<sup>1</sup>, Martin Turner<sup>2</sup>, Paul Young<sup>1</sup>, Carolyn Plateau<sup>1</sup>

<sup>1</sup>Loughborough University, Loughborough, United Kingdom <sup>2</sup>Manchester Metropolitan University, Manchester, United Kingdom

Oral presentation 02: Clinical sport psychology, clinical issues in sport and physical activity & Emotion & Exercise psychology, Hall Freiburg, Juli 15, 2024, 13:30 - 14:30

**Objective:** In the absence of a comprehensive systematic review of Rational Emotive Behaviour Therapy (REBT) interventions, we reviewed the quality, effectiveness and efficacy of REBT interventions on irrational/rational beliefs.

**Methods:** PsycARTICLES, PsycINFO, Scopus, SPORTDiscus, and PubMed were systematically searched up to November 2023 and identified 162 REBT intervention studies that included a validated measure of irrational/rational beliefs. Quality was assessed via the Mixed Methods Appraisal tool (MMAT).

**Results:** Studies were assigned to one of seven domains (Education; n = 59; Hospital and community healthcare; n = 25); Organisational (n = 24); Sport and Exercise; n = 24); Self-identified healthcare need; n = 17; Relationships; n = 12; and Forensic; n = 1). Study quality was good within the Sport and Exercise domain but low for others, with insufficient detail provided on intervention characteristics and delivery. This presentation will focus on the outcomes for studies within the Sport and Exercise domain (n = 24). Most were of a non-randomised design (n = 18); with few randomised controlled trials (n = 4) or studies of mixed design (n = 2). Overall, studies within this domain reported significant reductions in irrational beliefs from pre-to-post intervention, which were typically of a large effect size. Visual analysis and single-case designs were common. It was noted that findings relating to rational beliefs were mixed. Those interventions successful at reducing irrational beliefs, or increasing rational beliefs, were typically delivered in-person, by trained REBT practitioners, which employed the GABCDE framework, and which incorporated cognitive and behavioural homework tasks.

**Conclusions:** This review highlights the value of REBT in supporting athletes with irrational beliefs. There are methodological lessons to be learned to drive up the quality of future REBT research. Researchers working in other domains can learn from the sport and exercise domain, where rigorous REBT research is being conducted.

## Climbing Anxiety Scale (CAS-20): Preliminary Development and Validation

**Maria Stefania Ione**<sup>1</sup>, Andrei Ion<sup>2</sup>, Dragos Iliescu<sup>2</sup>, Laura Visu-Petra<sup>1</sup>

<sup>1</sup>Department of Psychology, Babes-Bolyai University, Cluj-Napoca, Romania, Cluj-Napoca, Romania <sup>2</sup>Department of Psychology and Cognitive Science, University of Bucharest, Bucharest, Romania

Oral presentation 02: Clinical sport psychology, clinical issues in sport and physical activity & Emotion & Exercise psychology, Hall Freiburg, Juli 15, 2024, 13:30 - 14:30

Anxiety has been the primary focus of emotion research in sport psychology. Most of the existing anxiety measures focus on the competition related anxiety. Little is known about the way in which anxiety affects athletic outcomes in extreme sports. We contribute to the literature on anxiety in extreme sports by: (1) developing and providing a preliminary validation for a novel, theoretically anchored sport climbing inventory, Climbing Anxiety Scale (CAS-20), among an international sample of rock-climbers (N = 153); and (2) providing preliminary evidence on its factorial and criterion-related validity. Our investigation includes two phases. The first phase (6 clinical and sport psychology experts) included the development and expert review of a climbing specific anxiety scale. The second phase (N = 153) offers preliminary evidence pertaining to the measure's reliability ( $\omega = .94$ ), factorial, convergent and criterion related validity. Factorial validity was investigated by deploying a series of confirmatory factorial analyses (CFI = .92, RMSEA = .06, 90% C.I. [.05 - .08], SRMR = .06). Convergent and discriminatory validity (AVE = .51 for CAS-20) were examined by comparing the scale's associations with a general anxiety measure (Depression Anxiety Stress Scales Short Form; DASS-21), a sport anxiety measure (Sport Anxiety Scale-2; SAS-2), as well as climbing self-efficacy (Climbing Self-Efficacy Scale; CSES). Criterion-related validity was estimated by examining its relationship with various rock-climbing performance indicators (International Rock Climbing Research Association scale; IRCRA). CAS-20 negatively predicted various climbing performance indicators ( $\beta = -.07$ ,  $p < .05$ ) over and beyond climbing self-efficacy and sport anxiety. We contribute to the general domain of sport and athletic research by providing a preliminary validation of a sport-specific anxiety measure, investigating anxiety symptoms in rock-climbing, a high-risk sport. This preliminary scale could be used for assessing anxiety in climbing and monitoring the impact of interventions designed to reduce these symptoms.

Draper, N., Giles, D., Schöffl, V., Konstantin Fuss, F., Watts, P., Wolf, P., ... & Abreu, E. (2015). Comparative grading scales, statistical analyses, climber descriptors and ability grouping: International Rock Climbing Research Association position statement. *Sports Technology*, 8(3-4), 88-94. <https://doi.org/10.1080/19346182.2015.1107081>

Llewellyn, D. J., Sanchez, X., Asghar, A., & Jones, G. (2008). Self-efficacy, risk taking and performance in rock climbing. *Personality and Individual Differences*, 45(1), 75-81. <https://doi.org/10.1016/j.paid.2008.03.001>

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of

the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behaviour research and therapy, 33(3), 335-343. [https://doi.org/10.1016/0005-7967\(94\)00075-U](https://doi.org/10.1016/0005-7967(94)00075-U)

Smith, R. E., Smoll, F. L., Cumming, S. P., & Grossbard, J. R. (2006). Measurement of multidimensional sport performance anxiety in children and adults: The Sport Anxiety Scale-2. Journal of Sport and Exercise Psychology, 28(4), 479-501. <https://doi.org/10.1123/jsep.28.4.479>

## Professionalisation and Mental Health in Women's Sport: Insights from UK Women's Cricket

**Daniel Ogden**<sup>1</sup>, Jamie Barker<sup>1</sup>, Carolyn Plateau<sup>1</sup>, Tim Woodman<sup>3</sup>, Nicholas Peirce<sup>2</sup>, Thamindu Wedatilake<sup>2</sup>

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Oral presentation 02: Clinical sport psychology, clinical issues in sport and physical activity & Emotion & Exercise psychology, Hall Freiburg, Juli 15, 2024, 13:30 - 14:30

**Objectives:** The study's first objective was to explore stressors associated with the recent professionalisation of women's UK domestic cricket and the impact of these stressors on players' mental health. The study's second objective was to examine the key areas of consideration for supporting mental health within UK women's professional cricket to stimulate future research and offer practical recommendations for support specifically with respect to the unique context of a newly professionalised sport.

**Methods:** We conducted semi-structured online and phone interviews with eight current UK professional female cricketers age 18+ and six athlete support staff personnel (three physio's, two chief medical officer's and one sport psychologist). Participants spanned across all eight domestic regions. The study was completed during the 2022 season and participants fitting the criteria were accessed with the help of the ECB. We analysed the data through a reflexive thematic analysis.

**Results:** Data revealed that professionalisation of the women's game has provided players with career development opportunities. However, the transition has also resulted in unique stressors that have placed significant demands on players' mental health. Players revealed experiencing pressure to adhere to perceived professional standards, financial pressures, travelling, increased self-doubt and fear of failure, and discrimination and abuse via social media. Data identified key strategies for supporting elite female athletes' mental health within a newly professionalised women's sporting context.

**Conclusion:** This study highlighted that while professionalisation of UK women's domestic cricket has provided players with important career development pathways, the rapid transition to professional status among a young population has also negatively impacted female cricketer's mental health. Moreover, we offer novel insights into the key areas for supporting mental health within a newly professionalised women's sport.

## Study of the coach-athlete relationship in the context of Olympic wrestling competition: subjective experience and the implication of emotional competences.

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Oral presentation 03: Emotion,  
Hall Tirol, Juli 15, 2024, 14:40 - 15:40

**Objectives.** This case study aims to understand the link between the coach-athlete relationship (CAR), and the emotional competences (EC) of both actors, in an ecological context of Olympic wrestling competition. We use Jowett's "3+1Cs" model (2006), to grasp dimensions of the CAR, and the model of Mikolajczak et al. (2014) to emphasize the EC. The objective is to identify which EC (identify, understand, express, use, manage) of both individuals are applied and how, and what are the interactions with dimensions of CAR. Our approach considers subjective lived experience (Mouchet et al., 2019) of athletes and coaches.

**Method.** Four coach-athlete independent dyads (4 coaches, 4 athletes) taking part in the National French Championship are examined. We consider an external point of view (e.g. communication, gestures) with audiovisual record of matches, and a first-person point of view with explicitation interviews. Each participant chose a situation in the Championship where they perceived that CAR was linked to his or her performance. We categorized the interview verbatim (aim, acts, attentional content, decision-making background, internal state), then we crossed data from the sources of both coaches' and athletes' perceptions.

**Results.** Our results show that some EC, such as identification or management of emotions, are linked to the coach-athlete interaction, as well as performance. It seems that the objectives of coaches is to identify the emotions of their athletes, and manage them if needed. We analyzed that they also managed their own emotions to have a positive impact on the athlete. Athletes seemed to identify their coaches' emotions to see their approval and act accordingly. The dimensions of the CAR that were mobilized differ according to the situation.

**Conclusion.** These results will enrich studies about EC development. Moreover, we are proposing areas of work for coach training, to enhance CAR quality and contribute to performance.

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Mouchet, A., Morgan, K., & Thomas, G. (2019). Psychophenomenology and the explicitation interview for accessing subjective lived experience in sport coaching. *Sport, Education and Society*, 24(9), 967-980. DOI: 10.1080/13573322.2018.1495189

## The Cognitive 'Weight' of Body-Related Shame Among Adolescents

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Oral presentation 03: Emotion,  
Hall Tirol, Juli 15, 2024, 14:40 - 15:40

**Objectives:** Attention control is a key factor in recognizing short-term cues, decision-making, and skill execution during sport. Drawing on objectification theory (Fredrickson & Roberts, 1997) and empirical findings (Vani et al., 2023), body-related shame is a self-conscious emotion that may negatively impact attentional focus by constraining cognitive resources. Body-related shame is exacerbated in adolescence, but limited research has examined its association with reduced attention among adolescent sport participants. The present study addresses this gap by examining whether body-related shame is a predictor of attention among adolescents. **Methods:** Adolescents (N = 70, Mage = 14.46, 56.2% Girls) completed a questionnaire measuring body-related emotions using BASES (Castonguaya et al., 2014), and perceived attention using the attention control scale (Malgorzata & Douglas, 2010), administered on PsyToolkit. Power analysis was conducted using the pwr package in R. For a multivariate regression with three predictor variables, an effect size of .2, and a significance level of .05, a sample of 58 individuals will achieve a power of .8. Independent sample t-tests examined gender differences in attention and shame scores, and a multivariate regression model was used where perceived attention was regressed onto body related shame, controlling for gender and age. **Results:** Girls had significantly higher shame scores compared to boys ( $t(68) = -2.21, p = .01$ ), no significant gender differences were found in attention scores. Body-related shame predicted worse attention ( $\beta = .24, p < .001$ ). Gender ( $\beta = -0.03, p = .84$ ) and age ( $\beta = -0.08, p = .08$ ) were included as covariates and did not significantly influence the relation between shame and attention. **Conclusion:** Findings suggest that body-related shame may divert cognitive resources towards the body, thereby reducing resources available to attentional focus. Research efforts are needed to inform strategies and policies aimed at reducing body-related shame in sport.

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Malgorzata, F., & Douglas, D. (2010). Psychometric properties of attentional control scale: The preliminary study on a Polish sample, *Polish Psychological Bulletin*. <https://yadda.icm.edu.pl/cejsh/element/bwmeta1.element.d0258050-7194-359b-8ac2-1399d7aa1bc2>

Neumann DL. A Systematic Review of Attentional Focus Strategies in Weightlifting. *Front Sports Act Living*. 2019 Aug 9;1:7. doi: 10.3389/fspor.2019.00007. PMID: 33344931; PMCID: PMC7739707.

Vani, M. F., Lucibello, K. M., Welsh, T., & Sabiston, C. M. (2023). Body-related shame disrupts attentional focus over time in adolescence. *Journal of Adolescence*, 95, 1520-1527. <https://doi.org/10.1002/jad.12216>

## A multidisciplinary study exploring the association between daily self-conscious emotions and reaction time in adolescents: A Multilevel Regression Analysis

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Oral presentation 03: Emotion,  
Hall Tirol, Juli 15, 2024, 14:40 - 15:40

**Objectives:** Emotions are prioritized in mental processing and invoke automatic responses. Self-conscious emotions, which are particularly salient in sport (Vani, Murray, & Sabiston, 2021), are central to people's thoughts and behaviours. Some individuals may only occasionally experience self-conscious emotions; however, these emotions can occur in rare short bursts with serious consequences (Brown et al., 2009). The frequency and intensity of these short bursts are believed to have impacts on cognitive processes that are required for performance. The present study examines whether daily fluctuations in self-conscious emotions relate to performance in adolescents who engage in sport.

**Method:** On each of 4 days, adolescents (n = 80; 59% girls; mean age = 14) completed self-report single-item measures for self-conscious emotions (guilt, shame, envy, and embarrassment) and then a hand laterality task (identify whether the image of a hand in different orientations was a right or left hand as quickly and accurately as possible; Boonstra et al., 2012). Data were analyzed using multilevel regression models. Controlling for age, reaction time scores were regressed on self-conscious emotions in separate models. A random effect (random intercepts and fixed slopes) was included to account for individuals completing measures on multiple occasions.

**Results:** Results indicate that adolescents had longer reaction times on the days they experienced higher levels of body-related envy (b = 30, 95%CI [3, 58]) and higher levels of body-related embarrassment (b = 28, 95%CI [0, 56]). Shame and guilt did not significantly relate to reaction time.

**Discussion:** This study is consistent with previous research indicating body image factors may significantly relate to indicators of athletic performance (Cox et al., 2020). The findings also offer theoretical consistency with objectification theory, and highlight the need to address body image factors to promote optimal performance.

Boonstra, A. M., de Vries, S. J., Veenstra, E., Tepper, M., Feenstra, W., & Otten, E. (2012). Using the hand laterality judgement task to assess motor imagery: a study of practice effects in repeated measurements. *International journal of rehabilitation research*, 35(3), 278-280.

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Cox, E., Sabiston, C. M., Karlinsky, A., Manzone, J., Neyedli, H. F., & Welsh, T. N. (2020). The impact of athletic clothing style and body awareness on motor performance in women. *Psychonomic Bulletin & Review*, 27, 1025-1035.

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## Do Soccer Experts Benefit from Virtual Reality for Tactical Memorization? Exploring the Moderating Effect of Visuospatial Abilities

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Oral presentation 04: Cognition,  
Hall Freiburg, Juli 15, 2024, 14:40 - 15:40

**Objectives:** Virtual reality (VR) is increasingly being used for sports purposes, including tactical learning (Richlan et al., 2023; Yunchao et al., 2023). However, the instructional efficiency of this emerging technology remains unclear, especially when considering learners' cognitive abilities, such as visuospatial abilities (VSA). This study aimed to investigate the role of VSA in memorizing soccer tactics under immersive (VR) and non-immersive (animation) conditions. **Methods:** The experiment involved a group of fifty-two adult male soccer experts. Participants' static and dynamic VSA were initially assessed through six computerized tasks specifically designed for this purpose (Ben Mahfoudh et al., 2022). Subsequently, participants were tasked with memorizing and reproducing tactical soccer scenes in VR and animation formats. Three variables namely, the number of repetitions, the perceived mental effort, and the recall accuracy were considered to calculate learning efficiency (Tuovinen & Paas, 2004). **Results:** In line with the ability as enhancer hypothesis (Kühl et al., 2022), the findings unveiled a significant interaction, suggesting that only experts with high-VSA benefited from virtual reality in memorizing scenes. Conversely, experts with medium- and low-VSA demonstrated reduced efficiency in memorizing scenes through VR. **Conclusion:** Findings suggest that coaches should pay attention when using new technologies such as VR and consider individuals' levels of VSA to improve their communication and learning sessions.

Ben Mahfoudh, H., Zoudji, B., & Pinti, A. (2022). The contribution of static and dynamic tests to the assessment of visuospatial abilities among adult males. *Journal of Cognitive Psychology* (Vol. 34, Issue 5, pp. 647-656). Informa UK Limited. <https://doi.org/10.1080/20445911.2022.2029460>

Kühl, T., Fehrer, B. C. O. F., & Münzer, S. (2022). Unifying the Ability-as-Compensator and Ability-as-Enhancer Hypotheses. *Educational Psychology Review* (Vol. 34, Issue 2, pp. 1063-1095). Springer Science and Business Media LLC. <https://doi.org/10.1007/s10648-021-09650-5>

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Yunchao, M., Mengyao, R., & Xingman, L. (2023). Application of virtual simulation technology in sports decision training: a systematic review. In *Frontiers in Psychology* (Vol. 14). Frontiers Media SA. <https://doi.org/10.3389/fpsyg.2023.1164117>



## Prior Self-Control Exertion and Repeated Sprint Performance

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Oral presentation 04: Cognition,  
Hall Freiburg, Juli 15, 2024, 14:40 - 15:40

**OBJECTIVES:** The exertion of self-control has been associated with impaired performance on a number of subsequent physical tasks also requiring self-control, including endurance and skill-based tasks (Hunte et al., 2021). Motivation has been suggested as a potential mechanism that may explain why this occurs. However, it remains unknown whether repeated sprint exercise performance is negatively affected by the prior exertion of self-control. Therefore, two studies examined whether prior self-control exertion reduces performance on a repeated sprint task and potential mechanisms for these effects.

**METHODS:** The studies involved 19 male participants each. The participants competed either a repeated sprint cycling task (Study 1) or a repeated sprint running task (Study 2) on two occasions. The tasks involved 5x6s sprints, with a 24s passive recovery between each sprint. Prior to the exercise tasks, participants completed a congruent Stroop task (non-self-control exertion) or an incongruent Stroop task (self-control exertion) for 4 min. Participants motivation was recorded following each sprint (6 time-points in total).

**RESULTS:** Repeated measures ANOVAs (self-control\*time) revealed that there was no significant interaction effect for peak power ( $p=.625$ ), average power ( $p=.862$ ), distance covered ( $p=.441$ ), and cadence ( $p=.984$ ) during the cycling task (Study 1). Similar results were revealed in Study 2, whereby there was no significant interaction effect for peak power ( $p=0.47$ ) or speed ( $p=0.86$ ) during the running task. Furthermore, in Study 2, there was a significant main effect for overall motivation ( $p=.030$ ), whereby motivation was lower in the self-control exertion condition ( $12.06\pm 3.66$ ) compared to the non-self-control condition ( $12.96\pm 3.24$ ).

**CONCLUSION:** The findings suggest that the prior exertion of self-control leads to reduced motivation during a repeated running sprint task. However, there was no difference in performance on the repeated sprint exercise tasks between the self-control and non-self-control exertion trials. Reasons for this could be due to the short duration of the sprint tasks.

Hunte, R., Cooper, S. B., Taylor, I. M., Nevill, M. E., & Boat, R. (2021). The mechanisms underpinning the effects of self-control exertion on subsequent physical performance: A meta-analysis. *International Review of Sport and Exercise Psychology*. doi: 10.1080/1750984X.2021.2004610

## General cognitive skills, sport-specific decision-making, and in-situ observations: Is elite youth soccer players' performance in NeurOlympics associated to soccer-specific decision-making?

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Oral presentation 04: Cognition,  
Hall Freiburg, Juli 15, 2024, 14:40 - 15:40

Cognitive skills are critical performance factors (Höner et al., 2023) and may also be relevant to consider as talent predictors in youth soccer players (Williams et al., 2020). However, it remains a scientific debate whether general cognitive skills assessed using tests with sport-unspecific stimuli are related to sports performance (Kalén et al., 2021), and in the applied field general cognitive diagnostics with unknown psychometric properties and empirical links to soccer performance are being used. One of these is NeurOlympics (BrainsFirst, 2024), a test battery consisting of four tests measuring working memory, anticipation, cognitive control, and attention. This study investigates the association of NeurOlympics with soccer-specific decision-making. Youth Academy soccer players ( $N=50$ ,  $Mage=12.17$ ) completed NeurOlympics yielding in performance scores of each subtest and an overall score (FI-score). Players' decision-making performance was assessed via a soccer-specific 360°-video-test (Höner et al., 2023) and observed as in-situ performance in small-sided-games (6 vs. 6) via the Game Performance Evaluation Tool (GPET; Garcia-Lopez et al., 2013). Two separate two-step hierarchical regression analyses were conducted to investigate the association between NeurOlympics and each decision-making performance. In both models, age was included in step 1 as a covariate. In step 2 either the four subtests' scores or the overall FI-score were included (stepwise procedure) as predictors for the respective decision-making performance. Neither any subtest nor the FI-score explained soccer-specific decision-making performance assessed by the 360°-video-test (all subtests  $p>.11$ ; FI score:  $p=.23$ ) or by the in-situ observation (all subtests  $p>.40$ ); FI-score:  $p=.62$ ) beyond age (360°-video: adj.  $R^2=.20$ ,  $F(1,45)=12,435$ ,  $p<.001$ ; in-situ: adj.  $R^2=-.01$ ,  $F(1,45)=0.572$ ,  $p=.50$ ). These results add to literature showing no link between general cognitive tests and soccer-specific performance (e.g., van Maarseven, 2017). However, more research is warranted to shed further light on the psychometric properties of popular general cognitive tests and their relationship to soccer-specific cognition and performance.

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Höner, O., Dugandzic, D., Hauser, T., Stügelmaier, M., Willig, N., & Schultz, F. (2023). Do you have a good all-around view? Evaluation of a decision-making skills diagnostic tool using 360° videos and head-mounted displays in elite youth soccer. *Frontiers in Sports and Active Living*, 5, 1171262.

Höner, O., Larkin, P., Leber, T., & Feichtinger, P. (2023). Talent identification and development in

sport. In *Sport and exercise psychology: Theory and application* (pp. 549-581). Cham: Springer International Publishing

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van Maarseveen, M. J., Oudejans, R. R., Mann, D. L., & Savelsbergh, G. J. (2018). Perceptual-cognitive skill and the in situ performance of soccer players. *Quarterly journal of experimental psychology*, 71(2), 455-470.

## The effect of mental fatigue on sprint tasks with varied cognitive demands

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Oral presentation 04: Cognition,  
Hall Freiburg, Juli 15, 2024, 14:40 - 15:40

**Objectives:** Mental fatigue has been found to impact both subsequent cognitive tasks and physical performance. This study aimed to investigate performance in the same physical task with different levels of cognitive demand when mentally fatigued. To differentiate whether a task with higher cognitive demand prompts greater performance impairments when mentally fatigued, the demands of the physical task were varied. Task motivation was recorded as an individual's motivation might mitigate the performance impairments of mental fatigue (Marcora, 2008).

**Methods:** Participants (N=13) completed either a mentally fatiguing or a neutral task before undertaking three different types of sprints: straight, change of direction, and reactive agility. Time to completion and reaction time after the start signal were measured. Additionally, mental fatigue, heart rate, perceived level of exertion, and motivation were collected after the initial tasks and the different sprint bouts. A linear mixed model examined the effect of mental fatigue on performance.

**Results:** There was no significant interaction effect between condition (mental fatigue and neutral) and sprint type  $F(2,370) = 1.61, p = 0.202$  for sprint performance, suggesting that the change in performance between SS, COD, and RAT was similar across both conditions. There was also no significant main effect for condition ( $p > .05$ ). Motivation was higher in the fatigue condition,  $p = 0.007$ . Data processing for reaction time is ongoing.

**Conclusion:** Upon inducing mental fatigue, performance of sprints with varying cognitive loads appears to be unaffected and motivation emerged as a potential moderating factor. The overall low cognitive demand for anaerobic tasks in contrast to potentially more cognitively demanding aerobic tasks should continue to be explored in this area of research.

Marcora, S. M. (2008). Do we really need a central governor to explain brain regulation of exercise performance? *European Journal of Applied Physiology*, 104(5), 929-931.

Pageaux, B., & Lepers, R. (2018). The effects of mental fatigue on sport-related performance. *Progress in brain research*, 240, 291-315.

## Understanding youth soccer players' enjoyment and the children-to-youth sport transition: A mixed methods study

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Oral presentation 05: Youth,  
Hall Igls, Juli 15, 2024, 16:10 - 17:10

**Objectives:** Enjoyment is a crucial part of the experience for young soccer players (e.g., Gardner, Magee, et al., 2017; Van Yperen et al., 2022). The aim of this mixed methods study was to investigate the enjoyment of youth soccer players and the children-to-youth sport transition. Firstly, we investigated the association between motivational factors and enjoyment among soccer players who had recently made the transition. Secondly, we examined how they experienced the transition and how their enjoyment can be affected by changes in the transition.

**Methods:** The quantitative part comprised 214 soccer players (28.2% girls), with a mean age of 12.56 years, who completed a questionnaire. Structural equation modeling was utilized to analyze the data. The results of the quantitative analysis informed the selection of participants for qualitative interviews in the next part. A total of 10 soccer players (6 boys and 4 girls) who reported varying levels of enjoyment were interviewed. Thematic analysis was used to analyze the qualitative data.

**Results:** The study found that the expectation of success and the mastery-approach goal were positively related to enjoyment. Qualitative data also revealed that players found enjoyment in their love for the sport, spending time with friends, and the opportunity to learn and improve their skills. Moreover, the study found that players experienced a heightened sense of seriousness as they transitioned, which may have a negative impact on their enjoyment.

**Conclusion:** The enjoyment of youth soccer is a complex phenomenon. Multiple sources of enjoyment indicate that soccer is an arena where players thrive. However, the increased seriousness may have implications for their enjoyment.

Gardner, L. A., Magee, C. A., & Vella, S. A. (2017). Enjoyment and behavioral intention predict organized youth sport participation and dropout. *Journal of physical activity and health*, 14(11), 861-865. <https://doi.org/10.1123/jpah.2016-0572>

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## The moderating role of appearance self-concept in the relationship between sport participation and flourishing among adolescents: A COMPASS Study

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Oral presentation 05: Youth,  
Hall Igls, Juli 15, 2024, 16:10 - 17:10

**Objectives:** Despite the noted benefits of sport participation on adolescent mental health (Eime et al., 2013; Panza et al., 2020), limited evidence has explored how different sport contexts relate to flourishing over time. Furthermore, theoretical tenets and empirical evidence support that variability in body-appearance pressures within sport can impact the positive influence of sport on mental health and well-being (Petrie & Greenleaf, 2012; Scott et al., 2022). The present study examined the association between different contexts of sport participation (varsity, school intramural, outside school) and flourishing in adolescents over time and explored the moderating role of appearance self-concept.

**Methods:** Canadian adolescents from the COMPASS study completed self-report surveys in 2017/2018 (T1) and 2018/2019 (T2) (N = 28,117, T1 Mage±SD = 14.74±1.16 years, 53.61% female). Prospective associations between T1 sport participation, T1 appearance self-concept, (Marsh, 1990), and T2 flourishing (Diener et al., 2010) were tested using sex-stratified multilevel linear regression models. Depressive symptoms, concurrent sport participation, race, age, and weight perceptions were included as covariates.

**Results:** For females and males, varsity [B = .19 (.19), B = .20 (.16), respectively] school intramural [B = .42 (.19), .52 (.15)], and outside of school sport [B = .69 (.18), .72 (.16)] was associated with higher flourishing. Poorer appearance self-concept was also associated with lower flourishing [B range = -3.62 (.25) to -.89 (.19)]. The interaction between sport participation and appearance self-concept was not statistically significant for any models (p > .05).

**Conclusions:** Sport participation and higher appearance self-concept related to higher flourishing one year later among males and females, with particularly robust associations for appearance self-concept. Understanding aspects of the sport context that may be harnessed to optimize its impact of sport on flourishing, as well as ways to improve appearance self-concept, may be beneficial for improving flourishing over time among adolescents.

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Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: Informing development of a conceptual model of health through sport. *International Journal of Behavioral Nutrition and Physical Activity*, 10(1), 1-21.

Marsh, H. W. (1990). *SDQ II manual: self description questionnaire – II*. University of Western. Sydney.

Panza, M. J., Graupensperger, S., Agans, J. P., Doré, I., Vella, S. A., & Evans, M. B. (2020). Adolescent sport participation and symptoms of anxiety and depression: A systematic review and meta-analysis. *Journal of Sport & Exercise Psychology*, 42(3), 201-218. <https://doi.org/10.1123/jsep.2019-0235>

Petrie, T. A., & Greenleaf, C. (2012). Eating disorders in sport. In S. M. Murphy (Ed.), *The Oxford handbook of sport and performance psychology* (pp. 635–659). Oxford University Press.

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<https://doi.org/10.1016/j.bodyim.2022.08.013>

## Psychological characteristics and skills needed to progress through youth academy football: Player, parent, coach and support staff perspectives.

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Oral presentation 05: Youth, Hall Iglis, Juli 15, 2024, 16:10 - 17:10

**Objectives:** Researchers have explored the psychological characteristics and skills important for youth football performance (e.g., Dohme et al., 2019; Wachsmuth et al., 2023). However, the characteristics and skills needed at different stages of development, and players, parents, coaches, and support staff

perspectives of the importance of these characteristics and skills, is unclear. Thus, the purpose of the current study was to explore the psychological characteristics and skills necessary for progression through youth academy football from the perspective of players, parents, coaches, and support staff.

**Methods:** A single case study approach was adopted (Yin, 1995), with data collection and analysis following the guidance of Interpretive Description (Thorne, 2016). Data were collected through interviews with coaches and support staff working with Under 9 to Under 21 players, and focus groups with players (aged 8-21 years) and parents. Additional data were collected through observation by the researcher over a 6-month period (totalling approximately 600 hours).

**Results:** Some key characteristics and skills were deemed important by all participant groups including emotional control, self-awareness, and hard-work ethic. However, there were some differences based on development stage and participant group. For example, parents of younger athletes felt that characteristics like leadership and confidence were most important and parents of older athletes expressed concerns about their sons having skills necessary to navigate complex situations (e.g., de-escalation skills during team conflict), whereas coaches thought all ages needed mental toughness. Older players mentioned situations in which certain characteristics and skills would be required (e.g., deselection, injury), but had difficulty expressing what characteristics and skills would be beneficial beyond self-confidence.

**Conclusion:** There is a lack of alignment and understanding regarding characteristics and skills perceived as necessary to progress through youth academy football. Thus, further education for players and significant others regarding psychological characteristics and skills would likely be beneficial.

Dohme, L. C., Piggott, D., Backhouse, S., & Morgan, G. (2019). Psychological Skills and Characteristics Facilitative of Youth Athletes' Development: A Systematic Review. *Sport Psychologist*, 33(4), 261–275. <https://doi.org/10.1123/tsp.2018-0014>

Thorne, S. (2016). *Interpretive description: Qualitative research for applied practice*. Routledge.

Wachsmuth, S., Feichtinger, P., Bartley, J., & Höner, O. (2023). Psychological characteristics and future success: A prospective study examining youth soccer players at different stages within the German talent development pathway. *Journal of Applied Sport Psychology*. <https://doi.org/10.1080/10413200.2023.2224868>

Yin, R. (1995). *Application of case study research*. Sage.

## Youth Engagement Framework for Sport

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Oral presentation 05: Youth,  
Hall Igls, Juli 15, 2024, 16:10 - 17:10

Objective: Engaging youth through advisory groups is paramount, facilitating the integration of their multifaceted perspectives, experiences, and voices into decision-making processes (Collins et al., 2020). Despite the growing recognition of youth advisories, scholarly literature currently lacks comprehensive evidence-based practices tailored specifically to youth engagement within the realm of sport. In light of this, the current study aims to develop evidence-informed youth engagement practices tailored to sporting contexts. Methods: A systematic literature review of mental health and youth engagement, and case studies, were used to inform the development of a youth engagement framework for Sport (Chan et al., 2021; Darnay et al., 2019; Haddad et al., 2022; Heffernan et al., 2017; McCabe et al., 2023; Sellars et al., 2021). Results: The framework encompasses several key components, notably the incorporation of a diversity skills and competency matrix to ensure diverse identity factors are chosen, alongside guidelines delineating youth engagement levels across research or community-based initiatives. Ultimately, this framework serves as a guiding resource for future youth advisory groups, providing insights on effective youth engagement strategies, establishing clear terms of reference, cultivating group norms and values, and maintaining sustained engagement over time. Conclusion: Engaging youth in decision-making processes not only grants sport organizations and researchers invaluable insights into youths' distinct needs, preferences, and barriers, but also ensures that policies, programs and initiatives are tailored to address their unique perspectives, fostering a positive and supportive sporting environment. By grounding these practices in evidence from both within and outside of the sporting domain, this framework offers a robust foundation for enhancing youth engagement in sport organizations.

Arunkumar, K., Bowman, D. D., Coen, S. E., El-Bagdady, M. A., Ergler, C. R., Gilliland, J. A., ... & Paul, S. (2018). Conceptualizing youth participation in children's health research: insights from a youth-driven process for developing a youth advisory council. *Children*, 6(1), 3.

Chan, M., Scott, S. D., Campbell, A., Elliott, S. A., Brooks, H., & Hartling, L. (2021). Research and health-related youth advisory groups in Canada: An environmental scan with stakeholder interviews. *Health Expectations*, 24(5), 1763-1779.

Collins, T. M., Jamieson, L., Wright, L. H., Rizzini, I., Mayhew, A., Narang, J., ... & Ruiz-Casares, M. (2020). Involving child and youth advisors in academic research about child participation: The Child and Youth Advisory Committees of the International and Canadian Child Rights Partnership. *Children and Youth Services Review*, 109, 104569.

Darnay, K., Hawke, L. D., Chaim, G., & Henderson, J. L. (2019). *INNOVATE research: youth engagement guidebook for researchers*. Toronto, Canada: Centre for Addiction and Mental Health, 76.

Heffernan, O. S., Herzog, T. M., Schiralli, J. E., Hawke, L. D., Chaim, G., & Henderson, J. L. (2017). Implementation of a youth-adult partnership model in youth mental health systems research:

Challenges and successes. *Health Expectations*, 20(6), 1183-1188.

McCabe, E., Amarbayan, M., Rabi, S., Mendoza, J., Naqvi, S. F., Thapa Bajgain, K., ... & Santana, M. (2023). Youth engagement in mental health research: a systematic review. *Health Expectations*, 26(1), 30-50.

Sellars, E., Pavarini, G., Michelson, D., Creswell, C., & Fazel, M. (2021). Young people's advisory groups in health research: scoping review and mapping of practices. *Archives of disease in childhood*, 106(7), 698-704. <https://doi.org/10.1136/archdischild-2020-320452>



## The Application of Transactional Analysis model of Ego States to Inner Talk and Injunctions for Better Performance in Competition

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Oral presentation 06: Consulting/counselling & Coaching,  
Hall Freiburg, Juli 15, 2024, 16:10 - 17:10

Transactional Analysis (TA) is a psychological model that examines human behavior through the lens of three ego states: Parent, Adult, and Child. These ego states represent different modes of thinking, feeling, and behaving. Applying TA to sport psychology can help athletes and coaches understand and improve performance by recognizing and managing these ego states. In this presentation, this model will be elaborated upon, aiming to convey the essence to people in a more accessible manner. The objective is to offer a comprehensive understanding of the implications of these model in the field and their application in sports practices. Examining Critical Parent, Nurturing Parent, Adult, Adaptive Child, Rebellious Child and Free Child as featured elements of the model, their interactions unveil inner dynamics within the individual. This analysis, already established, carries implications for sports performance and the influence of these states on an individual's engagement in sports. For example if the player's internalized voice might be harshly criticizing their every mistake, leading to increased anxiety and self-doubt, that means that he is in his Critical Parent Ego State, Adult, might be clouded by anxiety, making it challenging to analyze situations, strategize, or make decisions effectively and if Rebellious Child is in control, the player might display impulsive behavior, reacting emotionally to mistakes or challenges, leading to a loss of focus.

In Transactional Analysis, injunctions refer to early, often unconscious, and limiting messages or beliefs that individuals receive from significant authority figures, typically during childhood. These injunctions can influence ego states and contribute to patterns of behavior. Integrating the concept of injunctions into the sport psychology scenario adds another layer to understanding and addressing performance challenges. By incorporating the concept of injunctions into the analysis, sport psychologists can help athletes identify and challenge deep-seated beliefs that may be contributing to performance anxiety or other mental barriers.

Berne, E. (1947). *The mind in action*. New York, NY: Simon and Schuster

Clarkson, P. (1992). *Transactional analysis psychotherapy: An integrated approach*. London, England: Routledge.

Clark, B. (1991). Empathic transactions in the deconfusion of the child ego state. *Transactional Analysis Journal*, 21, 92-98.

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Goulding, M. M., & Goulding, R. L. (1979). *Changing lives through redecision therapy*. New York, NY: Brunner/Mazel

Ian Stewart, Vann Joines. (1987). *TA Today-A New Introduction to Transactional Analysis*. Lifespace Publishing, Nottingham, U.K.

James, M., & Jongeward, D. (1971). *Born to win: Transactional analysis with gestalt experiments*. Reading, MA: Addison-Wesley.

Slater, S. (2002). Using transactional analysis in sports coaching. *Transactional Analysis Journal*, 32, 184-189.

## Facilitating practitioner well-being, performance, and service provision effectiveness: Contemporary insights into the impact of reflective practice in applied sport psychology

**Brendan Cropley**<sup>1</sup>, Zoe Knowles<sup>2</sup>, Andy Miles<sup>3</sup>, Emma Huntley<sup>4</sup>, David Shearer<sup>1</sup>

<sup>1</sup>University Of South Wales, FAW Centre for Football Research, Pontypridd, United Kingdom

<sup>2</sup>Liverpool John Moores University, Liverpool, United Kingdom <sup>3</sup>Cardiff Metropolitan University, Cardiff, United Kingdom <sup>4</sup>Edge Hill University, Liverpool, United Kingdom

Oral presentation 06: Consulting/counselling & Coaching,  
Hall Freiburg, Juli 15, 2024, 16:10 - 17:10

Theoretical and Applied Background: Within Applied Sport Psychology (ASP), reflective practice has become established as an aspect of education, professional training and development, and applied service delivery globally (cf. Adams & Pope-Rhodus, 2023). This has resulted in an emerging, context-specific evidence base that has attempted to make sense of the application and utility of reflective practice as a mechanism to facilitate personal and professional growth through experiential learning, and subsequently develop the knowledge required to navigate the complexities of applied service provision (e.g., Picknell et al., 2023). However, in the culture of applied practice that can often be dictated by a "hurry-up mentality", the value placed on opportunities for meaningful, critically reflective thought is often diminished.

Objectives: In this presentation we will discuss: (a) the concept of critical reflective practice and its place within ASP; (c) the links between critical reflective practice, well-being, performance, and wider beneficial practitioner outcomes; and (d) the applied issues that may thwart or facilitate effective reflective practices.

Design: Drawing on the contemporary empirical and anecdotal evidence, which includes our own original research, we use an integrative review approach to make the case that reflective practice lies at the heart of ASP service provision and detail best practice for facilitating critical reflection.

Results and Discussion: Researchers have extended their empirical insights to evidence how reflective practice might be adopted by ASP practitioners to manage their own well-being and performance within their roles, as well as how reflective practice can be used to underpin effective interventions with clients across a range of contexts (e.g., Cropley et al., 2020; Hägglund et al., 2021). Thus, we draw on a growing evidence-base that explicates how reflective practice works to demonstrate why ASP practitioners should commit to reflective practice within their service delivery.

Adams, T., & Pope-Rhodus, A. (2023). Facilitating multicultural reflective practice during supervision. In B. Cropley, Z. Knowles, A. Miles, & E. Huntley (Eds.), *Reflective practice in the sport and exercise sciences: Critical perspectives, pedagogy, and applied case studies* (pp. 96-108). Routledge.

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Hägglund, K., Kenttä, G., Thelwell, R., & Wagstaff, C. R. D. (2021). Mindful self-reflection to support sustainable high-performance coaching: A process evaluation of a novel method development in elite sport. *Journal of Applied Sport Psychology*, 34, 1125-1148. <https://doi.org/10.1080/10413200.2021.1925782>

Picknell, G., Mellalieu, S. D., Hanton, S., & Cropley, B. (2023). Where's the evidence? Contemporary insights in the impact of reflective practice on professional practice. In B. Cropley, Z. Knowles, A. Miles, & E. Huntley (Eds.), *Reflective practice in the sport and exercise sciences: Critical perspectives, pedagogy, and applied case studies* (pp. 41-52). Routledge.

## Pre-performance: Mindfulness & Imagery Combined on Stress and Performance

**Katie Sparks<sup>1</sup>**, Andrew Wilkinson<sup>1</sup>

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Oral presentation 06: Consulting/counselling & Coaching,  
Hall Freiburg, Juli 15, 2024, 16:10 - 17:10

High levels of stress can negatively influence an individual's emotions, physiology, and behaviours (WHO, 2019). Consequently, being able to manage these stressors through psychological skills is vital for an athlete's wellbeing and success (Hagan et al., 2017). However, the ability of individuals to perform psychological skills will inevitably influence the impact of these skills. Accordingly, our first aim was to investigate whether mindfulness could increase imagery vividness in healthy individuals and secondly, to explore whether combining brief mindfulness with guided imagery has a greater benefit to an athlete's stress response and performance compared to mindfulness and imagery used in isolation.

In study 1, participants completed trait mindfulness and imagery questionnaires and listened to a guided imagery script and a combined imagery and mindfulness script. The sequence of these scripts was randomised. Self-report measures of vividness were taken after each script had been delivered.

In study 2, participants were randomly assigned to either a control group, an imagery group, a mindfulness group, or a combined imagery and mindfulness group. Baseline psychophysiological measures were assessed prior to participants being assigned to a group, and experimental psychophysiological data alongside performance data was captured following randomised assignment to a group and listening to the associated script. We anticipate that the combined script will increase imagery vividness (study 1), which will lead to more facilitative psychophysiological and performance responses (study 2) in comparison to mindfulness or imagery in isolation. These results would provide an effective but brief intervention available to athletes prior to competition.

Hagan Jr, J. E., Pollmann, D., & Schack, T. (2017). Elite athletes' in-event competitive anxiety responses and psychological skills usage under differing conditions. *Frontiers in psychology*, 8, 2280.

World Health Organization. (2019). *The WHO special initiative for mental health (2019-2023): universal health coverage for mental health* (No. WHO/MSD/19.1). World Health Organization.

## Examining the role of specific types of coaching identities in coach burnout: Winning-centered, athlete development-centered, and generalized coaching identities

**Mariya (Masha) Yukhymenko-Lescroart<sup>1</sup>**

<sup>1</sup>California State University, Fresno, Fresno, United States

Oral presentation 06: Consulting/counselling & Coaching,  
Hall Freiburg, Juli 15, 2024, 16:10 - 17:10

**Objectives.** Coaches face various pressures, including winning, athlete development, and overall coaching skill mastery (Côté & Gilbert, 2009; Dieffenbach & Thompson, 2020; Gould & Mallett, 2021; USOPC, 2020; Wilson & Burdette, 2020), prompting them to adopt multiple identities, such as winning- and athlete development-centered, alongside a broader coaching identity (Yukhymenko-Lescroart, 2024). The pressures, reflected in these identities, may contribute to burnout, characterized by emotional exhaustion, devaluation of athletes, and a sense of reduced accomplishment. The study examined the role of different coaching identities and their interactions in coach burnout.

**Methods.** Full-time coaches (N = 401, 62.3% male; 77.3% head coaches) from various sports in the United States completed existing valid and reliable measures of coaching identities (Yukhymenko-Lescroart, 2024) and burnout (Raedeke & Smith, 2001).

**Results.** Results from Bayesian structural equation modeling showed that coach emotional exhaustion was predicted positively by winning-centered identity ( $\beta = .17$ ), but negatively by generalized identity ( $\beta = -.35$ ). Devaluation of athletes was predicted positively by winning-centered identity ( $\beta = .20$ ), but negatively by development-centered ( $\beta = -.21$ ) and generalized identities ( $\beta = -.22$ ). Finally, reduced sense of accomplishment was predicted negatively by development-centered ( $\beta = -.46$ ) and generalized identities ( $\beta = -.20$ ), and by an interaction between winning-centered and holistic-centered identities ( $\beta = -.12$ ). Tests of simple slopes showed that for coaches with weak holistic-development-centered identity, winning-centered identity additionally contributed to reduced sense of accomplishment (tested at  $-1SD$ :  $\beta = .15$ ).

**Conclusion.** Findings highlighted the importance of prioritizing holistic athlete development as a means to cultivate a more positive coaching experience and mitigate the risk of burnout. Additionally, findings suggest that coaches with a strong generalized identity are less susceptible to burnout, likely due to perceived lower conflict and greater alignment between their professional roles and what they consider essential to their sense of self.

Côté, J., & Gilbert, W. (2009). An integrative definition of coaching effectiveness and expertise. *International Journal of Sports Science & Coaching*, 4(3), 307–323. <https://doi.org/10.1260/174795409789623892>

Dieffenbach, K., & Thompson, M. (2020). Coach education essentials: Your guide to developing sport coaches. Human Kinetics.

Gould, D., & Mallett, G. (2021). Sport coaches' handbook. Human Kinetics.

Raedeke, T. D., & Smith, A. L. (2001). Development and preliminary validation of an athlete burnout measure. *Journal of Sport & Exercise Psychology*, 23(4), 281–306. <https://doi.org/10.1123/jsep.23.4.281>

United States Olympic and Paralympic Committee [USOPC]. (2020). Quality coaching framework 2020. Human Kinetics. Retrieved from <https://www.usopc.org/quality-coaching-framework>

Wilson, C. H., Jr., & Burdette, T. (2020). Holistic, athlete-centered coaching orientation. In K. Dieffenbach & M. Thompson (Eds.), *Coach education essentials: Your guide to developing sport coaches* (pp. 35–50). Human Kinetics.

Yukhymenko-Lescroart, M. A. (2024). Coaching for winning or holistic athlete development, or both? Validation of the two-dimensional Identity of Sport Coaches Scale (2-DISCS). *Journal of Applied Sport Psychology*, 36(1), 161-186. <https://doi.org/10.1080/10413200.2023.2208646>

## “I’m not sacrificing my life for other people’s tennis”: An Explorative Study into the Career Narratives of Female Tennis Coaches

**Lea-Cathrin Dohme**<sup>1</sup>, **Ellen Jones**<sup>1</sup>, Lisa Edwards<sup>1</sup>, Leanne Norman<sup>2</sup>

<sup>1</sup>Cardiff Metropolitan University, Cardiff, United Kingdom <sup>2</sup>Leeds Beckett University, Leeds, United Kingdom

Oral presentation 07: Coaching,  
Hall Tirol, Juli 16, 2024, 11:00 - 12:00

**Objectives:** Research recognises the existence of a dominant performance narrative in elite sport that values a ‘win at all costs’ attitude (Carless & Douglas, 2012). This narrative commonly privileges dominant groups of men at the expense of marginalised men and many women (Douglas & Careless, 2006). To interrogate this aspect of sporting culture, this study explored the influence of the dominant performance narrative within the coaching context.

**Methods:** Following an interpretivist paradigm, relativist ontology, and subjectivist epistemology, semi-structured interviews were conducted with eight professional, highly qualified and experienced (>20 years) British female tennis coaches. Interviews lasted between 53 and 98 minutes, yielding 115 pages of verbatim transcripts. The data was analysed using inductive within-case thematic analysis producing summaries of the women’s career experiences (Miles et al., 2014), and narrative analysis of structure and form to develop an understanding of the women’s stories (Sparkes, 2005).

**Results:** Findings suggested that the women’s career success was judged on adherence to the dominant performance narrative which required a single-minded dedication to coaching. Whilst some of the coaches aligned closely to this narrative, adherence to the exclusive nature of the performance narrative caused tension and conflict for others. The coaches who did not adhere to the dominant performance narrative resisted cultural norms and aligned themselves to other, less dominant narratives, including discovery and relational narratives.

**Conclusion:** Findings highlight that career success in coaching can be a multidimensional concept and importantly that organisational culture needs to change in order for alternative narratives become more available and validated. This could lead to coach identity being less tied to adherence to the dominant performance narrative and focused more on personal development and wellbeing. This may result in higher levels of female coach attraction, retention, and progression.

Carless, D., & Douglas K. (2012). Stories of success: Cultural narratives and personal stories of elite and professional athletes. *Reflective Practice*, 13, 387-398. <https://doi.org/10.1080/14623943.2012.657793>

Douglas, K., & Careless, D. (2006). Performance, discovery, and relational narratives among women professional tournament golfers. *Women in Sport and Physical Activity Journal*, 15, 14-27. <https://doi.org/10.1123/wspaj.15.2.14>

Miles, et al. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Thousand Oaks, CA: Sage.

Sparkes, A. C. (2005). Narrative analysis: Exploring the whats and the hows of personal stories. In M. Holloway (Eds.), *Qualitative research in health care* (pp. 91-209). Milton Keynes: Open University Press.

## Exploring the Roles of a Football Coach in Times of Performance Crisis - A Qualitative Study

**Constantin Rausch**<sup>1</sup>, Julian Fritsch<sup>1</sup>, Jan Spielmann<sup>2</sup>, Stefan Altmann<sup>2</sup>, Darko Jekauc<sup>1</sup>

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Oral presentation 07: Coaching,  
Hall Tirol, Juli 16, 2024, 11:00 - 12:00

**Objective:** Professional football is characterized by a constant media presence, a strong focus on results and a high degree of job insecurity. All these factors contribute to a stressful environment. Alongside this stressful environment, performance crises, which are characterized by a dramatic and unexpected drop in performance over an extended period of time, are widespread. Although the coach is seen as a central element in such crisis situations (Gould et al., 2002), there is limited evidence as to what role the coach should fulfil in such crises. For this reason, the present study explored the roles of the coach during performance crises in professional football.

**Methods:** Twelve interviews (M = 68.92; SD = 18.49) were conducted with professional male coaches aged 32–51 (M= 42.92, SD = 5.87) with 7-23 years of coaching experience (M=15.5, SD = 5.2). To identify the roles of coaches in crises situations, a thematic analysis (Braun et al., 2016) was conducted.

**Results:** The emergent themes suggested that coaches should fulfil several roles to manage a performance crisis, namely that of the psychologist, the analyst, the leader, the manager and the expert. Due to negative processes within the team (e.g., diminished team cohesion) and the individual players (e.g., decreased self-confidence) that can escalate in a downward spiral, the role of the psychologist was particularly emphasized by the coaches in order to ensure team functioning and optimal performance of the players.

**Conclusion:** In order for coaches to effectively manage a performance crisis in professional football, a clear definition of their role in such circumstances is essential. In this study, clearly defined roles were established as guidelines for coaches. Especially in times of a performance crisis, the focus should be on promoting a positive sporting environment and not on the performance remit that coaches in professional football usually have.

Braun, V., Clarke, V., & Weate, P. (2016). Using thematic analysis in sport and exercise research. *Routledge handbook of qualitative research in sport and exercise*, 1, 191-205.

Gould, D., Greenleaf, C., Guinan, D., & Chung, Y. (2002). A survey of U.S. Olympic coaches: Variables perceived to have influenced athlete performances and coach effectiveness. *The Sport Psychologist*, 16(3), 229-250.

## “I’m quite brutal sometimes, I think, but they like that honesty”: Team-sport coaches’ and players’ experiences of their shared interactions

Lena Sloot<sup>1</sup>, Daniel J. Brown<sup>1</sup>, Juliette Stebbings<sup>1</sup>, David Price<sup>1</sup>, Martyn Standage<sup>2</sup>

<sup>1</sup>University Of Portsmouth, Portsmouth, United Kingdom <sup>2</sup>University of Bath, Bath, United Kingdom

Oral presentation 07: Coaching,  
Hall Tirol, Juli 16, 2024, 11:00 - 12:00

**Objectives:** Our aim for this study was to understand how coaches and players experience their interactions with each other and how these experiences differ and align across coach-player collectives.

**Theoretical background:** Research on coaching has consistently highlighted the important role that coaches play in shaping athletes’ sporting experiences (e.g., Carpentier & Mageau, 2016). Recent work has focussed on the relational dynamics between coaches and athletes (e.g., relationship quality; Jowett et al. 2017), with findings supporting a bidirectional relationship wherein athletes also shape coaches’ experiences and behaviours. The current study variously draws on the extant literature for theoretical guidance, including the interdependent nature of relationship (e.g., Jowett & Nezlek, 2012) and the collaboration principles from athlete-centred coaching (e.g., Bowles & O’Dwyer, 2020).

**Methods:** Five coach interviews and five focus groups (37 players) were conducted with teams competing in various team sports (e.g., basketball) and levels of play (e.g., academy). Transcripts were analysed using reflexive thematic analysis (Braun & Clarke, 2021), first within each team (i.e., coach-player collectives) and then across teams. This allowed for the identification of themes that reflect the unique dynamics and experiences within teams as well as elements that are shared across teams.

**Results and discussion:** Preliminary analysis showed commonality in experiences within certain teams, such as players mirroring their coach’s language (e.g., “cemented learning”) and reflecting on the reciprocal impact of their behaviours on others. Contrastingly, interaction experiences differed between collectives, most notably for communication, decision transparency, and the coach’s authority on decisions that affect players. While these findings are preliminary, there are several noteworthy implications to inform coaching practice, education, and research. This includes the relevance of the context for participants’ experience of interactions (e.g., competitive level) and the varied perspectives of players and coaches regarding these interactions. These implications will be further explored and discussed.

Bowles, R., & O’Dwyer, A. (2020). Athlete-centred coaching: Perspectives from the sideline. *Sports Coaching Review*, 9(3), 231-252. <https://doi.org/10.1080/21640629.2019.1649901>

Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis?. *Qualitative Research in Psychology*, 18(3), 328-352. <https://doi.org/10.1080/14780887.2020.1769238>

Carpentier, J., & Mageau, G. A. (2016). Predicting sport experience during training: The role of change-oriented feedback in athletes’ motivation, self-confidence and needs satisfaction fluctuations. *Journal of Sport and Exercise Psychology*, 38(1), 45-58. <https://doi.org/10.1123/jsep.2015-0210>

Jowett, S., & Nezlek, J. (2012). Relationship interdependence and satisfaction with important outcomes in coach-athlete dyads. *Journal of Social and Personal Relationships*, 29(3), 287-301. <https://doi.org/10.1177/0265407511420980>

Jowett, S., Nicolas, M., & Yang, S. (2017). Unravelling the links between coach behaviours and coach-athlete relationships. *European Journal of Sports & Exercise Science*, 5(3), 10-19.



## Black Canadian University Football Players' Perspectives on the Coach-Athlete Relationship

**Cherokee Washington**, Gordon A. Bloom, Danielle Alexander, William Falcão

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<sup>3</sup>School of Human Kinetics, University of Ottawa, Ottawa, Canada <sup>4</sup>Department of Management, John Molson School of Business - Concordia University, Montreal, Canada

Oral presentation 07: Coaching,  
Hall Tirol, Juli 16, 2024, 11:00 - 12:00

Objectives: To develop positive coach-athlete relationships, coaches need to acknowledge and support their players' sociocultural backgrounds (e.g., ethnicities, genders, races; Duchesne et al., 2011; Kim et al., 2016). To date, little is known about the role of race in coach-athlete relationships from the perspectives of high-performance marginalized athletes (Jowett & Frost, 2007). The purpose of our study was to explore the coach-athlete relationships of Black, Canadian University football players from the athletes' perspectives. Methods: Semi-structured interviews were conducted with nine Black football players from five Canadian universities about their current and past relationships with coaches of varying racial backgrounds. A reflexive thematic analysis was used to identify three overarching themes regarding the participants' understandings of their unique Blackness, racialized sport and life experiences, and perceptions of strategies to bolster coach cultural literacies. Results: Participants built strong connections with their Black coaches centered on trust and free expression of their cultural identities. Athletes emphasized the importance of coaches strengthening their cultural competency aptitudes, offering advice on what composed an effective coach. For example, athletes encouraged non-Black coaches (primarily white coaches) to become more comfortable talking to players to better understand their cultural backgrounds, idiosyncratic identities, and what makes them "them." Key elements in developing coach cultural competency included: acceptance, understanding, recognizing and affirming culturally specific behavior, addressing microaggressions, unpacking racial power dynamics between players and coaches, and educating oneself on cultural histories. Conclusions: This study contributes to coaching and cultural sport psychology scholarship by exploring race's role in coach-athlete dyads and highlighting the need for coaches, governing sport bodies, and scholars who work with diverse populations to acquire cultural competency knowledge.

Duchesne, C., Bloom, G. A., & Sabiston, C. M. (2011). Intercollegiate coaches' experiences with elite international athletes in an American sport context. *International Journal of Coaching Science*, 5(2), 49-68.

Jowett, S., & Frost, T. (2007). Race/ethnicity in the all-male coach-athlete relationship: Black footballers' narratives. *International Journal of Sport and Exercise Psychology*, 5(3), 255-269.

Kim, J., Bloom, G. A., & Bennie, A. (2016). Intercollegiate coaches' experiences and strategies for coaching first-year athletes. *Qualitative Research in Sport, Exercise and Health*, 8(4), 394-408.

## Experimental sport psychology: Development of an experimental paradigm to induce rumination in athletes in the laboratory and the field

**Alena Michel-Kröhler**<sup>1</sup>

<sup>1</sup>Johannes Gutenberg-University Mainz, Mainz, Germany

Oral presentation 08: Research methods (incl. qualitative & quantitative),  
Hall Grenoble, Juli 16, 2024, 11:00 - 12:00

This ongoing research project has so far comprised three studies -two laboratory and one field study- with 356 participants (f = 212, m = 142, d = 2; n = 205 non-athletes, n = 151 athletes from different sports and with different performance levels). The main idea of this research project is to develop an experimental paradigm to examine the causal relationships between dysfunctional thoughts and the athletic performance. Therefore, we developed an experimental manipulation to induce state rumination (i.e., repetitive intrusive thinking) related to unresolved goals in the individual goal achievement process. To this end, we compared different experimental conditions related to unresolved goals with different control conditions (i.e., both goal-related and neutral non-goal related conditions) in successive studies to: (1) test the effectiveness of our experimental manipulation, (2) examine which control condition was best suited to maximize the effects related to state rumination, (3) examine whether the context in which goals were formulated (general versus sport-specific) mattered, and (4) verify whether the findings obtained in the laboratory could be transferred to the field and confirmed. We discuss the strengths and weaknesses of our experimental paradigm and draw implications for future research.

## A Systematic Review of the Mindful Sport Performance Enhancement Program

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Oral presentation 08: Research methods (incl. qualitative & quantitative), Hall Grenoble, Juli 16, 2024, 11:00 - 12:00

**Objectives:** Based on empirical and theoretical findings from Mindfulness-Based Stress Reduction (Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy (Segal et al., 2012), Mindful Sport Performance Enhancement (MSPE; Kaufman et al., 2018) was developed as a manualized mindfulness training program to promote well-being and performance in athletes and other performers. Since MSPE is one of the few structured and accessible mindfulness training protocols available, there has been a proliferation of research examining the effectiveness of MSPE since its publication. No existing published research has systematically examined the extant literature to determine the program's effectiveness. The objective of the present study was thus to provide the first systematic review of the MSPE literature.

**Method:** After an initial search process yielded 1,327 potential articles, the research team identified 43 existing MSPE outcome studies that met inclusion criteria.

**Results:** Consisting of 857 participants, studies included in the review focused on a variety of dependent variables (e.g., flow, psychological distress, mindfulness, emotion regulation, well-being, performance, mental health, etc.) and used a range of methodologies. The Risk of Bias in Non-Randomized and Randomized Studies (ROBINS-I and RoB2, respectively) were used to evaluate sources of bias; of the 43 studies analyzed for risk of bias, only two studies had a low risk of bias. As most reviewed studies contained substantive risks of bias, the extant MSPE literature does not yet provide reliable point estimates of effect sizes.

**Conclusion:** In this oral presentation, the authors outline the parameters of the systematic review and discuss the quality of evidence surrounding the effectiveness of MSPE with an emphasis on risk of bias. Moreover, the presenters discuss the limitations present in extant MSPE literature and describe opportunities that researchers investigating the integration of MSPE, and other applied sport psychology interventions can consider enhancing methodological quality and rigor.

Kabat-Zinn, J. (1990). Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness. Bantam Books.

Kaufman, K. A., Glass, C. R. & Pineau, T. R. (2018). Mindful sport performance enhancement: Mental training for athletes and coaches. American Psychological Association.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2012). Mindfulness-based cognitive therapy for depression (2nd Ed.). The Guilford Press.

## Reflections on Using Framework Analysis in Sport Psychology Research

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Oral presentation 08: Research methods (incl. qualitative & quantitative), Hall Grenoble, Juli 16, 2024, 11:00 - 12:00

**Objectives:** Framework analysis is a codebook approach to thematic analysis (Ritchie & Spencer, 1994). It is a theoretically flexible method that is not associated with any particular epistemological or theoretical approach (Gale et al., 2013). Used inductively or deductively, framework analysis typically follows a six-step iterative process of familiarisation, coding, developing a framework, applying the framework, charting the data into a matrix, and interpreting the data (Griffin et al., 2023). Here we will (a) demonstrate the step-by-step use of deductive framework analysis within a study that explored how shared athlete leadership influences teamwork; and, (b) reflect on the utility of framework analysis in sport psychology research.

**Design:** Focus group and interview data were collected from lacrosse, football, and field hockey teams (N =24, MAge =19.9 ±4.5 years, 50% female). Operating from a critical realist stance, with a critical orientation to make interpretations beyond data-based meanings (Braun & Clarke, 2022), and in-line with deductive framework analysis, we developed a code sheet a priori which included behaviours that characterise high-quality athlete leadership (Fransen et al., 2020) and the fourteen teamwork behaviours of the conceptual framework of teamwork and team effectiveness in sport (McEwan & Beauchamp, 2014). Using the code sheet, we developed a matrix where each row represented a leadership code, each column represented a teamwork code, and each cell contained quotations that described an interaction between these codes.

**Results and Discussion:** By interpreting patterns in the matrix, such as the prevalence or absence of quotations in each cell, we identified behaviours that formal and informal athlete leaders perform to influence teamwork in their teams. As demonstrated in this study, framework analysis is particularly useful for systematically organising and analysing a vast amount of textual data to explore the mechanisms that may underlie or connect discrete sport psychology constructs.

Braun, V., & Clarke, V. (2022). Thematic analysis: A practical guide. SAGE.

Fransen, K., Haslam, S. A., Steffens, N. K., & Boen, F. (2020). Standing out from the crowd: Identifying the traits and behaviors that characterize high-quality athlete leaders. *Scandinavian Journal of Medicine & Science in Sports*, 30(4), 766-786. <https://doi.org/10.1111/sms.13620>

Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *Bmc Medical Research Methodology*, 13, 117. <https://doi.org/10.1186/1471-2288-13-117>

Griffin, T., Grey, E., Lambert, J., Gillison, F., Townsend, N., & Solomon-Moore, E. (2023). Life in lockdown: A qualitative study exploring the experience of living through the initial COVID-19 lockdown in the UK and its impact on diet, physical activity and mental health. *BMC Public Health*, 23(1), 588. <https://doi.org/10.1186/s12889-023-15441-0>

McEwan, D., & Beauchamp, M. R. (2014). Teamwork in sport: a theoretical and integrative review. *International Review of Sport and Exercise Psychology*, 7(1), 229-250. <https://doi.org/10.1080/1750984x.2014.932423>

Ritchie, J., & Spencer, L. (1994). Qualitative data analysis for applied policy research. In A. Bryman & R. G. Burgess (Eds.), *Analyzing qualitative data* (pp. 173-194). Routledge.

## The Effect of Action Observation and Motor Imagery on Jumping and Perceived Performance

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Oral Presentation 09: Mental skills training & Sexual violence, sexual harassment and sexual abuse & Psychophysiology,  
Hall New Orleans, Juli 16, 2024, 11:00 - 12:00

The study aims to investigate the impact of combining motor imagery with action observation on athletes' performance and performance perception. Using a pre-test post-test design with a factorial setup, participants were randomly assigned to experimental and control groups. A pre-research power analysis determined the sample size, resulting in 21 voluntary participants (10 male). Opto Jump device recorded drop jump performance measurements, while participants predicted their performance post-motor imagery and action observation practices. The experimental group underwent an 8-week AOMI intervention program, involving 24-minute motor imagery sessions during video observation thrice weekly. Post-test measurements were taken after the intervention. Results indicated no significant performance increase in the experimental group post-intervention, yet the group showed enhanced performance estimation after video observation, not solely in motor imagery. Conversely, this improvement was absent in the control group. Although AOMI intervention didn't enhance physical performance, it potentially influenced athletes' perception of their performance. The findings are discussed in relation to existing literature.

## Everyone perpetrator, everyone victim, everyone bystander: Hazing, masculinities and liminality in homosocial team sports

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Oral Presentation 09: Mental skills training & Sexual violence, sexual harassment and sexual abuse & Psychophysiology,  
Hall New Orleans, Juli 16, 2024, 11:00 - 12:00

**Objective:** Hazing is a concept that includes rituals and tests, harassment, humiliation and abuse that athletes face when entering homosocial team sports as newcomers. In this study, we aimed to examine the dimensions and qualities of violence and abuse in sports through hazing based on the psychosocial concepts of masculinities, homosociality and liminality.

**Methods:** The qualitative research method with profeminist approach and in-depth interview and visual painting application technique with a retrospective design were used in this study. 28 male athletes from football, basketball, volleyball, rowing, water polo, underwater hockey, and American football voluntarily participated in this study and their painting and depth interview responses were analyzed by conducting content analysis based on thematic coding.

**Results:** The content analysis revealed six themes which are 1) entering field: emotions, positions, characteristics in first step; 2) being tested again and again from space to space; 3) interference with bodily integrity: disruption, pain, hurt; 4) those on the threshold as "prospective" members; 5) normalization and legitimation: cultural cycle; 6) alternative attempts at masculinity: oppositions, quests for equality and commonality. These findings show that within the masculine culture of sports liminal athletes can enter by experiencing a masculinity that is often subordinated to hegemonic masculinities.

**Conclusion:** We should point out that hazing acts carried out in the locker room, camp, training or on the bus under the name of "welcome joke", ritual or "game" can lead to instances of sexual violence, including rape culture (Fogel and Quinlan, 2021). Such acts aim to shame, humiliate and - in part - destroy the masculinity of rookie athletes in order to establish a hierarchy of power and control within the team.

1- Fogel, C., & Quinlan, A. (2021). Sexual assault in the locker room: sexually violent hazing in Canadian sport. *Journal of sexual aggression*, 27(3), 353-372.

2- Goodson, A., Franklin, C. A., & Bouffard, L. A. (2021). Male peer support and sexual assault: the relation between high-profile, high school sports participation and sexually predatory behaviour. *Journal of sexual aggression*, 27(1), 64-80.

3- Malinen, K., & Tobin, C. (2020). "Homosociality" in Paradoxes and Erasures in Scholarship on Campus Sexual Assault and Hazing. In D. Crocker, J.C. Minaker, A. Nelund (Eds.). *Violence Interrupted: Confronting Sexual Violence on University Campuses*, pp:188-204. McGill-Queen's University Press.

## The effects of heart rate variability biofeedback intervention on ironic performance error under pressure: An examination of modern pentathlon shooting.

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Oral Presentation 09: Mental skills training & Sexual violence, sexual harassment and sexual abuse & Psychophysiology,  
Hall New Orleans, Juli 16, 2024, 11:00 - 12:00

The objective of the current study was to examine Wegner's (1994) ironic processes of mental control theory and the impacts of two weeks of heart rate variability biofeedback coherence training program on participants' shooting performance under pressure.

Twenty-two (9 female) elite modern pentathlon athletes (Mage = 21.28, SD = 2.38 years) participated in the study and were randomly assigned to either an experimental or a control group. The experimental group took part in 2 weeks (6 sessions) of heart rate variability biofeedback and a regular training program, while the control group only participated in regular training sessions for two weeks. Upon arrival at the laboratory, participants provided a written informed consent form and completed an information sheet to obtain participants' demographic information, Mental Readiness Form-MRF3 (Krane, 1994) and sleep quality. Participants' performance was assessed by giving technical instructions for shooting based on Woodman et al.'s (2015) conceptualization of a laser pistol (Gorgulu, 2019), and then familiarized themselves with the task.

The shooting performance data (i.e., shooting accuracy) was normally distributed and thus analyzed via a 2 (Group: experimental, control) x 2 (Test: baseline-test, pressure-test) mixed-model ANOVA with follow-up independent and dependent t-tests. In the control group, when instructed not to miss in a specific direction, performers did so a significantly greater number of times ( $t_{21} = 3.47, p < .001$ ) under pressure conditions, which provides support for Wegner's (1994) theory in performance setting. In contrast, in the experimental group, participants' performance did not change from low to high-pressure conditions that provide interventional advancement for heart rate variability biofeedback coherence training concerning Wegner's theory. Results from the current study provided that heart rate variability biofeedback training, alongside regular shooting training sessions, can contribute to better performance under pressure, potentially through improved autonomic nervous system functioning.

Gorgulu, R. (2019). An examination of ironic effects in air-pistol shooting under pressure. *Journal of Functional Morphology and Kinesiology*, 4(2), 20. <https://doi.org/10.3390/jfkm4020020>

Krane, V. (1994). The mental readiness form as a measure of competitive state anxiety. *The Sport Psychologist*, 8(2), 189–202. <https://doi.org/10.1123/tsp.8.2.189>

Wegner, D. M. (1994). Ironic processes of mental control. *Psychological Review*, 101(1), 34–52. <https://doi.org/10.1037/0033-295X.101.1.34>

Woodman, T., Barlow, M., & Gorgulu, R. (2015). Don't miss, don't miss, d'oh! Performance when anxious suffers specifically where least desired. *The Sport Psychologist*, 29(3), 213–223. <https://doi.org/10.1123/tsp.2014-0114>

## The social stuff matters! Social identity, physical activity, and mental health in university students in the U.K.

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<sup>1</sup>Nottingham Trent University, Nottingham, United Kingdom <sup>2</sup>Heriot Watt University, Edinburgh, United Kingdom

Oral presentation 10: Group dynamics and team sports & Well-being and quality of life,  
Hall Tirol, Juli 16, 2024, 13:30 - 14:30

Objectives: Students in tertiary education may be at increased risk of poor mental health, due to a range of stressors (e.g., university workload, financial pressures, career choices, social isolation, and homesickness). It is known that behaviours such as physical activity can benefit student mental health. However, the impact of how strongly students identify as a member of their university, i.e., the strength of their social identity, when controlling for physical activity and sedentary behaviour remains unknown.

Methods: Students (N = 4776; 3198 female, 1442 male; Mage = 22.65±6.43 years) at a large university in the U.K. were invited to complete an online survey at the beginning of the academic year. This included measures to obtain sociodemographic information, social identity (SI), mental wellbeing (MWB), perceived stress (PSS), moderate-vigorous physical activity (MVPA, mins/week), sedentary time (mins/week), and walking time (mins/week).

Results: Hierarchical linear regression analyses showed that when controlling for gender, year of study, MPVA, walking and sedentary time, higher SI was significantly associated with higher MWB ( $\beta = .32, p < .001; R^2 = .35, p < .001$ ) and lower PSS ( $\beta = -.19, p < .001; R^2 = .27, p < .001$ ). Sedentary time showed a small, negative association with MWB ( $\beta = -.06, p = .03; R^2 = .35, p < .001$ ) and a small, positive association with PSS ( $\beta = .06, p = .03; R^2 = .35, p < .001$ ).

Conclusion: These findings suggest that supporting students to develop a strong social identity with their university might have mental health benefits in addition to those associated with physical activity.

## Body language in English Premier League and Women's Super League football players

**Geir Jordet**<sup>1</sup>, Yaw Amankwah<sup>1</sup>, Thomas Elinam Jenssen<sup>1</sup>, Mariken Kleppe<sup>1</sup>, Malin Knai<sup>1</sup>, Yanique Fletcher<sup>2</sup>

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Oral presentation 10: Group dynamics and team sports & Well-being and quality of life,  
Hall Tirol, Juli 16, 2024, 13:30 - 14:30

**Objectives:** In professional football, teams possess an abundance of match data about players' physical, tactical, and technical performance, but very rarely data on their psychological performance. Research on body language, or nonverbal behaviour, could potentially provide such data from matches. There is now much research on nonverbal behaviour in sport (for a review, see Furley, 2021). The aim of this study was to build upon evolutionary theory, and variables from published studies, to examine nonverbal behaviours displayed by professional football players during matches.

**Methods:** We manually coded all visible nonverbal behaviours from every player on the pitch in one game with every team in the 2021-2022 English Premier League season (N=271 players) and the English Women's Super League (N=173 players). Tactical view and broadcast view videos were obtained and the analysis program Sportscode was used to code behaviours.

**Results:** The analysis produced 69,664 individual behaviours. Players who were on the pitch for the full duration of a match (90+ minutes) had an average of about 200 behaviours per match (Premier League players: M=198, SD=99; Women's Super League players: M=215, SD=116). Most behaviours were categorised as tactical (81% for men, 85% for women), while the remaining were emotional. Central defenders had the highest behaviour frequency and wingers had the lowest, for men and women. For men, tactical behaviours significantly decreased towards the end of the game, while emotions and communicative touch increased. There was a tendency that better teams scored higher on certain behaviours than the others, but match context could explain this.

**Conclusion:** The study showed that professional football players' nonverbal behaviours from real matches could reliably be captured, categorised, and quantified. Following evolutionary theory, most behaviours were identified as adaptive in a match context. The results from our study could produce the foundation for future psychological measurements in matches.

Furley, P. (2021). The nature and culture of nonverbal behavior in sports: Theory, methodology, and a review of the literature. *International review of sport and exercise psychology*, 1-26. <https://doi.org/10.1080/1750984X.2021.1894594>

## The effect of interpersonal goal conflict on intrapersonal tension and team conflict: an experimental study in the context of sport

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Oral presentation 10: Group dynamics and team sports & Well-being and quality of life,  
Hall Tirol, Juli 16, 2024, 13:30 - 14:30

**Objectives.** Interpersonal goal conflict occurs when the pursuits of at least one team member interfere with the pursuits of other team members (Fitzsimons et al., 2016). The purpose of this study is to examine whether interpersonal goal conflict contributes to intrapersonal tension and general team conflict.

**Methods:** Thirty-two male sport students (Mage = 22.66 years, SD = 3.25 years; preliminary data) were randomly assigned to the experimental (EC) or control (CC) condition. In both conditions, participants acted in a team of three, consisting of two real subjects and one confederate. The team goal was to maintain a cadence as similar as possible for three minutes on a bicycle ergometer. Interpersonal goal conflict was induced in the EC via goal incongruent behavior of the confederate changing the cadence, and thus, threatening the achievement of the team goal. Perceived intrapersonal tension was measured before and after the task (SBS; Hackfort & Schlattmann, 1995). A mixed 2 (condition) x 2 (time) ANOVA was performed. Team conflict was measured after the task (ICS; Jehn, 1995). An independent samples t-test (EC vs. CC) was conducted.

**Results:** Intrapersonal tension was perceived significantly higher following the task in both conditions ( $F(1, 30) = 14.92, p < .001, \eta^2 = .33$ ). There was no statistically significant interaction between condition and time ( $F(1, 30) = 3.35, p = .077, \eta^2 = .10$ ). Perceptions of general team conflict were significantly higher in the EC than in the CC ( $t(30) = -3.53, p < .001, d = 1.16$ ).

**Conclusion:** Preliminary results indicate that goal incongruent behavior by an individual leads to increased perceptions of general team conflict. However, intrapersonal tension does not appear to play a major role in this process. Nevertheless, goal management in sports teams should consider both individual and team goals.

Fitzsimons, G. M., Sackett, E., & Finkel, E. J. (2016). Transactive Goal Dynamics Theory: A relational goals perspective on work teams and leadership. *Research in Organizational Behavior*, 36, 135-155.

Hackfort, D., & Schlattmann, A. (1995). Die Stimmungs- und Befindensskalen (SBS). *Arbeitsinformation Sportwissenschaft: Vol. 7. [Mood and condition scales. Occupational information sport science]*. Neubiberg, Germany: Institut für Sportwissenschaft und Sport.

Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative science quarterly*, 256-282.



## The Effect of Enhancing Verbal and Non-Verbal Communication on Shared Mental Models, Team Cohesion, and Team Performance

Ishay Tsur, **Gershon Tenenbaum**

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<sup>2</sup>Reichman University, B. Ivcher School of Psychology, Herzliya, Israel

Oral presentation 10: Group dynamics and team sports & Well-being and quality of life,  
Hall Tirol, Juli 16, 2024, 13:30 - 14:30

**Objectives.** Enhancing communication within a team is one of the most vital mechanisms for cultivating team coordination and performance (Eccles & Tenenbaum, 2004; 2007). The purpose of the study was to examine the effect of within players' communications on the players' shared mental models (SMM), teamwork, team cohesion, and team performance in real basketball competitions. **Method.** The sampling consisted of 15 adolescent players' teams divided into 3 conditions. In condition 1, players in 5 teams were instructed to enhance verbal communication during practices. In condition 2, players in 5 teams were instructed to avoid any verbal communication (e.g., "silent" condition), and in condition 3, players in 5 teams continued with their typical practice workouts. The training lasted 4 weeks. SMM and group cohesion measures along with team performance statistics were used before the intervention, upon completion of the intervention, and after one month delay. A nested mixed RM ANOVA was performed for each of the dependent measures to test the intervention, time, and their interactional effects. **Results.** A non-significant but strong trend ( $p < .09$ ) for time by intervention effect resulted for general SMM, and significant effects ( $p < .05$ ) for some of its dimensions separately. Specifically, enhancement of both verbal and non-verbal communications resulted in SMM increase after one month compared to regular training sessions. Moreover, a similar positive significant ( $p < .05$ ) effect was revealed for perceived performance potential. However, no effects were noted for the team cohesion dimensions. An improvement was also found in the assists-turnovers ratio, but this finding suffers statistical limitations. **Conclusions.** The findings offer a practical framework for coaches, managers, and teamwork professionals to improve their teams' coordination and performance using verbal and non-verbal communications enhancement training sessions.

Eccles, D. W., & Tenenbaum, G. (2004). Why an expert team is more than a team of experts: A social-cognitive conceptualization of team coordination and communication in sport. *Journal of Sport & Exercise Psychology*, 26(4), 542-560.

Eccles, D. W., & Tenenbaum, G. (2007). A social-cognitive perspective on team functioning in sport. In G. Tenenbaum & R. C. Eklund (Eds.), *Handbook of sport psychology* (3rd ed., pp. 264-283). Hoboken, NJ: John Wiley & Sons, Inc.

## Combining motor imagery with low frequency sounds: a neurophysiological study

**Typhanie Dos Anjos**<sup>1</sup>, Franck Di Rienzo<sup>2</sup>, Sebastien Daligault<sup>3</sup>, Aymeric Guillot<sup>4</sup>

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Oral presentation 11: Motor control and learning & Motor development & Perception & attention,  
Hall Igls, Juli 16, 2024, 13:30 - 14:30

**Objectives:** Anterior cruciate ligament (ACL) tears present rehabilitation challenges due to maladaptive corticomotor plasticity resulting in persistent preoperative strength loss, which limits current physical rehabilitation programs for full and rapid recovery (Rice et al., 2010). While motor imagery (MI) was shown to promote motor recovery after ACL surgery (Paravlic et al., 2022), a recent innovative approach investigated whether combining MI with exposure to low frequency sounds (MI + LFS) could provide additional benefits. Pilot results showed that MI + LFS was likely to enhance the clinical benefits induced by MI, even after a single session (Dos Anjos et al., 2023). Spurred by these findings, the present study aimed to better understand the neurophysiological processes mediating these effects.

**Methods:** Sixty healthy participants underwent a test-retest procedure, during which electroencephalographic activity, leg-extensor force, and leg muscle activation were recorded. Between the pre- and post-tests, in which participants performed maximal isometric contractions, individuals were assigned to one of three conditions: imagining muscle contractions (MI group), performing MI with simultaneous exposure to LFS (MI+LFS group), or listening to a podcast for an equivalent amount of time (control group).

**Results:** Force and EMG data revealed different patterns of results: the control group exhibited a linear decrease in force, while the MI + LFS group initially declined at posttest before substantially regaining at +12h, and the MI group improved at both tests. Further analysis revealed a positive correlation of cerebral activity with motor performance for MI + LFS, compared to MI, hence suggesting distinct influences on motor excitability and muscle activation.

**Conclusion:** These findings underline the synergistic effects of MI and LFS in enhancing corticomotor plasticity, supporting their potential concomitant use in clinical settings targeting maladaptive plasticity.

Dos Anjos, T., Gabriel, F., Dutra Vieira, T., Hopper, G.P., Sonnery-Cottet, B., 2023. Neuromotor Treatment of Arthrogenic Muscle Inhibition After Knee Injury or Surgery. *Sports Health: A Multidisciplinary Approach* 194173812311692. <https://doi.org/10.1177/19417381231169285>

Paravlic, A.H., Slimani, M., Tod, D., Marusic, U., Milanovic, Z., Pisot, R., 2018. Effects and Dose-Response Relationships of Motor Imagery Practice on Strength Development in Healthy Adult Populations: a Systematic Review and Meta-analysis. *Sports Med* 48, 1165-1187. <https://doi.org/10.1007/s40279-018-0874-8>

Rice, D.A., McNair, P.J., 2010. Quadriceps arthrogenic muscle inhibition: neural mechanisms and treatment perspectives. *Semin Arthritis Rheum* 40, 250-266. <https://doi.org/10.1016/j.semarthrit.2009.10.001>

## Preschoolers' physical activity attitudes reveal motor proficiency

**Aave Hannus**<sup>1,2</sup>, Ave Amor<sup>1</sup>, Kenn Konstabel<sup>1,2</sup>

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Oral presentation 11: Motor control and learning & Motor development & Perception & attention,  
Hall Igls, Juli 16, 2024, 13:30 - 14:30

**Objective:** Physical activity is essential for mental and physical growth. Approximately 80% of children and adolescents worldwide do not meet physical activity guidelines (Guthold, Stevens, Riley, & Bull, 2020). Growing evidence suggests that developing proficient motor skills in childhood may be necessary for later physical activity. We hypothesised that motorically more proficient children enjoy active playing and recreational activities due to positive associations derived from mastery experiences, which helps them develop more positive experiential attitudes towards physical activities than children with lower motor skills. To test the hypothesis that motor proficiency is related to physical activity attitudes, new assessment instruments were created.

**Methods:** We developed three computer tasks that allowed preschoolers to rate the pleasantness of different physically active and sedentary activities, i.e. experiential attitudes towards physical and sedentary activities. A total of 178 children (4-5 years) completed (a) binary evaluations of the pleasantness of physical activities (liking vs. not liking), (b) absolute evaluations of the pleasantness of physical activities (4-point Likert scale), and (c) relative evaluations of physical activities compared to sedentary activities. We also assessed children's general motor proficiency (Estonian adaptation of the Democritos Movement Screening Tool for Preschool Children).

**Results:** Analysis of variance of relative evaluations revealed that participants with higher motor proficiency more frequently preferred physical activities over sedentary activities. Also, regression analysis of the results of binary ratings showed that higher motor proficiency was related to preferences for activities that involve complex body coordination and ball skills. The absolute rating of physical and sedentary activity pleasantness was suboptimal for assessing young children's experiential attitudes towards physical activity and sedentary behaviour.

**Conclusion:** Cross-sectional analysis indicates that children's motor proficiency is linked to their experiential attitudes towards complex and demanding physical activities. We suggest studying children's physical activity attitudes as a unique factor in early health behaviour.

Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1.6 million participants. *The Lancet Child & Adolescent Health*, 4(1), 23-35. doi:[https://doi.org/10.1016/S2352-4642\(19\)30323-2](https://doi.org/10.1016/S2352-4642(19)30323-2)

## Effects of feedback regarding bat-ball contact position on accuracy and precision in perception and batting performance in baseball

**Masahiro Kokubu**<sup>1</sup>, Yuki Kishi<sup>1</sup>, Takashi Kojima<sup>1</sup>

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Oral presentation 11: Motor control and learning & Motor development & Perception & attention,  
Hall Igls, Juli 16, 2024, 13:30 - 14:30

In baseball batting, tracking and perceiving the position of fastballs with eyes are considered important. However, the effects of feedback regarding bat-ball contact on accuracy and precision in the perception of bat-ball contact as well as batting performance have not been examined. The purpose of the present study was to investigate the effects of batting practice with the feedback of bat-ball contact position in the forward and backward directions on the accuracy and precision in the perception of bat-ball contact position and batting performance. Ten university baseball players (19.7±1.0 years; M±SD) were assigned into two groups: a practice group with a feedback (n=5) and a control group (n=5). In the pre- and post-test, the participants were asked to hit straight pitches by a pitching machine for 20 trials. After each trial, they were asked to indicate the bat-ball contact position with their bat. The actual bat-ball contact position was recorded using a high-speed digital camera. Spatial error between perceived bat-ball contact position and actual contact position and variability of the spatial error were calculated. Hitting velocity was also measured by a tracking system to evaluate batting performance. Practice sessions consisted of six sessions for three weeks. In the feedback group, participants executed batting practice by the pitching machine with feedback about the bat-ball contact position in the forward and backward directions after each trial. Results showed that FB group showed a decrease in the variability of the perceived error in the forward and backward directions after practice. Also, all of the participants in the FB group showed improvement in hitting velocity. The results of the present study suggest that batting practice with the feedback of bat-ball contact position could improve precision in the perception of bat-ball contact position and contribute to hitting performance.

## Attentional Control Theory: Sport. From theory to application

**Mark Wilson**<sup>1,2</sup>, Sam Vine<sup>1</sup>, David Harris<sup>1</sup>

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Oral presentation 11: Motor control and learning & Motor development & Perception & attention,  
Hall Igls, Juli 16, 2024, 13:30 - 14:30

**Objectives:** Coping with pressure requires a mindset where a sudden impairment in skill execution does not lead to a cascade of negative appraisals that impair subsequent attempts. So why do some athletes rise to the challenge, whereas other wilt? Attentional Control Theory: Sport (ACTS: Eysenck & Wilson, 2016) provides a framework by which such differences can be explained. ACTS suggests that the origins of competitive anxiety are rooted in ongoing appraisals of the costs and the probability of failure ('what's at stake and how am I doing?').

**Methods:** This talk seeks to synthesise findings from two publications of large data sets of real-world sporting performance (Harris et al., 2019, 2021) and from a recent experimental study (Harris et al., 2023) where appraisals could be manipulated. The real-world data provides support for the general predictions of ACTS, but do not provide the opportunity to examine the mediating appraisal process. Experimental manipulations in virtual reality allow us to influence pressure and error feedback, and probe these reflections, albeit without pressure being as high as in real-world settings.

**Results:** Harris and colleagues (2019, 2021) have revealed that situational pressure, prior errors, and their interaction all predicted performance errors in a subsequent play/point. ACTS proposes that it is anxiety, through its influence on attention, that disrupts performance. Harris et al. (2023) showed that manipulations of pressure and error rates could predict levels of anxiety, providing some support that the mediating processes are linked to appraisals.

**Conclusions:** The current talk will discuss how research examining pressure and performance may need to extrapolate from findings from real world and experimental studies, to overcome the weaknesses of both methods. Taken together results from recent studies testing the predictions of ACTS, suggest that appraisal-based interventions may have utility in environments where pressure is heightened and errors are likely.

Eysenck, M. W., & Wilson, M. R. (2016). Sporting performance, pressure and cognition: Introducing attentional control theory: Sport. In D. Groome & M. Eysenck (Eds.) An introduction to applied cognitive psychology (pp. 329-350). London: Routledge.

Harris, D. J., Vine, S. J., Eysenck, M. W., & Wilson, M. R. (2019). To err again is human: Exploring a bidirectional relationship between pressure and performance failure feedback. *Anxiety, Stress, & Coping*, 32(6), 670–678. <https://doi.org/10.1080/10615806.2019.1643459>

Harris, D.J., Eysenck, M., Vine, S.J., & Wilson, M.R. (2021). Psychological pressure and compounded errors during elite-level tennis. *Psychology of Sport & Exercise*, 56, 101987, <https://doi.org/10.1016/j.psychsport.2021.101987>.

Harris, D.J., Arthur, T., Vine, S.J., Abd Rahman, H. Liu, J., Han, F., & Wilson, M.R. (2023). The effect of performance pressure and error-feedback on anxiety and performance in an interceptive task. *Frontiers in Psychology*, 14:1182269. <https://doi.org/10.3389/fpsyg.2023.1182269>

## “There Isn’t Enough British Literature in Your Thesis”: A Cultural Sport Psychology Story

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Oral presentation 12: Cultural sport psychology & Daily life,  
Hall Freiburg, Juli 16, 2024, 13:30 - 14:30

**Objectives:** With the goal of supporting the production of impactful research through the analytical lens of cultural sport psychology, I intend to illustrate the application of a sociocultural specific research process.

**Theoretical Background:** While it can be argued that sport psychology, particularly in Western contexts, may not be outwardly inhibited by the lack of appreciation for cultural research, the consequences of this omission have been found to result in a stereotyped understanding of individuals' lives, reinforcing the dominant cultural power and privilege of mainstream (white, Euro-American) worldviews perpetuated in contexts with diverse or differing cultural factors.

**Approach:** I will begin with a discussion on the philosophical assumptions that inform my practice and the ongoing reflexivity exercised throughout my research journey. I will then discuss the utilization of a mixed-methods design, reconciling the paradigmatic differences of qualitative and quantitative work, by adhering to interpretivism while appreciating the theoretical responsibility of using a quantitative method. The way in which findings are represented, possible criteria, and the ethical considerations of undertaking cultural research will be discussed.

**Discussion and Implications:** Rather than simply comparing the similarities and differences of specific cultural findings to mainstream contexts as a means of literary acceptance and “universal” application or generalization, this presentation will show that it is possible and beneficial to focus on what has been said and its meaning within the context in which it is being studied. I hope this will inspire future researchers to appreciate and support the exploration of sport psychology in contexts beyond the mainstream.

## Impact of a professional training program on basic psychological needs satisfaction among individuals with intellectual disabilities

**Evelia Franco**<sup>1</sup>, Elena Pérez-Calzado<sup>2</sup>, María Fernández-Rivas<sup>2</sup>, Carmen Ocete<sup>2</sup>

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Oral presentation 12: Cultural sport psychology & Daily life,  
Hall Freiburg, Juli 16, 2024, 13:30 - 14:30

**Objectives:** The aim of this research is to assess the impact of a professional training program on the satisfaction of the basic psychological needs (BPN) in professional domain in individuals with intellectual disabilities (ID). This training aimed to provide work orientation, daily life and social skills based on personal knowledge, autonomy and organization, social and emotional area and sports practice (basketball), ultimately aiming for their integration into the job market.

**Methods:** Thirty-five individuals with ID and previous experience as sport practitioners filled out the BPN Satisfaction Scale – Intellectual Disability (Frielink, Schuengel & Embregts, 2019) at the beginning and upon completion of the training received. A paired samples t-test was conducted using the statistical analysis software SPSS (version 28) to compare differences in autonomy, competence, and relatedness satisfaction.

**Results:** The results demonstrate that after the training, individuals exhibited higher scores in all three study variables: autonomy (PRE = 3.48 vs. POST = 4.03), competence (PRE = 3.53 vs. POST = 4.12) and relatedness (PRE 4.08 vs. POST = 4.16). Statistically significant differences were found in the variables of autonomy satisfaction ( $Z = -2.145$ ,  $p = 0.032$ ) and competence ( $Z = -2.308$ ,  $p = 0.021$ ).

**Conclusion:** The results obtained seem to suggest that professional training for labour integration fosters the satisfaction of BPN in individuals with ID. This could be associated with an increase in their autonomous motivation when performing their work, which would positively impact other variables of their quality of life such as self-determination, social inclusion, personal development, or interpersonal relationships (Verdugo et al., 2012). Therefore, these training programs should continue to be implemented in order to achieve the holistic development of individuals with ID and their complete and proper integration into society.

Frielink, N., Schuengel, C., & Embregts, P. J. C. M. (2019). Psychometric properties of the Basic Psychological Need Satisfaction and Frustration Scale – Intellectual Disability (BPNSFS-ID). *European Journal of Psychological Assessment*, 35(1), 37–45. <https://doi.org/10.1027/1015-5759/a000366>

Verdugo, M. A., Navas, P., Gómez, L. E., & Schalock, R. L. (2012). The concept of quality of life and its role in enhancing human rights in the field of intellectual disability. *Journal of intellectual disability research: JIDR*, 56(11), 1036–1045. <https://doi.org/10.1111/j.1365-2788.2012.01585.x>

## Active Mind - Active Life? The Relationship between Active Travel and Cognitive Abilities in Children

**Melinda Herfet**<sup>1,2</sup>, Emiliano Mazzoli<sup>2</sup>, Susanne Tittlbach<sup>1</sup>, Anna Timperio<sup>2</sup>

<sup>1</sup>University of Bayreuth, Bayreuth, Germany <sup>2</sup>Deakin University, Melbourne, Australia

Oral presentation 12: Cultural sport psychology & Daily life,  
Hall Freiburg, Juli 16, 2024, 13:30 - 14:30

**Introduction:** Optimal brain development during childhood is an ongoing societal challenge. Active Travel (AT), which involves non-motorized, human-powered, purposeful everyday movement, appears to be highly relevant – not only due to the increasingly evident climate crisis and the consequent changes in city planning but also – for the necessary reduction of global inactivity and the development of cognitive abilities in childhood. Previous studies suggest that AT can improve children's visual-spatial skills, working memory, attention, and academic performance. However, there are also isolated studies that found no positive correlations between AT and cognitive parameters in children. This cross-sectional study addresses these contradictory findings.

**Methods:** 1488 Australian children (4-12 years) participated in the study conducted with the Scienceworks Museum in Melbourne. AT and leisure-time physical activity were assessed using validated questionnaires based on the G- and IPAQ (parental self-report). Cognitive abilities such as working memory, visual-spatial skills, and situational awareness (perception, orientation, iconic memory) were measured using the n-back test (4-7 years 1-back, 8+ years 2-back), the MRT-K (8+ animal version), and a self-constructed, pilot-tested video task via tablets. The combination of these instruments allows the adequate assessment of cognitive abilities relevant to behaviour and safety in traffic.

**Results:** Results regarding a potential relationship between AT and cognitive abilities in children will be presented at the conference. The data processing and analysis are currently ongoing.

**Outlooks:** Future results promise a deeper understanding of how physical activity can influence children's brains. With these insights, more effective strategies can be developed to enhance both health-promoting activities and physical and cognitive performance.

## Addressing your own cultural needs in a multicultural environment: Reflections informed by fifteen years of experience in sport psychology.

**Mariana Kaiseler<sup>1</sup>**

<sup>1</sup>Institute of Sport, Manchester Metropolitan University, Manchester, United Kingdom

Oral presentation 12: Cultural sport psychology & Daily life,  
Hall Freiburg, Juli 16, 2024, 13:30 - 14:30

Acknowledging the contemporary globalisation of sport, it seems relevant to understand sport psychology professionals' experiences of training and working across different countries and multicultural environments. This insight can help to raise awareness of the different cultural needs, while highlighting the importance of diversity, equality, and inclusion education matters in the profession. Towards this goal, this presentation reflects over fifteen years of lived experiences by a female sport psychologist-academic while studying and working in a foreign country and engaging with diverse multicultural environments. Some of the examples discussed include language and cultural barriers, access to development opportunities, training, as well as personal biases. Lessons learned and opportunities for growth will be highlighted, informed by deep self-reflection, with the purpose to support trainees/practitioners in preparation to navigate new multicultural environments while raising awareness of the need to develop cultural competence education globally in the profession. Applied implications include (i) specific coping strategies to facilitate decision making when preparing for performance in new multicultural environments identified as 'out of your comfort zone'; (ii) the need to increase self-compassion and self-care routines in preparation to undertake education and/or applied practice in new multicultural environments.

## The Participation History of Aspiring Basketball Players in the United Kingdom

**Lucas Capalbo<sup>1</sup>**, Joana Fonseca<sup>2</sup>, Sam Messam<sup>3</sup>, Umandeep Nizzar<sup>1</sup>

<sup>1</sup>London Metropolitan University, London, United Kingdom <sup>2</sup>St Mary's University Twickenham London, London, United Kingdom <sup>3</sup>Basketball England, Manchester, United Kingdom

Oral presentation 13: Health & Talent identification/development & Mental skills training,  
Hall Tirol, Juli 16, 2024, 14:40 - 15:40

Basketball's low popularity in the United Kingdom significantly diminishes youth participation, impeding the sport's development domestically. Hence, this study investigated the participation history of aspiring basketball players in the UK, aiming to help British basketball organizations better understand the journeys of those pursuing an elite career in the sport over more popular ones (e.g., football). In total, 52 male basketball players (Mage = 17.29) from a national talent pathway were asked to fill out the Participation History Questionnaire (PHQ; Ford, Low, McRobert, & Williams, 2010). The PHQ accounted for the participants' demographics, their major participation milestones, and the number of play and practice hours from ages 6 to 19 in Basketball and other sports. The participants first took part in basketball at age 9.52 (SD = 3.512), were coached by an adult at age 9.98 (SD = 3.444), and took part in elite training at age 13.67 (SD = 2.121). On average, the participants spent 690.38 (SD = 645.511) hours in match play, 925.46 (SD = 556.187) hours in deliberate team practice, 556.69 (SD = 390.719) hours in deliberate individual practice, and 634.48 (SD = 425.753) hours in deliberate play, for a total of 2780.38 (SD = 1584.709) hours of overall engagement. Additionally, most participants (53.8%) engaged in a different sport, football being the most popular choice (n = 15), followed by rugby (n = 7), cricket (n = 3), and other sports (n = 3). These findings provide practitioners and organizations with insights to identify potential attrition/dropout patterns, donor sports, and recruitment strategies that could impact the development of basketball.

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## Resilience profiles of elite athletes and their associations with health-related behaviors, well-being, and performance: a latent profile analysis

**Meggy Hayotte**<sup>1</sup>, Aurélia Chrétien<sup>1</sup>, Anne Vuillemin<sup>1</sup>, Fabienne d'Arripe-Longueville<sup>1</sup>

<sup>1</sup>Université Côte d'Azur, LAMHESS, Nice, France

Oral presentation 13: Health & Talent identification/development & Mental skills training,  
Hall Tirol, Juli 16, 2024, 14:40 - 15:40

**Objectives:** Resilience qualities contribute to protect athletes from the stressors they encounter (Fletcher & Sarkar, 2012). Recent research has shown links between resilience, sport performance, lifestyle, and health-related factors (e.g., Bryan et al., 2019; Etherton et al., 2022). However, no study has yet focused on the resilience profiles of elite athletes (i.e., subgroups of individuals with similar levels of different resilience qualities).

**This study aimed to:** (a) explore the resilience profiles of elite athletes, and (b) determine the characteristics of these resilience profiles.

**Methods:** Three hundred and seven French elite athletes (112 females, age=18.4, SD=4.0 years) were recruited to complete an online survey including the resilience sport scale (Chrétien et al., under revision) and questionnaires on: (a) sleep behaviors (Baize et al., 2023), (b) eating attitudes in sport (Scoffier et al., 2010), (c) mental wellbeing (Trousselard et al., 2016), and (d) perceived performance. A latent profile analysis was performed. We tested a series of models from 1-class to 5-class to determine which model best fits the data. Differences between resilience profiles after extraction of the profile membership were then examined.

**Results:** A 2-class model best described the profiles. The results revealed a 'high' (N=228, 74.3%) and a 'moderate' (N=79, 25.7%) resilience profiles. Athletes in the 'high' resilience profile were more likely to be male, exhibit better health-related behaviors (i.e., sleep behaviors, control of their eating behaviors), have higher scores of psychological well-being, and reported higher individual perception of performance, than athletes in the 'moderate' profile.

**Conclusion:** This study demonstrated that French elite athletes at national and international competition levels exhibit moderate to high resilience profiles. These findings suggest that resilience may be a protective factor for adaptive patterns. Therefore, health promotion programs targeting the concept of resilience should be encouraged in elite sports centers.

Baize, D., Meriaux-Scoffier, S., Chrétien, A., Hayotte, M., Piponnier, E., & d'Arripe-Longueville, F. (2023). Sleep Assessment in Competitive Athletes : Development and Validation of French Versions of the Athens Insomnia Scale and the Athlete Sleep Behavior Questionnaire. *Sleep Science*, 16(02), 183196. <https://doi.org/10.1055/s-0043-1770803>

Bryan, C., O'Shea, D., & MacIntyre, T. (2019). Stressing the relevance of resilience : A systematic review of resilience across the domains of sport and work. *International Review of Sport and*

*Exercise Psychology*, 12(1), 70111. <https://doi.org/10.1080/1750984X.2017.1381140>

Chrétien, A., Hayotte, M., Mériaux, S., Baize, D., Vuillemin, A., & d'Arripe-Longueville, F. (under revision). *International Journal of Sport and Exercise Psychology*

Etherton, K., Steele-Johnson, D., Salvano, K., & Kovacs, N. (2022). Resilience effects on student performance and well-being : The role of self-efficacy, self-set goals, and anxiety. *The Journal of General Psychology*, 149(3), 279298. <https://doi.org/10.1080/00221309.2020.1835800>

Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of Sport and Exercise*, 13(5), 669678. <https://doi.org/10.1016/j.psychsport.2012.04.007>

Scoffier, S., Paquet, Y., Corrion, K., & D'Arripe-Longueville, F. (2010). Development and validation of the French Self-Regulatory Eating Attitude in Sports Scale : Self-regulatory eating attitude in sport. *Scandinavian Journal of Medicine & Science in Sports*, 20(4), 696705. <https://doi.org/10.1111/j.1600-0838.2009.00984.x>

Trousselard, M., Steiler, D., Dutheil, F., Claverie, D., Canini, F., Fenouillet, F., Naughton, G., Stewart-Brown, S., & Franck, N. (2016). Validation of the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) in French psychiatric and general populations. *Psychiatry Research*, 245, 282290. <https://doi.org/10.1016/j.psychres.2016.08.050>

## Predictors of Regular Physical Activity and Mental Health in Adolescents - Results of the Germany-wide Representative Study “Move For Health”

**Lena Henning**<sup>1</sup>, Ulrike Burrmann<sup>2</sup>, Eva Göttlich<sup>1</sup>, Hannah Pauly<sup>1</sup>, Dennis Dreiskämper<sup>1</sup>

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Oral presentation 13: Health & Talent identification/development & Mental skills training,  
Hall Tirol, Juli 16, 2024, 14:40 - 15:40

Physical activity (PA) influences children's and adolescents' physical, mental, and social health (e.g., Kohake\* & Henning\* et al., 2024). At the same time, studies show that PA behavior among children and adolescents has changed in recent years due to changes in schools and society (e.g., social inequality, all-day schools). However, current research only reflects this change to a limited extent. Thus, a research gap exists with regard to (1) representative data on the PA behavior of children and adolescents and (2) the relationship between PA and health, as the last studies were conducted more than ten years ago (MediKuS study; Grgic & Züchner, 2013).

The aim of the project “Move For Health” funded by the BMFSFJ was to conduct a representative Germany-wide survey on the PA behavior of children and adolescents and their health. The influence of vertical (e.g., education, poverty, employment) and horizontal risk factors (e.g., age, gender, migration background) on regular PA and health (mental health and general health; Kid-Screen-10, Ravens-Sieberer et al., 2010) was investigated in N=1,978 adolescents aged 13 to 17 years (M=15.0 yrs., SD=1.4; female: 51.2%). Furthermore, the influence of the accumulation of risk factors was examined using regression analyses and structural equation modeling.

The results show a significant influence of the predictors of low education (b=.13), lack of full-time employment (b=.07), and poverty (b=.09) on regular PA. The number of vertical and horizontal risk factors influences regular PA (b=.20), mental health (b=.10), and general health (b=.19). The structural equation model shows that risk factors have a significant influence on mental health, the relationship is mediated by regular PA (R<sup>2</sup>=.10).

Results indicate that interventions to promote PA must be developed in a targeted manner to address at-risk adolescents. Regular PA and health monitoring are necessary for developing evidence-based interventions to promote PA.

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Kohake\*, K., Henning\*, L., Dahl, S., Neuber, N., & Dreiskämper, D. (2024, under review). Associations between Physical Activity and Factors of Healthy Growing Up in Childhood and Adolescence During COVID-19 Pandemic: A Systematic Review. \*shared first authorship

## A scoping review of research partnership literature in sport

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Oral presentation 13: Health & Talent identification/development & Mental skills training,  
Hall Tirol, Juli 16, 2024, 14:40 - 15:40

Objectives: Research partnership approaches in sport (e.g., community-based participatory research, integrated knowledge translation) can bridge research-practice gaps and promote the use, incorporation, and uptake of research in practice (Schinke & Blodgett, 2016). A comprehensive review of sport literature on research partnerships can provide guidance on how to support, implement, and sustain the success of these partnerships. The objective of this study was to conduct a scoping review of research partnerships in sport.

Methods: A scoping review methodology was conducted, following Arksey and O'Malley's (2005) framework, Peters et al.'s (2022) reporting guidelines, and previous partnership reviews (Hoekstra et al., 2020, 2022). Five databases (SPORTDiscus, PsychINFO, ERIC, Education Source, and Web of Science) were systematically searched, yielding 3562 records. A two-phase screening process was conducted. Inclusion criteria comprised any records focused on descriptions of partnerships, frameworks/approaches/tools for partnership, and education/training in partnership, in any sport setting. Exclusion criteria comprised any incomplete records, or records not related to the sport setting or research partnerships. Data were extracted on each record's settings, populations, sectors involved, purposes, methodologies, and key results. These data were analyzed to identify key themes related to common topics in sport research partnership literature.

Results: Several initial themes were generated: (a) partnership development and management (e.g., strategies for building relationships and commitments, navigating differing boundaries and priorities, establishing shared visions); (b) challenges of partnerships (e.g., limited capacities, resources, and skills, navigating power imbalances, acknowledging contributions); (c) promoting partnership success (e.g., fostering communication and trust-building, understanding one another's needs, sharing capacity and exchanging resources); and (d) community-engaged approaches (e.g., valuing different forms of knowledge, incorporating local/cultural practices, adopting equity-promoting foci).

Conclusion: This work offers a valuable contribution to sport science by compiling the available literature on sport research partnerships, which can inform directions for supporting research partnership success across sport settings.

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Hoekstra, F., Trigo, F., Sibley, K. M., Graham, I. D., Kennefick, M., Mrklas, K. J., Nguyen, T., Vis-Dunbar, M., SC. I. Guiding Principles Consensus Panel, & Gainforth, H. L. (2023). Systematic overviews of partnership principles and strategies identified from health research about spinal cord injury and related health conditions: A scoping review. *The Journal of Spinal Cord Medicine*, 46(4), 614–631. <https://doi.org/10.1080/10790268.2022.2033578>

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Peters, M. D. J., Godfrey, C., McInerney, P., Khalil, H., Larsen, P., Marnie, C., Pollock, D., Tricco, A. C., & Munn, Z. (2022). Best practice guidance and reporting items for the development of scoping review protocols. *JBI evidence synthesis*, 20(4), 953–968. <https://doi.org/10.11124/JBIES-21-00242>

Schinke, R. J., & Blodgett, A. T. (2016). Embarking on community-based participatory action research: A methodology that emerges from (and in) communities. In B. Smith & A. C. Sparkes (Eds.), *Routledge Handbook of Qualitative Research in Sport and Exercise* (pp. 88–99). Routledge. <https://doi.org/10.4324/9781315762012>

## The Direct and Indirect Effects of Dual Career Competencies on Sport Intentions: The Mediating Role of Burnout and Flow in this Relationship

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Oral presentation 14: Transitions in and out of sport/dual career,  
Hall Brüssel, Juli 16, 2024, 14:40 - 15:40

**Objectives:** Dual career competencies reduce student-athletes' burnout against challenging dual career demands and help them to experience a state of flow, thus an increase in their intention to continue in sport. The aim of this study was to examine the relationship between perceived dual career competencies (e.g., career planning) and intention to continue sports and mediator role of burnout and flow in this relationship. **Methods:** A cross-sectional study design with a convenient sampling method was used. 206 girls (Mage=15.64, SD=1.65) and 229 boys (Mage=15.20, SD=1.84) adolescent athletes participated in the study. "Dual Career Competency Questionnaire for Athletes (Karadağ and Aşçı, 2021)", "Athlete Burnout Questionnaire (Kocadağ et al., 2017)", "The Dispositional Flow Scale (Keskin and Aşçı, 2017)", "Intention to Continue Sports in Future Scale (Sarrazin et al., 2019)" were administered. Multiple regression and bootstrapping procedures were used to analyze the data. **Results:** Structural equation modelling revealed positive direct effects of all dual career competencies on flow state. Moreover, only social intelligence and adaptability dual career competency had direct effect on burnout. The direct effect of dual career management, career planning, social intelligence and adaptability on future intention was not significant. Emotional awareness and flow state had positive direct effect on future intention, but burnout had negative direct effect on future intention. On the other hand, dual career management, career planning and emotional awareness had significant indirect effects on future intention through flow state. Social intelligence and adaptability had significant indirect effect on future intention through both flow state and burnout. **Conclusion:** It can be concluded that athletes' flow states and burnout are affected by the athletes' dual career competencies, which in turn affect their intention to continue sports. While flow state experience increases the intention to continue sports, burnout negatively affects this intention.

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## HerForm: A co-productive approach to meeting career development needs of female high-level athletes

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Oral presentation 14: Transitions in and out of sport/dual career, Hall Brüssel, Juli 16, 2024, 14:40 - 15:40

**Objectives:** Across their careers, female athletes face unique challenges (Stambulova et al., 2024) such as adjusting their training to their menstrual cycle, family planning, or obtaining sponsorship. Compared to their male counterparts, there is limited knowledge on how to best support the career development of female athletes (Sanderson, 2022). Considering the unprecedented rise of female sports, this study aimed to assess female athletes' perceptions of career development needs and knowledge gaps relevant to navigating an elite sport environment.

**Methods:** The study was part of the Erasmus+ program HerForm (Project number: 101090528) with research, practice, and business partners across Europe and South Africa. In adopting a co-productive, integrated knowledge translation approach (Smith et al., 2020), the project partners developed a quantitative online survey covering 16 areas of career development (e.g., contract management, return to sport, social media). A total of 132 female high-level athletes (MAge = 25.9 ± 6.02 years; 7% competing on Olympic level, 59% competing on international level, 33% competing on national level) from Austria, Germany, Ireland, Spain, South Africa, and Sweden completed the survey.

**Results:** The data analysis was conducted by applying a non-parametric Kruskal-Wallis test additionally to descriptive analysis. Results showed that female athletes express different career development needs in their early, mid, and late career stage. The areas in which all athletes expressed they were least prepared for and wanted to be more informed about included contract negotiations, return to sport after having children, and obtaining sponsorship contracts. Late stage athletes also expressed more preparedness than the other two athlete groups for almost all areas of career development.

**Conclusion:** Findings suggest the need to implement specific career support programmes tailored to the career stages of female elite athletes and the potential of mentorship programs across stages.

## Life situations in high-performance sport: A 4-year longitudinal study of transitional pathways of Swiss elite athletes

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Oral presentation 14: Transitions in and out of sport/dual career, Hall Brüssel, Juli 16, 2024, 14:40 - 15:40

**Objectives:** Typologies of athletic career development are typically based on demographic data, sport characteristics or pursuing a dual career. However, within these subgroups of elite athletes considerable heterogeneity remains. Addressing the need for a holistic consideration of a high-performance sport career, Örencik et al. (2023) identified five life situations: (1) working dual career athletes, (2) high-income professional athletes, (3) medium-income professional athletes, (4) family-supported athletes, and (5) student dual career athletes. The current study is a 4-year longitudinal extension to investigate the trajectories of athletic careers.

**Methods:** Based on a sample of 138 elite athletes (Mage = 26.65, SD = 3.81, 47.8% female) who competed in Olympic sports or floorball and orienteering, a residue analysis led to the exclusion of six cases. Second, cluster analyses were conducted for four developmental phases (2019 to 2022). Operating factors as basis of clustering were athletic performance level, weekly hours spent, and financial information. Last, similarity between clusters and transitional probabilities were determined.

**Results:** In this sample, four life situations were identified at each phase. While clusters generally exhibited structural stability, particularly evident for the dual career clusters, adaptations were noted for individuals fully dedicated to sport. Initially, at T1 and T2, Cluster (3) and Cluster (4) emerged. However, as their careers progressed, Cluster (4) dissolved, with individuals mostly transitioning into Cluster (3). Subsequently, at T3 and T4, many former athletes of Cluster (3) increased their commitment to their sports career, enhancing performance levels and earning potential, thus frequently transitioning into Cluster (2).

**Discussion:** This study represents the first longitudinal examination of elite athletes' life situation development, integrating both sport-related and vocational data, aligning with the current position statement of FEPSAC (Stambulova et al., 2024). These insights can inform federations and practitioners engaged in athletic career development in tailoring their support for elite athletes.

Örencik, M., Schmid, M. J., Schmid, J., & Conzelmann, A. (2023). The differentiation of single and dual career athletes falls short: A person-oriented approach to characterize typical objective life situations of elite athletes. *International Journal of Sports Science & Coaching*, 18(3), 717–727. <https://doi.org/10.1177/17479541221090941>

Stambulova, N., Wylleman, P., Torregrossa, M., Erpič, S. C., Vitali, F., Brandt, K. de, Khomutova, A., Ruffault, A., & Ramis, Y. (2024). FEPSAC Position Statement: Athletes' dual careers in the European context. *Psychology of Sport and Exercise*, 71, 102572. <https://doi.org/10.1016/j.psychsport.2023.102572>

## A Scoping Review on the Theoretical and Methodological Advances in the Study of Retirement From Elite Sport

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Oral presentation 14: Transitions in and out of sport/dual career,  
Hall Brüssel, Juli 16, 2024, 14:40 - 15:40

**Objectives:** Retirement from elite sport is a turning point in the life of athletes, and it has been the subject of intensive research in sports science for over 50 years. Around 10 years ago, a comprehensive review with 126 studies on the topic was published by Park et al. (2013), summarising the relevant factors and the available resources that influence the quality of the transition. Since then, there have been various specialised reviews (i.e., on facets of the topic or type of sport), but no overview of the entire research topic. Therefore, the aim of this scoping review was to summarise the theoretical and methodological advances in research on athlete retirement over the past 10 years.

**Methods:** Following the JBI guidelines (Peters et al. (2020) and PRISMA-ScR (Tricco et al., 2018), six databases were systematically searched for peer-reviewed original research articles on the topic (since 2013), and 4469 articles were screened. Information on the topic, theory, methodology, and major findings was extracted from 101 articles.

**Results:** The majority of the studies were qualitative in nature, utilizing a cross-sectional or retrospective design. These studies were focused on sport-specific transition models (such as the HAC model; Wylleman, 2019), and performed thematic analyses to examine “retirement experiences.” Other studies were conducted on body image/nutritional behaviour after retirement and a few studies dealt with more recent topics such as sporting behaviour after retirement and the role of social identity.

**Discussion:** Overall, in the many and thematically diverse studies, there is a disconnect between theoretical assumptions, in particular with regard to multi-dimensionality, complexity, individual, and specificity, and the methodology used (e.g., correlation design, investigation of linear relationships). By better matching theory and methodology in addressing the still-existing research gaps, further insights into the transition out of elite sport could be gained.

Park, S., Lavallee, D., & Tod, D. (2013). Athletes' career transition out of sport: A systematic review. *International Review of Sport and Exercise Psychology*, 6(1), 22–53. <https://psycnet.apa.org/doi/10.1080/1750984X.2012.687053>

Peters, M. D. J., Godfrey, C. M., McInerney, P., Munn, Z., Tricco, A. C., & Khalil, H. (2020). Chapter 11: Scoping reviews. In E. Aromataris & Z. Munn (Eds.), *JBI Manual for Evidence Synthesis*. JBI. <https://doi.org/10.46658/JBIMES-20-12>

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J.,

Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., . . . Straus, S. E. (2018). Prisma extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, 169(7), 467–473. <https://doi.org/10.7326/M18-0850>

Wylleman, P. (2019). A developmental and holistic perspective on transiting out of elite sport. In M. H. Anshel, T. A. Petrie, & J. A. Steinfeldt (Eds.), *APA handbook of sport and exercise psychology: Sport psychology* (Vol. 1, pp. 201–216). American Psychological Association. <https://doi.org/10.1037/0000123-011>



## Neural signature of motor imagery: a window for investigating motor expertise

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Oral presentation 15: Neuroscience,  
Hall Igls, Juli 16, 2024, 14:40 - 15:40

Neural substrates mediating motor imagery (MI) across varying levels of motor expertise are well-established, but only few studies contrasted extreme levels of practice. In two magnetoencephalographic studies, we compared oscillatory brain activity between Olympic and regional-amateur athletes, which represent the two extrema of the motor expertise continuum. Differences in brain activation dynamics largely characterized the 'expert brain'. Brain activations during MI mirrored online and offline processes of use-dependent neural plasticity achieved as a result of practice (Di Rienzo et al., 2016). An event-related synchronization of alpha and beta frequencies immediately preceded a pronounced desynchronization of alpha oscillations within brain motor regions in the Olympic athlete. This pattern was absent in the amateur athlete, and reflected neural inhibition and resting brain areas mediating a "reset phase" designed to focus on the forthcoming MI. In a second experiment, synchronization of alpha signals during slow-motion MI was more pronounced in the Olympic athlete, whereas MI of the skill executed at higher speed was associated with increased desynchronization of alpha generators located within the primary sensorimotor cortex and the precuneus (Guillot et al., 2023). These results support that the recruitment of brain motor networks during fast-motion MI is facilitated by motor expertise and better contributes to discriminate between different levels of motor expertise. Altogether, these findings support that the level of motor expertise is mediated by more efficient motor representations.

Di Rienzo, F., Debarnot, U., Daligault, D., Saruco, E., Delpuech, C., Doyon, J., Collet, C. & Guillot, A. (2016). Online and offline performance gains following motor imagery: A comprehensive review of behavioral and neuroimaging studies. *Frontiers in Human Neuroscience*, 10, 315.

Guillot, A., Daligault, S., Schwartz, D. & Di Rienzo F. (2023). Timing-specific patterns of cerebral activations during motor imagery: A case-study of the expert brain signature. *Brain and Cognition*, 167, 105971.

## The role of resting-state brain activity in mediating the association between physical activity and verbal memory

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Oral presentation 15: Neuroscience,  
Hall Igls, Juli 16, 2024, 14:40 - 15:40

**Objectives:** Verbal memory is a crucial neuropsychological function involved in core cognitive abilities, such as general intelligence, reasoning, and learning. Verbal memory is associated with subjective well-being, mental health, as well as academic and career achievement (Ludyga, Gerber, Pühse, Looser, & Kamijo, 2020). While there is empirical evidence on the relation between physical activity and verbal memory, the potential neurophysiological mechanisms that underlie this association remain unclear. The Individual Alpha Peak Frequency (IAPF) serves as a marker for general cognitive function and appears to be sensitive to physical activity (Gutmann, Hülzdünker, Mierau, Strüder, & Mierau, 2018). Therefore, the purpose of the present study was to investigate the association between physical activity and verbal memory, as well as the potential mediating role of IAPF on this association in young adults.

**Methods:** Young healthy adults (N = 115, 48% female) were assessed for physical activity levels using accelerometry on seven consecutive days. Additionally, verbal memory performance was assessed using a free-recall task and resting-state brain activity was recorded using electroencephalography. For mediation analyses, IAPF was extracted.

**Results:** Path analysis revealed no mediating effect of IAPF on the association of physical activity and recall performance. However, sex moderated the direct associations: While higher vigorous physical activity levels were associated with better recall performance in female participants, no association between these variables was found in male counterparts. Higher levels of physical activity however, were related to a higher IAPF exclusively in male participants.

**Conclusion:** The study did not support a mediating role of IAPF on the association between physical activity and verbal memory, but a moderating effect of sex on the association of physical activity and verbal memory. This highlights the need to pay attention to inter-individual differences, when examining underlying mechanisms of the relation between physical activity and verbal memory.

Gutmann, B., Hülzdünker, T., Mierau, J., Strüder, H. K., & Mierau, A. (2018). Exercise-induced changes in EEG alpha power depend on frequency band definition mode. *Neuroscience Letters*, 662, 271-275. doi:<https://doi.org/10.1016/j.neulet.2017.10.033>

Ludyga, S., Gerber, M., Pühse, U., Looser, V. N., & Kamijo, K. (2020). Systematic review and meta-analysis investigating moderators of long-term effects of exercise on cognition in healthy individuals. *Nature Human Behaviour*, 4(6), 603-612. doi:[10.1038/s41562-020-0851-8](https://doi.org/10.1038/s41562-020-0851-8)

## The effects of SMR neurofeedback training in elite archers: an ERPs study with hybrid training format

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Oral presentation 15: Neuroscience,  
Hall Igls, Juli 16, 2024, 14:40 - 15:40

**Objectives** The transfer effect of neurofeedback training was still a main barrier when applying on sports. Moreover, previous studies focusing on neurofeedback were lacking measurements on ERPs and behavioral outcomes to directly understand the potential mechanism of SMR neurofeedback training. Therefore, to better portrait whether and how the SMR training protocol improve athlete performance, the present study aimed to examine the effectiveness of SMR on different domains of attention. Also, we designed a hybrid training format to provide participants direct feedback during the shooting and to examine whether external feedback can improve performance in a more ecological setting.

**Methods** Twenty-six elite archers were which assigned into the SMR neurofeedback group (N = 13) and the sham control group (N = 13). The hybrid training method contained the 1st – 6th visuo-auditory sessions, followed by 7th – 8th auditory sessions, and the 9th –12th ecological valid auditory-with-shooting sessions. We assessed neurofeedback training indices, resting EEG, ERPs with CPT and ANT in addition to the shooting performance to examine the validity of neurofeedback.

**Results** SMR group performed linear trend of improvement in the number of ten in the 9th to 12th training sessions, also increased SMR power whereas participants in the sham group did not. By exploring different aspects of attention components in the CPT and ANT, SMR group exhibit greater Pe amplitude in ANT after training while the sham group exhibit smaller Pe after training.

**Conclusion** These findings suggested that performance improvement during feedback was retrieving from improved error monitoring reflected by enlarged Pe in ANT, but not in other components, such as alerting, orienting, executive control, and the sustained attention.

## Study of parietal cortex structural plasticity in physically active college students

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Oral presentation 15: Neuroscience,  
Hall Igls, Juli 16, 2024, 14:40 - 15:40

**Objectives:** Previous studies have demonstrated that individuals engaged in regular physical activity typically exhibit positive gray matter plasticity changes in the frontal lobe, with less research focused on parietal lobe plasticity. Therefore, this study aims to investigate the plasticity characteristics of parietal lobe gray matter volume (GMV) in college students who have maintained a physically active lifestyle over a long-term period.

**Methods:** 58 physically active students were recruited to this study. They were assessed as moderate or high activity level in the International Physical Activity Questionnaire (IPAQ). Meanwhile, 19 age- and gender-matched sedentary (IPAQ assessed as low) students were recruited as a control group. MRI scans were performed using a 3.0 Tesla Philips imaging system equipped with a standard 32-channel head coil. high-resolution structural T1-weighted images data were acquired for voxel-based morphometry analysis to calculate whole-brain GMV. Subsequently, GMV values within detailed Brodmann areas were extracted, including bilateral postcentral gyrus(S1), superior parietal lobule(SPL), angular gyrus(AG), and supramarginal gyrus(SMG). Paired t-tests were used to examine the group difference in GMV within each subdivided parietal region.

**Results:** (1) Significantly higher GMV were found in the physically active group within the bilateral S1 (p<0.001), SPL (p<0.001), as well as SMG (p<0.01) than controls.

(2) Although not particularly statistically significant (left AG p=0.091, right AG p=0.027), GMV within the bilateral AG were higher in the physically active group than controls.

**Conclusions:** College students who maintain long-term physical activity exhibit positive gray matter plasticity in many regions of the parietal lobe, which are associated with somatosensory (S1), spatial cognition and visual perception (SPL and AG), as well as spatial and limb position perception (SNG). The current results suggest a possible association between long-term exercise and parietal lobe plasticity, which requires subsequent intervention studies to confirm.

## The impact of contextual priors and physical load on action anticipation in soccer

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Oral presentation 16: Decision making and judgement,  
Hall Freiburg, Juli 16, 2024, 14:40 - 15:40

The aim of this study was to gain further insights into the effects of explicit contextual priors (CP) and physical load (PL) on performance and underlying perceptual and cognitive processes during action anticipation in soccer.

On a video-based task, expert soccer players had to predict the imminent actions of an opponent under a 2 CP (with, without) x 3 PL (low, moderate, high) repeated measures design. Anticipation accuracy, gaze behavior, and self-rating of cognitive load were measured under conditions of low (rest), moderate (70% HRreserve), and high (90% HRreserve) PL, manipulated through a running protocol. Under each PL condition, the players performed the anticipation task both with and without CP pertaining to the action tendencies of the oncoming opponent.

Tentative results from 21 participants reveal higher anticipation accuracy with, compared to without, CP under low PL (with CP = 70% ± 10 [M ± SD], without CP = 64% ± 10; d = 0.56) and moderate PL (with CP = 78% ± 10, without CP = 70% ± 12; d = 0.72), but not under high PL (with CP = 69% ± 12, without CP = 72% ± 7; d = 0.33). Both with and without CP, cognitive load increased between low and moderate PL (d = 1.24–1.25) and between moderate and high PL (d = 0.89–0.91).

Our preliminary findings suggest that the performance-enhancing effects of CP may diminish under conditions of high PL. This effect could possibly be explained by a detraction from the limited resources of working memory during high PL, which may hamper the cognitively demanding process of acquiring and integrating visual information with CP during anticipation (see Gredin et al., 2020). Further data collection and analysis of visual-search strategies within this on-going study are needed to verify this suggestion.

Gredin, N. V., Broadbent, D. P., Findon, J. L., Williams, A. M., & Bishop, D. T. (2020). The impact of task load on the integration of explicit contextual priors and visual information during anticipation. *Psychophysiology*, 57 (6), 1–13. doi: 10.1111/psyp.13578.

## Coaches' thoughts and decision-making processes while selecting table tennis players

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Oral presentation 16: Decision making and judgement,  
Hall Freiburg, Juli 16, 2024, 14:40 - 15:40

Objectives: Coaches make selection decisions based on the so-called coach's eye (e.g., Lath et al., 2021). So far, research on the coach's eye and related decision-making processes has focused on qualitative approaches, mainly interviews (e.g., Koopmann et al., 2023). Recently, the iCodes model (Jekel et al., 2018) was suggested as a starting point to study underlying processes of the coach's eye (Lath et al., 2021). Here, we investigated coaches' thought and decision-making processes in player selection contexts in table tennis. It was hypothesized coaches would think about more important criteria more often.

Methods: Twenty-one table tennis coaches (Mexperience = 15.8 years, SDexperience = 7.3) first rated each of the criteria athletic abilities, table tennis technical skills, cognitive skills, passion for table tennis, mental skills, social skills, training facilities, current performance, and maturity (Koopmann et al., 2023) regarding their importance for player selection decisions (from 1 [not at all important] to 100 [most important]). On another day, same coaches watched a five-minute video showing a youth table tennis match and afterwards selected one of the two players for a development program. While watching, coaches were asked to think aloud (Eccles & Aarsal, 2017). Coaches' think-aloud recordings were transcribed and coded. Rank correlation analyses between coaches' importance ratings and the criteria they thought about aloud were conducted.

Results: Coaches' rankings and thoughts during video observations were only descriptively, but not statistically significantly related (e.g., highest rho-values found for maturity [-.39], current performance [-.33], and table tennis specific technical skills [-.27]; all ps > .05).

Conclusion: Coaches generally consider various criteria important for their own decision-making process. Here, however, we did not find that coaches also think about those criteria with the highest importance more when having the task to observe and select players. Potential underlying reasons and study limitations will be discussed.

Jekel, M., Glöckner, A., & Bröder, A. (2018). A new and unique prediction for cue-search in a parallel-constraint satisfaction network model: The attraction search effect. *Psychological review*, 125(5), 744.

Koopmann, T., Faber, I. R., Lath, F., Loffing, F., & Schorer, J. (2023). Exploring the subjective beliefs of expert coaches on 'talent' and player selection in German table tennis. *International Journal of Sports Science & Coaching*, 18(6), 1952–1963. <https://doi.org/10.1177/17479541231185544>

Lath, F., Koopmann, T., Faber, I., Baker, J., & Schorer, J. (2021). Focusing on the coach's eye- towards a working model of coach decision-making in talent selection. *Psychology of Sport and Exercise*, 102011. <https://doi.org/https://doi.org/10.1016/j.psychsport.2021.102011>

## Ethical Crossroads: Deciding under the Physiological Stress of Exercise

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Oral presentation 16: Decision making and judgement,  
Hall Freiburg, Juli 16, 2024, 14:40 - 15:40

**Objectives:** The present study aimed to understand how exercise-induced physiological stress affects moral decision-making.

**Methods:** A counterbalanced repeated measures design was used. Participants completed the Congruent and Incongruent Moral Dilemmas survey (Conway & Gawronski, 2013) on two separate occasions, once resting and once while exercising. The exercise visit consisted of cycling on an ergometer at vigorous intensity (i.e., 7 out of 10 a.u. of the Rating of Perceived Exertion [RPE] scale). Visit orders were counterbalanced randomly. Participants' utilitarian (U) scores, deontological (D) scores, and time responding were analyzed.

**Results:** Paired-samples t-test showed significant differences in U scores,  $t(33) = 2.39$ ,  $p = 0.01$ ,  $d = 0.41$ , with exercisers engaging in less utilitarian decision-making. t-test for participants' D scores and times showed no significant differences. Order effects were tested using an ANOVA, which indicated a significant order effect for U scores  $F(1,32) = 7.54$ ,  $p = 0.01$ ,  $\eta^2 = 0.91$ . U scores for the seated-first group did not significantly change from seated to exercise. However, U scores for the exercise-first increased significantly from exercise to seated condition. No order effects were found for D scores. Significant order effects were found for time,  $F(1,32) = 86.13$ ,  $p < 0.001$ ,  $\eta^2 = 0.73$ . Both groups completed the survey faster the second time. However, the seated-first group took less time while exercising than the exercise-first group completing the task while seated.

**Conclusion:** Results support that when under physiological stress, decision-making becomes less utilitarian. A novel contribution of these results is that less utilitarian responses were only seen when participants made the decision for the first time under physiological stress. It appears reasonable to hypothesize that when afforded the opportunity to deliberate decisions in a rested state, people solidify their response leading to subsequent decisions occurring quicker with responses being consistent over time.

Conway P, Gawronski B. Deontological and utilitarian inclinations in moral decision making: a process dissociation approach. *J Pers Soc Psychol.* 2013 Feb;104(2):216-35. doi: 10.1037/a0031021. Epub 2012 Dec 31. PMID: 23276267.

## Assessing Decision Quality under Time Pressure: An Advanced Approach in Naturalistic Experiments

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Oral presentation 16: Decision making and judgement,  
Hall Freiburg, Juli 16, 2024, 14:40 - 15:40

**Objectives:** Decision making is a critical cognitive process relevant across all sports, particularly when athletes face high-pressure situations (Raab et al., 2019). Nevertheless, it remains a scientific challenge to replicate competition parameters accurately while ensuring a valid assessment of decision quality (Maselli et al., 2023). This study aims to bridge this gap between controlled laboratory experiments and real-world applicability, by exploring decision making in a naturalistic online chess setting, harnessing the capabilities of artificial intelligence for objective assessment. **Methods:** Ninety-four participants were engaged in evaluating tactical chess positions and identifying optimal moves under varying time constraints. Subsequent personality assessments were conducted. **Results:** Our findings emphasize the importance of expertise, as assessed by Elo ratings, in predicting decision quality. Expertise explains 61% of the variance in decision quality and time control emerged as a significant influencing factor, reinforcing its role in decision making. Additionally, our paradigm sheds light on the interplay between personality factors and decision-making processes, exemplified by a significant connection between elevated impulsivity scores and quicker response times in the no-time pressure conditions. Notably, these faster responses only resulted in poorer decisions among less skilled players, whereas experts consistently made high-quality decisions regardless of the time they took. This suggests that experts, despite not being inherently less impulsive, effectively manage their temperamental tendencies to maintain high performance. **Conclusion:** In summary, our study introduces a powerful tool that seamlessly combines laboratory precision with real-world applicability. This approach, although limited by the cognitive tasks utilized within chess, offers a precise tool to investigate the influence of personality and situational factors on decision making performance and furthermore provides flexibility as it can easily be incorporated into other frameworks, such as the Trier Social Stress Test (Kirschbaum et al., 1993), to assess performance under pressure.

Kirschbaum, C., Pirke, K. M., & Hellhammer, D. H. (1993). The 'Trier Social Stress Test'—a tool for investigating psychobiological stress responses in a laboratory setting. *Neuropsychobiology*, 28(1-2), 76-81.

Maselli, A., Gordon, J., Eluchans, M., Lancia, G. L., Thiery, T., Moretti, R., ... & Pezzulo, G. (2023). Beyond simple laboratory studies: developing sophisticated models to study rich behavior. *Physics of Life Reviews*.

Raab, M. (2020). *Judgment, decision-making, and embodied choices*. Academic Press.

## Exploring the Barriers and Facilitators to Mental Health Help-Seeking Behaviours in British Elite Track and Field Athletes

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Oral presentation 17: Well-being and quality of life,  
Hall Tirol, Juli 16, 2024, 16:10 - 17:10

**Objectives:** Track and Field (T&F) is at the heart of the summer Olympic Games and research has highlighted mental health issues in this population, such as depression, anxiety, suicidal ideation, and eating disorders. Our qualitative study explored the barriers and facilitators to help-seeking behaviours among British athletes to help create, implement, and inform pathways for mental health support.

**Methods:** Semi-structured interviews were conducted with nine elite T&F athletes (aged 21-27 years, M = 22.8), who had an average of five years' international competitive experience, including participating at various Commonwealth, European and World Championships.

**Results:** Four key themes were constructed and categorised as a barrier or facilitator to mental health help-seeking behaviours. Barriers included a lack of access to and prioritisation of mental health support in comparison to physical health support and the scrutiny of others regarding mental health issues within (e.g., sports commentators) and outside (e.g., the public) the sport. In contrast, facilitators included normalising mental health experiences through tailored online platforms and storytelling by role models and the team around the athlete in promoting openness to, and engagement with help-seeking. Overall, there is a need to embed mental health support into elite athletes' routines, to the equivalent level of physical health support.

**Conclusions:** A novel outcome of our study identified the value of sports specific online platforms in increasing awareness and sharing experiences of mental health. Key stakeholders should consider supporting such online platforms and look to improve the dissemination of mental health information to strengthen communities that are supportive

## Organizational stress in University athletes: Examining transactional pathways between stressors, situational properties, appraisals, coping, performance impact and wellbeing

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Oral presentation 17: Well-being and quality of life,  
Hall Tirol, Juli 16, 2024, 16:10 - 17:10

**Objectives:** Athletes are exposed to a range of organizational stressors, which can lead to dysfunctional outcomes (Simpson et al., 2021). However, limited research has considered the complex transactional pathway. The current study used Arnold and Fletcher's (2012) classification of organisational stressors to investigate the transactional pathways between organizational stressors and their underpinning situational properties, appraisals, coping, perceived coping effectiveness and impact on performance and well-being in University athletes.

**Methods:** Six male centre of excellence cricketers (Mage= 23.17, SD = 2.67) completed semi-structured interviews based on previous transactional stress research (Didymus & Fletcher., 2021). Mean perceived coping effectiveness was calculated and subjective impact on performance and well-being classified as positive, neutral or negative. Directed content analysis was used. Conceptually- and time-ordered cross-case causal networks allowed for the creation of a relatively novel way of representing qualitative data.

**Results:** A wide range of organizational stressors were underpinned by five situational properties. Threat, challenge and harm/loss appraisals were reported with problem solving and support seeking being the highest utilized. Some coping mechanisms i.e., support seeking, were perceived solely as effective whilst others had varying effectiveness. Logistical and environmental issues and threat appraisals were associated the most with negative impact on performance, whereas challenge appraisal were often associated with positive performance impact. There was a high prevalence of negative well-being impact which was often due to conflicting priorities and associated perceived negative performance impact.

**Conclusion:** This is the first study to examine the full transactional pathway in University athletes; illustrating the complex and individualized nature of stress transactions. As there was a concerning negative impact of organizational stress on well-being, athletes should be educated on the importance of appraisals and coping and organizations should be aware of any logistical changes they can make to ensure that athletes have an environment where they can thrive.

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## Safeguarding Mental Capital: Insights into Brain Health among Youth Rugby Athletes

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Oral presentation 17: Well-being and quality of life,  
Hall Tirol, Juli 16, 2024, 16:10 - 17:10

**Objectives:** This study explores young rugby academy players' perceptions of brain health through protection motivation theory, aiming to identify determinants of protection motivation behaviours for context-specific approaches supporting good brain health.

**Theoretical Background:** Brain health is a multi-faceted concept used to describe brain physiology, cognitive function, mental health and well-being. Formalising the concept that protection motivation (i.e., motivation to take action to promote health and prevent illness) is influenced by an individual's appraisal of a potential threat (e.g., brain health implications of multiple concussions), protection motivation theory provides an analytical scaffold to help identify key aspects of behaviour linked to brain health.

**Research Design:** Employing a qualitative design and reflexive thematic analysis, the focus of this study will be on the subjective perspectives and experiences of young athletes. The goal is to recruit at least 30 participants, who (1) are a member of a formal team, (2) training at least twice a week, (3) part of a competitive team at any level, and (4) aged 16 to 18 years old. Focus groups consisting of 4 to 6 participants per group will be conducted via Microsoft Teams using a semi-structured co-interviewing approach. The study will encompass two focus group phases and a psychoeducational virtual workshop between focus groups.

**Results:** Data collection is currently underway and we expect it to be completed by May 2024, giving us enough time to discuss findings at FEPSAC.

**Discussion:** Although diseases of the brain account for one third of the global burden of diseases, there is limited knowledge about the population's awareness of brain health, especially amongst young people. Helping young sports people appreciate the importance of good brain health is critical as they have the greatest opportunity to aspire to good brain health in a similar way one aspires to be physically fit.

## Developing a simple risk metric for the effect of sport-related concussion and physical pain on mental health

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Oral presentation 17: Well-being and quality of life,  
Hall Tirol, Juli 16, 2024, 16:10 - 17:10

Risk factors associated with depression in athletes include biological sex (Walker & McKay, 2022), physical pain (Walker et al., 2023), and history of sport-related concussion (SRC; Rice et al., 2018; Solomon et al., 2016). Due to the well-documented benefits of sport and physical activity on mental health (Callow et al., 2020; Saxena et al., 2005), athletes and non-athletes were recruited to assess any differences. Beyond this, athletes were also grouped by sport-type (contact/non-contact sports) due to the increased prevalence of pain and SRC in contact sports. To our knowledge, there has been no research on how these factors influence the likelihood of depression. In the current study, 144 participants completed a short survey on the above factors and the Center for Epidemiological Studies Depression Scale (Radloff, 1977). Sixty-two of these reported a history of concussion. Logistic regression revealed SRC, biological sex, physical pain, and sport-type to be significantly associated with the depression scale. Individuals that had previously sustained SRC (OR = 56.98), were experiencing greater physical pain (OR = 1.38) and females were more likely to display poor mental health (OR = 2.89). However, we provide further evidence for the benefits of engaging in sport and physical activity as those that took part in sport were less likely to report depression (Contact sport, OR = 71.43, Non-contact sport, OR = 4.37). Therefore, this study provides a simple risk metric whereby sportspeople can make a better informed choice of their sporting participation, making their own cost/reward judgement.

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## Psychological trajectories over a one-year recreational football training program

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Oral presentation 18: Developmental/lifespan perspectives & Excercise Psychology,  
Hall Freiburg, Juli 16, 2024, 16:10 - 17:10

**Objectives:** An active lifestyle and participation in sport are protective factors that play a key role in determining quality of life and well-being in older adults (King & Guralnik, 2010). Recreational football (RF), as a modified sport, provides social connections that are facilitators for intrinsic motivation (Ryan & Deci, 2017) Football, itself, is also an intrinsic motivator (Mowle et al., 2022). In this context, RF has the potential to encourage older adults to be more active. There remains a lack of research examining the psychological effects of RF. Thus, the aim of this longitudinal study is to analyze the psychological effects of RF across a one-year training program.

**Methods:** Eighteen subjects (13 males ; 5 women ; 60 to 80 years old), took part in a RF training program with two sessions per week during one year. Subjects completed questionnaires to assess their motivation (EMAPS) and physical self-esteem (ISP-25), well-being (WHO-5), anxiety (GAD-7), basic psychological needs (Basic Psychological Need Satisfaction and Frustration Scales) and vitality (Shirom-Melamed Vigor Measure). Multilevel growth curve analyses based on different time points across the one-year period were used to examine the linear and quadratic trajectories of each psychological variable.

**Results:** A significant positive linear effect of time for well-being and a significant negative linear effect of time for competence need frustration were observed ( $p < .05$ ). No significant linear or quadratic effect of time was reported for motivation, vitality and physical self-esteem.

**Conclusion:** A one-year recreational training program is effective to improve well-being and decrease the competence need frustration. Assuming that aging results in a decline of functional capacities, it is important for older adults to engage in activities that decrease the frustration of the basic psychological needs which can contribute to an overall sense of well-being.

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## Multicomponent Structured Exercise (MSE) and Depression for Older Adults: A Systematic Review and Meta-analysis

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Oral presentation 18: Developmental/lifespan perspectives & Excercise Psychology,  
Hall Freiburg, Juli 16, 2024, 16:10 - 17:10

**Objective:** More attentions have been paid to the benefits of MSE intervention for older adults, but the effectiveness of MSE combining aerobic, resistance and balance training on depression among older adults still unclear. This study aimed to summarize the characteristic of MSE and estimate the association of MSE with depression for older adults.

**Methods:** Six databases were searched from January 1, 2000 to October 1, 2023. Additional hand searching was conducted to ensure more comprehensive and complete literature can be included. Randomized controlled trials (RCTs) and non-randomized trials that conducted MSE combining aerobic, resistance and balance training to improve depression with subjective or objective measures for healthy or unhealthy older population (age $\geq$ 60 years) were included. Data extraction and quality assessment were independently conducted by two trained investigators. Data were pooled for meta-analysis using random-effects models. Subgroup analysis was conducted to identify specific factors that influence the overall effect size.

**Results:** Data were extracted from 20 studies with 2330 participants from 15 countries. The mean age ranged from 64.4 to 88 years old. 12 RCTs with 1630 participants were included in meta-analysis. MSE showed a significant effect on buffering older adults' depression (standardized mean difference (SMD), -0.41; 95% confidence intervals (CI), -0.78 to -0.05;  $p=0.03$ ) with considerable heterogeneity ( $I^2=92\%$ ) and low certainty of evidence. In subgroup analysis, MSE with poor health status, 2 session/week intervention frequency, under full supervision, equipment utilization and  $\geq 80\%$  retention rate showed significant effects on improvement of older adults' depression.

**Conclusions:** In this study, MSE as an effective approach may be incorporated into treatment plans for older adults' depression. More high quality RCTs are required to explore and optimize the intervention strategies and dosages of MSE for buffering older adults' depression.

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## Affective Responses to Continuous Aerobic Activities: Exploring the Timing of Assessments

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Oral presentation 18: Developmental/lifespan perspectives & Excercise Psychology,  
Hall Freiburg, Juli 16, 2024, 16:10 - 17:10

**Objectives:** Examining affective responses to exercise is vital in the study of physical activity motivation and adherence; however, methodological limitations relating to the timing of assessment may have impeded understanding. To address this issue, the present study compared affective responses immediately prior to completion, immediately after, and one minute after continuous aerobic exercise in apparently healthy adult males. It was hypothesized that measures recorded prior to completion would better explicate affective responses during aerobic activity (vs. post-measures), particularly in moderate and vigorous activities.

**Methods:** This quasi-experimental study involved 36 physically active males (Mweekly frequency =  $4.83 \pm 1.06$  workouts; Mage =  $27.92 \pm 5.82$  years). Three 16-minute treadmill exercise sessions at different intensities (i.e., light, moderate, vigorous; defined by individuals' percentage of their VO<sub>2</sub> Max) were completed at least 48 hours apart in a counterbalanced order. Participants verbally completed the Feeling Scale (FS) and Felt Arousal Scale (FAS) at three time points. A 3 (intensities: light, moderate, vigorous) x 3 (time relative to completion: prior, immediately after, 1 min after) ANOVA and pairwise comparisons with Bonferroni adjustments were performed.

**Results:** Both the FS and FAS depicted differences across time, intensities, and time x intensity interaction, with medium to large effect sizes. The FS scores were lower during exercise than the two post-exercise time points; FAS scores were higher on measures recorded during exercise. Higher intensities depicted larger affective rebound effects (i.e., bigger changes from during to post-exercise affective response) and a delayed affective recovery.

**Conclusion:** These results suggest that timing matters when measuring affective responses to exercise, and evaluations of the affective response should be made by contemplating real-time fluctuations. To promote understanding of how one feels during continuous aerobic exercise, the affective response is most accurately reflected by measures taken during exercise rather than post event assessments.

## Psychological distance in maternal relationships and anxiety in female university student aesthetic athletes

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Oral presentation 18: Developmental/lifespan perspectives & Excersie Psychology,  
Hall Freiburg, Juli 16, 2024, 16:10 - 17:10

The physical and mental problems and disabilities that are seen as problematic in female athletes have begun to receive attention. Female aesthetic athletes are at an especially high risk, and research has advanced on eating disorders, amenorrhea, osteoporosis, depression, stress, body image, and injuries. Many of the top aesthetic athletes start competing in childhood. It is thought that parent-child relationships, interpersonal relationships, and social development influence their mental skills and performance. However, it is unclear how aesthetic athletes perceive their relationships with their mothers, and how this perception affects performance and mental health. Therefore, this study investigated the state and trait of anxiety among this population, and clarifies how they perceive their maternal relationships, including cases of psychological distance. Sixty-four female university student aesthetic athletes (mean age=20.32) and 30 general female university students (mean age=19.53) participated in the study. The competitive experience among the athletes was over 15 years, including classical ballet, rhythmic gymnastics, gymnastics, and trampoline. Each participant completed a profile sheet, the State-Trait Anxiety Inventory (STAI), and Mother-Daughter Relationship Scale (Fujiwara & Ito, 2007). The results showed that both anxiety states and traits were significantly higher in the athlete students than in the general ones. Furthermore, on the Mother-Daughter Relationship Scale, "support for mother," "past conflicts," "dominance of mother," "trust in mother," and "dependence on mother" were rated significantly higher by the athlete students than by the general ones. While it would be close that the psychological distance between mothers and daughters among aesthetic athletes of university students, their anxiety traits and state are high. These findings suggest that mental health support interventions for aesthetic athletes should consider their maternal relationships.

## Coaching, yes, but how? Forms of leadership used by French women elite coaches and the impact of gender on them

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Oral presentation 19: Leadership,  
Hall Tirol, Juli 17, 2024, 11:00 - 12:00

At elite level, how do coaches bring out the best in athletes? One of the keys is leadership. Defined as the influence of one person on a group to achieve desired changes or a common(s) goal(s). Individuals in coaching positions who can exercise leadership are often men. In Tokyo in 2021, the representation of women in coaching positions was just 13% (IOC,2023). In response to this under-representation of women coaches, the IOC (International Olympic Committee) and the EU are committed to gender equality and inclusion.

Objectives: The goals are to understand then women elite coaches forms of leadership and the psychosociological mechanisms, based on the full-range leadership model (Bass & Riggio, 2006; transformational, transactional and passive leadership) and social roles (Eagly, 1987) and role congruence theories (Eagly et al., 2000).

Methods: Twelve semi-structured interviews (leadership development during their careers, evolutions, gender stereotypes) were conducted with high-level female coaches (i.e., employees by sport clubs or federations at three highest national levels, in team sports: handball, rugby, soccer, basketball).

Results: The interviews are taking place during February 2024. Analyses of the interviews will be presented at the congress.

Conclusion: This psychosociological study of sport is ground-breaking and responds to political, societal and sporting issues. In particular in focusing on the forms of leadership of elite female coaches and the impact of gender on this constructions.

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## Behavioural Intentions of Women and Men French Boxing Leaders

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Oral presentation 19: Leadership,  
Hall Tirol, Juli 17, 2024, 11:00 - 12:00

Since 2024, French sports Federations must comply with having equal representation of women and men leaders, and need to feminize their instances. The French Boxing Federation is subject to this effort, for it has only one-third of women leaders, at any level (from local to national).

The main objective of the study, based on the Eccles's Expectancy-Value Model (Eccles & Wigfield 2002), is to better understand the factors and the processes which influence the boxing leader's behavioural intentions to stay at their function and explore the differences between women and men.

A total of 244 French boxing leaders (86 females and 158 males), between 22 and 85 years old (M=52, SD=12.62) participated to the study. They completed an online questionnaire which measure 1/ perceptions of their leader's function (Duda & Nicholls 1992), 2/ perceptions of the way people in general perceive women and men in boxing (Bonnot & Croizet 2007) 3/ self-efficacy in their function (New General Self-Efficacy Scale, Chen et al. 2001), 4/ their motivation to be a boxing leader (Gagné et al. 2015), 5/ values about their leader's functions, 6/ sensations (Isoard et al. 2018), 7/ behavioural intentions to stay at their function (Ajzen & Driver 1992) and 8/ socio-demographic data (sex, age, familial situations...).

Behavioural intentions to stay on function can be explained at 26.44% ( $p \leq .05$ ) by leader's perceptions, amotivation, cost allocated to the function, perceived emotional energy, and the leader's function.

No gender differences were found on behavioural intentions to stay at their function. However, gender differences have been identified in self-efficacy and some socio-demographic data (age, familial situations...).

This study increases the knowledge of the boxing leader's motivational quality, highlights what influences their desire to stay or to withdraw and explores differences exist between women and men leaders.

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## Designing, implementing, and evaluating a leadership development program for adolescent girls in sport.

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Oral presentation 19: Leadership,  
Hall Tirol, Juli 17, 2024, 11:00 - 12:00

**Objectives:** A report by Canadian Women & Sport (2020) calls for girls' sport programming to be high quality and support, alongside physical skill development, the development of social skills such as leadership. The purpose of the present research was twofold: to evaluate a leadership development program for adolescent girls over the course of two years, and to understand how conducting ongoing evaluation can contribute to the continuous improvement of a program.

**Methods** This research was conducted in partnership with Canadian Tire Jumpstart Charities using integrated knowledge translation, which emphasizes the creation of knowledge in partnership with the end-user, and was informed by the CIPP (context, input, process, product) evaluation model (Smith et al., 2022; Stufflebeam, 2003). Participants were adolescent girls (N = 35 (year one), 120 (year two)), the girls' sport coaches (N = 25 (year one), 60 (year two)), and Jumpstart staff (N = 3). Participants took part in a six-month educational program, completed a survey, an interview, and took part in a focus group. Data were analysed using reflexive thematic analysis (Braun & Clarke, 2022).

**Results** The results highlight a variety of successes and areas for improvement in the program design and implementation and document the program's impact on participants. Creating an inclusive environment that supported learning leadership skills and building relationships with other participants as well as their own teams and coaches were critical components of the program. The first-year evaluation informed the second year of the program, and the importance of conducting ongoing evaluation and making continuous improvements to a program's design and implementation is discussed.

**Conclusion** This research contributes to our understanding of ways of creating an effective and enjoyable learning environment for adolescent girls in sport, and how integrated knowledge translation can be used effectively to inform program evaluation with a sport partner.

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## Shared Leadership in Sports Teams – A Social Network Approach

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Oral presentation 19: Leadership,  
Hall Tirol, Juli 17, 2024, 11:00 - 12:00

**Objectives:** Shared leadership, in the form of athlete leadership, offers advantages like positive team outcomes, collective efficacy, higher rankings and increased team identification by distributing roles – task, motivational, social, and external (e.g., Fransen et al., 2014). Our study aims to replicate the evidence of shared leadership in sport teams with the help of social network analyses as applied by Fransen et al. (2015) conceptually, but also to expand on it methodologically and substantively.

**Methods:** We firstly explore the statistical overlap among four leadership roles applying QAP-correlations with weighted networks. Secondly, our study examines whether shared athlete leaders receive higher rankings in terms of leadership qualities associated to their coaches and captains by evaluating their weighted indegrees. Lastly, we use QAP-correlations to determine whether teammates, who are perceived to have strong leadership qualities, also fulfill these roles in practice. To address our research questions, we gathered data from eight sports teams in Germany, encompassing both football and handball teams.

**Results:** In total, N = 148 team members completed a corresponding questionnaire in which they assessed the leadership qualities and leadership realities of their teammates. The analyses of the data revealed that the four theoretical leadership roles can be empirically differentiated, demonstrating moderate to high correlation coefficients. A comparison of the rated leadership qualities and realities shows a similar picture. These large tie overlaps can be explained by the concept of multiplexity, as the four different leadership roles also exhibit theoretical overlap (Verbrugge, 1979). Regarding the comparison of leadership qualities, informal athlete leaders achieved higher indegrees on average compared to their coaches.

**Conclusion:** Our research findings support the importance of shared leadership in sports teams as assumed by Fransen et al. (2015) and suggest the rationale for considering sociometric choices in practical decisions related to determining leadership roles in sports teams.

Fransen, K., Puyenbroeck, S. V., Loughead, T. M., Vanbeselaere, N., Cuyper, B. D., Broek, G. V., & Boen, F. (2015). Who takes the lead? Social network analysis as a pioneering tool to investigate shared leadership within sports teams. *Social Networks*, 43, 28–38. <https://doi.org/10.1016/j.socnet.2015.04.003>

Fransen, K., Vanbeselaere, N., Cuyper, B. D., Broek, G. V., & Boen, F. (2014). The myth of the team captain as principal leader: extending the athlete leadership classification within sport teams. *Journal of Sports Sciences*, 32 (14), 1389–1397. <https://doi.org/10.1080/02640414.2014.891291>

Loughead, T. M., Hardy, J., & Eys, M. A. (2006). The nature of athlete leadership. *Journal of Sport Behavior*, 29 (2), 142–158.

Schotanus, E., & Martin, L. (2022, January 5). Let them lead: The benefits of shared athlete leadership. *SIRC*. <https://sirc.ca/blog/shared-athlete-leadership/>

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## Perfectionistic climates in aesthetic sports and ballet: Exploring the tendency to continue training with injury or pain

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Oral presentation 20: Music, Dance and Performing Arts,  
Hall Grenoble, Juli 17, 2024, 11:00 - 12:00

**Objectives:** While previous research highlights a positive relationship between perfectionism and injury (e.g., De Maria et al., 2024; Madigan et al., 2018), there is no known research exploring the relationship between perfectionistic climates and injury. The aim of this study was to investigate potential links between perceptions of perfectionistic climates and the tendency to train/compete with injury/pain in aesthetic sports and ballet.

**Methods:** Two hundred and seven female aesthetic performers (18-59 years, M = 26.60) from 23 countries completed an online survey as part of a larger study. They represented aesthetic activities such as figure skating, ballet, aerial/circus and gymnastics. Performance levels included beginners to international/professional performers.

Questionnaires included the Perfectionistic Climate Questionnaire for Sport (Grugan et al., 2021) and a study-specific adaptation of the Oslo Sport Trauma Research Center Overuse Injury Questionnaire (Clarsen et al., 2020).

**Results:** Statistical analysis is underway. Our preliminary analyses show that levels of perfectionistic climates were reported as low to moderate. Almost all participants (95.59%) had experienced at least one incidence of injury/pain. On a scale of never (1) to more than 10 times (4), participants reported sometimes training/competing with mild injury/pain (M = 2.68, SD = .87), sometimes with moderate injury/pain (M = 2.15, SD = .90), and rarely with severe injury/pain (M = 1.63, SD = 1.25). Strong, positive correlations existed between perceptions of perfectionistic climate and the tendency to continue training/competing with mild ( $r = 0.42, p < .001$ ), moderate ( $r = 0.47, p < .001$ ) or severe ( $r = 0.46, p < .001$ ) injury/pain.

Additional regression-based analyses are planned to further investigate these relationships. We will complement statistical analysis with quotes from interviews with aesthetic performers.

**Conclusion:** The positive correlations between perfectionistic climate and the tendency to train/compete with injury/pain contributes valuable knowledge regarding the possible risks of perfectionistic climates.

Clarsen, B., Bahr, R., Myklebust, G., Andersson, S. H., Docking, S. I., Drew, M., ... & Verhagen, E. (2020). Improved reporting of overuse injuries and health problems in sport: an update of the Oslo sport trauma research center questionnaires. *British Journal of Sports Medicine*, 1-7. <https://doi.org/10.1136/bjsports-2019-101337>

De Maria, A., Galli, F., Zelli, A., & Mallia, L. (2024). A multi-design investigation of perfectionism risk profiles for traumatic injury in sport. *Psychology of Sport and Exercise*, 72, 1-7. <https://doi.org/10.1016/j.psychsport.2024.102603>

[org/10.1016/j.psychsport.2024.102603](https://doi.org/10.1016/j.psychsport.2024.102603)

Grugan, M. C., Hill, A. P., Mallinson-Howard, S. H., Donachie, T. C., Olsson, L. F., Madigan, D. J., & Vaughan, R. S. (2021). Development and initial validation of the Perfectionistic Climate Questionnaire-Sport (PCQ-S). *Psychology of Sport and Exercise*, 56, 1-13. <https://doi.org/10.1016/j.psychsport.2021.101997>

Madigan, D. J., Stoeber, J., Forsdyke, D., Dayson, M., & Passfield, L. (2018). Perfectionism predicts injury in junior athletes: Preliminary evidence from a prospective study. *Journal of Sports Sciences*, 36(5), 545-550. <https://doi.org/10.1080/02640414.2017.1322709>

## Transferring choking interventions from sports to music

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Oral presentation 20: Music, Dance and Performing Arts,  
Hall Grenoble, Juli 17, 2024, 11:00 - 12:00

**Objectives:** Performing artists and athletes share many similar aspects of performance under pressure. They both have to perform in front of an audience, which may lead them to experience high anxiety, eventually harming performance. Psychologists have called this “choking under pressure,” a phenomenon that refers to performing worse than expected despite high skills and motivation (Baumeister, 1984). The aim of this multi-study work was to transfer choking interventions from sports to music and test their benefits for performance and self-efficacy.

**Methods:** In Study 1, 30 musicians performed an audition excerpt in a low-pressure pretest and a high-pressure posttest, while applying either a pre-performance routine (PPR) or a goal-setting intervention before the posttest. In Study 2, another 46 musicians performed under low- and high-pressure conditions; they applied either a PPR, dynamic handgrip, or goal setting to their daily practice, while the control group practiced without an intervention. Study 3 was a mixed-methods, collective case study with nine performing artists, who each received five individual coaching sessions and tailored choking interventions. In all studies, pressure was induced by the presence of an audience or a jury. Data on anxiety (self-reported and heart rate), self-efficacy (questionnaire), and performance (self-evaluations and expert evaluations) were collected.

**Results:** Quantitative analysis showed that choking interventions resulted in higher self-efficacy in all three studies, but this translated into better music performance only in Study 3. Qualitative data (Study 3) revealed that participants emphasized the value of having psychological strategies on hand to deal with high-pressure situations.

**Conclusion:** The observed benefits of choking interventions in music were fewer than those reported in sports, except for tailored interventions that brought substantial improvements for participants. The implication is that if sports-based interventions are to be adapted for performing artists, it is essential to address their individual needs.

Baumeister, R. F. (1984). Choking under pressure: Self-consciousness and paradoxical effects of incentives on skillful performance. *Journal of Personality and Social Psychology*, 46, 610–620. doi:10.1037/0022-3514.46.3.610

## Psychological Abuse in Aesthetic Sports and Ballet: Patterns and Links to Perfectionistic Climate Perceptions

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Oral presentation 20: Music, Dance and Performing Arts,  
Hall Grenoble, Juli 17, 2024, 11:00 - 12:00

**Objectives:** As part of a larger investigation into aesthetic activity cultures, we examined perceptions of coach-perpetrated psychological abuse (“A pattern of deliberate non-contact behaviours by a person within a critical relationship role that has the potential to be harmful”; Stirling & Kerr, 2008). Additionally, we studied links between perceptions of psychological abuse and perfectionistic climates (i.e., environments perceived as perfectionistic; typically comprising harsh and controlling behaviours).

**Methods:** Female aesthetic athletes and ballet dancers (N = 207) aged 18-59 (M = 26.60) digitally completed the Violence Toward Athletes Questionnaire (Parent et al., 2019) and the Perfectionistic Climate Questionnaire for Sport (Grugan et al., 2021). Participants represented aesthetic activities including figure skating, ballet and aerial/circus, four levels (beginner - international/professional), and 23 countries. They had 13.40 years (SD = 8.27) of experience.

**Results:** Preliminary results indicate low to moderate levels of psychological abuse and perfectionistic climates. However, all but one participant (99,5%) reported having experienced some kind of psychological abuse at least once. Reports of abuse increased with performance level ( $W(3,110) = 33.1, p < .001$ ).

Strong, positive correlations existed between perceptions of psychological abuse and all five aspects of perfectionistic climates ( $r = .58 - .71, \text{all } p < .001$ ). In regression, perfectionistic climates predicted 57% of the variance in abuse ( $F(5,200) = 55.5, p < .001$ ). Specifically, performers reporting higher levels of coach control, criticism and conditional regard also reported higher levels of psychological abuse.

Data will be illustrated with quotes from an ongoing qualitative study into these same topics.

**Conclusion:** Psychological abuse exists in aesthetic activities, especially at higher levels. The strong correlations with perfectionistic climates suggest partial overlap and perhaps a jangle fallacy. Discussion will center on whether perfectionistic climates facilitate abuse, or are inherently abusive, while staying mindful of study limitations (e.g., online study, self-report data).

Grugan, M. C., Hill, A. P., Mallinson-Howard, S. H., Donachie, T. C., Olsson, L. F., Madigan, D. J., & Vaughan, R. S. (2021). Development and initial validation of the Perfectionistic Climate Questionnaire-Sport (PCQ-S). *Psychology of Sport and Exercise*, 56, 101997.

Parent, S., Fortier, K., Vaillancourt-Morel, M. P., Lessard, G., Goulet, C., Demers, G., ... & Hartill, M. (2019). Development and initial factor validation of the Violence Toward Athletes Questionnaire (VTAQ) in a sample of young athletes. *Loisir et Societe/Society and Leisure*, 42(3), 471-486.

Stirling, A. E., & Kerr, G. A. (2008). Defining and categorizing emotional abuse in sport. *European Journal of Sport Science*, 8(4), 173-181.

## Physiological synchrony and team performance under pressure: An experimental study with expert musicians

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<sup>1</sup>University of Vienna, Department of Sport and Human Movement Science, Vienna, Austria

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Oral presentation 20: Music, Dance and Performing Arts,  
Hall Grenoble, Juli 17, 2024, 11:00 - 12:00

**Objectives:** Performing under pressure may be challenging and can lead to performance failure; this has been described for both individuals (i.e., choking under pressure; Mesagno et al., 2016) and teams (i.e., team collapse; Wergin et al., 2018). Researchers have so far explored why individuals fail under pressure, yet the mechanisms related to underperformance of a team are still unclear. The aim of this study was to test whether physiological synchrony between two musicians would be related to the team's (under)performance under pressure. Physiological synchrony refers to the coordination of biological responses during social interactions, which has been linked to better team performance (Tamminen et al., 2023). **Methods:** Twenty-eight highly-experienced string duos were asked to play a musical piece twice, once without and once under pressure. The pressure was induced by the presence of a jury visible to one of the duo partners. Physiological synchrony was assessed using RR-intervals and skin conductance levels. For team performance, musical performance of each string duo was recorded and the recordings were analyzed with well-validated music toolboxes based on Python and Matlab. **Results:** The results showed that participants were more synchronized when performing music together than when sitting quietly next to each other (baseline). Higher physiological synchrony was related to better music performance quality in two parameters – a more expressive style of playing and tempo variation. The induction of pressure did not affect either physiological synchrony or music performance quality. **Conclusion:** Physiological synchrony seems to play a role in team performance in general, yet the present results do not allow any conclusion on how physiological synchrony impacts performance of a team under pressure in particular. Nevertheless, this study provides a novel well-controlled research paradigm to investigate the roots of a group (under)performance in professional musicians.

Mesagno, C., Mornelland, A. & Quinn, A. L. Choking under pressure in sport and music: Exploring the benefits of theory transfer across domains. in *Art in motion III Performing under pressure* (ed. Mornell, A.) 23–57 (Peter Lamg, 2016). doi:10.3726/978-3-631-69464-0.

Wergin, V. V., Zimanyi, Z., Mesagno, C. & Beckmann, J. When suddenly nothing works anymore within a team - Causes of collective sport team collapse. *Front Psychol* 9, (2018).

Tamminen, K. A., Danyluck, C., Bonk, D. & Chen, R. Syncing to perform? A naturalistic uncontrolled prospective case study of emotional and physiological synchrony in a team of male volleyball athletes. *Journal of Sport Sciences* 41, 1033–1046 (2023).

## Facing competition's demands: coping strategies and attentional foci of elite fencers in response to stressful situations

**Maelle Bracco**<sup>1</sup>, Nadia Sondt<sup>2</sup>, Sylvain Dugeny<sup>2</sup>, Mael Goisbault<sup>3</sup>, Marjorie Bernier<sup>2</sup>, Julie Doron<sup>3</sup>, Guillaume Martinent<sup>1</sup>

<sup>1</sup>Université Claude Bernard Lyon <sup>1</sup>, Université de Lyon, Laboratoire sur les Vulnérabilités et l'Innovation dans le Sport (EA <sup>7428</sup>), Villeurbanne, France <sup>2</sup>Univ Brest, Centre de Recherche sur l'Education les Apprentissages et la Didactique (EA <sup>3875</sup>), Brest, France <sup>3</sup>Nantes Université, Motricité - Interactions - Performance, MIP, UR <sup>4334</sup>, Nantes, France

Oral presentation 21: Elite sports and expertise,  
Hall Tirol, Juli 17, 2024, 13:30 - 14:30

**Objectives:** Fast adaptation is crucial for performance in sport, and partly depends on athletes' focusing and coping abilities. The study's first aim was to identify types of stressful situations encountered in a high-level fencing match. Second objective was to depict associated coping strategies and attentional focus of elite fencers. Last objective was to look for coping and attentional focus relationships inside fencers' stress responses.

**Methods:** Nine male fencers, members of a senior foil national team, took part in a simulated tournament. The competition followed Olympic format (five 15-points matches, separated by one hour). After one their matches, fencers took part in a video-assisted self-confrontation interview. Athletes would re-watch their match and be asked about their coping strategies and attentional focus. Verbatims were analysed using Composite Sequence Analysis (Miles & Huberman, 1994) and temporal patterning (Hanton et al., 2002; Nieuwenhuys et al., 2008).

**Results:** Five types of stressful situations emerged: missing/failing, losing the point, unfavourable referee's decision, breaks and opponent's pressure. In the present study, spontaneous and proactive responses of elite athletes did not necessarily follow a theoretical order, nor fixed patterns. However, athletes demonstrated combine use of particular coping strategies, namely resting, change perception about the situation, acceptance and strategies requiring increased mental efforts. Combination of several of these strategies appeared to facilitate focus on strategy or technique. Attentional focus seemed impacted by both coping strategies and type of stressful situation.

**Conclusion:** It is most probable that elite athletes show specific adaptational patterns, and that flexibility in coping and attentional focus is determining for high-level performance. In this regard, investigating competitive context is important to identify adaptive (or dysfunctional) idiosyncratic response of athletes under pressure. Building on results of the present study, coaches and practitioners could work on developing athlete's ability to combine coping strategies with relevant attentional focus.

Hanton, S., Mellalieu, S., & Young, S. (2002). A qualitative investigation of the temporal pattern of the precompetitive anxiety response. *Journal of Sports Sciences*, 20, 911–928. <https://doi.org/10.1080/026404102320761804>

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. SAGE.

Nieuwenhuys, A., Hanin, Y. L., & Bakker, F. C. (2008). Performance-related experiences and coping during races: A case of an elite sailor. *Psychology of Sport and Exercise*, 9(1), 61–76. <https://doi.org/10.1016/j.psychsport.2006.12.007>

## The relation between health and performance throughout the career pathways of elite athletes, musicians, and mathematicians: A qualitative study

**Jannika John**<sup>1</sup>, Svenja Wachsmuth<sup>1</sup>, Ansgar Thiel<sup>1</sup>

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Oral presentation 21: Elite sports and expertise,  
Hall Tirol, Juli 17, 2024, 13:30 - 14:30

**Objectives:** Elite athletes are often depicted as models of character and health (Safai et al., 2014). However, critical sport psychological scholarship has begun to question the exclusively positive association between sport and health. Within elite sports, health-related risk-taking behaviors as well as the mandate to subordinate one's health to performance appear common (Mayer & Thiel, 2018). Recently, comparative research has highlighted that similar health-related risk behaviors can also be observed among high-performers within elite music and academia (John & Thiel, 2022).

With the current study, we aimed to explore high-performers' experiences and perceptions of health in relation to performance throughout their careers. Specifically, we were interested in how elite athletes, musicians, and mathematicians negotiated this relation.

**Methods:** Adopting an interpretivist constructionist approach, we conducted 30 semi-structured interviews, with ten elite athletes, professional musicians, and elite mathematicians each. Through reflexive thematic analysis, we analyzed patterns within the data related to how high-performers experienced and constructed the relation between health and performance along their career pathways.

**Results:** We identified six themes: (1) Illusion of invulnerability, (2) Health and performance as an anti-thesis, (3) The psychic benefits of performing outweigh its physical costs, (4) Health as a prerequisite for performance, (5) There is more to me and life, and (6) It is difficult to care for one's health.

**Conclusion:** Sociocultural norms typical of the culture of risk predominated the early stages of high-performers' careers leading them to believe that health and performance contradicted each other. Later in their careers, some high-performers began to critically question these beliefs and began to value health as a capacity for performance or even tried to abandon the performance narrative from their lives. All together the findings illustrate the tensions and conflicts high-performers experienced with regard to their health within a high-performance context that often only valued success.

John, J. M., & Thiel, A. (2022). All roads lead to Rome? Talent narratives of elite athletes, musicians, and mathematicians. *Qualitative Research in Sport, Exercise and Health*, 14(7), 1174-1195.

Mayer, J., & Thiel, A. (2018). Presenteeism in the elite sports workplace: The willingness to compete hurt among German elite handball and track and field athletes. *International Review for the Sociology of Sport*, 53(1), 49-68.

Safai, P., Fraser-Thomas, J., & Baker, J. (2014). Sport and health of the high performance athlete: An introduction to the text. In J. Baker, P. Safai, & J. Fraser-Thomas, *Health and Elite Sport* (pp. 1-12). Routledge.

## Is it Important for Elite Coaches to be Need-Supportive even During Competitive Games?

**Sofie Morbée**<sup>1</sup>, Leen Haerens<sup>1</sup>, Bart Soenens<sup>1</sup>, Joke Thys<sup>1</sup>, Maarten Vansteenkiste<sup>1</sup>

<sup>1</sup>Ghent University, Ghent, Belgium

Oral presentation 21: Elite sports and expertise,  
Hall Tirol, Juli 17, 2024, 13:30 - 14:30

**Objectives:** Grounded in Self-Determination Theory, the current study examined whether game-to-game fluctuations in elite volleyball coaches' motivating (i.e., need-supportive) and demotivating (i.e., need-thwarting) coaching relate to game-to-game fluctuations in athletes' need-based experiences, motivation, and coach-rated performance.

**Methods:** We conducted a multi-informant study in which 190 elite volleyball athletes (Mage = 23.95, 32.6% male) and their 26 coaches (Mage = 48.12, 95.7% male) completed a questionnaire after each competitive game for five consecutive games.

**Results:** Linear mixed modeling showed that game-to-game variation in coaches' need-supportive coaching style was positively related to corresponding variation in elite athletes' need-based experiences, motivation, and performance, whereas game-to-game variation in a need-thwarting coaching style was negatively related to variation in these outcomes. The study also examined cross-level interactions and found some preliminary evidence for a habituation process in which athletes with a general need-thwarting coach become accustomed to need-thwarting coaching behaviors and report consistently low scores on these outcomes regardless of whether or not their coach uses additional game-specific need-thwarting coaching behaviors, whereas the adaptive functioning of athletes with a general need-supportive coach showed a significant decrease when confronted with additional game-specific need-thwarting coaching. Importantly, a need-thwarting style was never beneficial for the athlete outcomes and a need-supportive style was more adaptive at all levels of analysis.

**Conclusion:** Overall, the game-to-game associations are encouraging as each game appears to represent a new opportunity for coaches to promote positive athlete outcomes. The findings highlight the importance of considering the dynamic nature of coaching to understand the role of coaching styles in elite athletes' well-being, motivation, and performance.



## Risk and Protective Factors for the Olympic Games at home: The mental Preparation of Athletics' Brazilian Team in Rio 2016

**Simone Sanches<sup>1</sup>**

<sup>1</sup>Paulista University, Campinas, Brazil

Oral presentation 21: Elite sports and expertise,  
Hall Tirol, Juli 17, 2024, 13:30 - 14:30

The mental preparation is one of the most important dimensions in the performance of the Olympic athletes (Arnold & Sarkar, 2015). Miller et al (2023) investigated the risk and protective factors as the barriers or facilitators to mental health. In the preparation for the Olympic Games the strategies to deal with these emotions can be fundamental for the well-being and performance.

**Objectives:** Describe the risk and protective factors of competing in an Olympic Games at home, from the intervention experience of the sport psychologist of the Brazilian Track and Field team in Rio 2016.

**Method:** This is a case study of the experience of the psychologist that worked with the Brazilian Track and Field team since the Olympic Games of London 2012 until Rio 2016. The delegation in Rio was composed of 67 athletes. The interventions occurred during the entire season in trainings and competitions. Athletes participated in individual and groups sessions.

**Results:** During the preparation, the athletes share some of the aspects that was affecting their emotional stability and could be considered as risk factors: the increasing pressure of the sponsors, teams, coaches, families, media, and self-demand. Having the fans in the stadium could be considered a risk factor depending on how the athlete use this stimulus. There are some protective factors that make them more confident, related with the environment of being in the home country (weather, food, localization). The increasing space in the media and social network were considerate a motivation, as the presence of the family and friends in the competition setting.

**Conclusion:** The risk and protective factors must be analyzed in an individual dimension because the athletes respond differently to each situation. The support of a sport psychologist is instrumental in the organization of routine and mental preparation, looking for a pleasure and positive experience.

Arnold, Rachel and Sarkar, Mustafa (2015) Preparing athletes and teams for the Olympic Games: Experiences and lessons learned from the world's best sport psychologists. *International Journal of Sport and Exercise Psychology*, 13 (1). pp. 4-20. doi:10.1080/1612197X.2014.932827

Thomas W. Miller, Janine Coates, Carolyn R. Plateau & Jamie B. Barker (2023) Exploring the barriers and facilitators to mental health help-seeking behaviours in British elite track and field athletes, *Journal of Applied Sport Psychology*, DOI: 10.1080/10413200.2023.2197962

## What makes us act habitual? The role of personality traits in predicting exercise and nutrition habit strength

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Oral presentation 22: Music, Dance and Performing Arts & Physical activity & Elite sports and expertise,  
Hall Grenoble, Juli 17, 2024, 13:30 - 14:30

**Background.** Habits are cue-behavior associations learned through repeated performance (Gardner, 2015). While they do barely rely on conscious processes, habits may be a good way to initiate and maintain sustainable health behavior change (Gardner et al., 2021). However, research shows that habit formation trajectories are highly individual (Lally et al., 2010). Although theory proposes a considerable link between habit and personality (Wrzus & Roberts, 2017), investigating traits as potential determinants of habit formation has been mainly neglected (Judah, 2015). This correlational study aimed to address this gap by examining the association between three personality factors (conscientiousness, neuroticism, and trait self-control) and automaticity.

**Method.** 366 healthy adults completed questionnaire measures of conscientiousness, neuroticism, trait self-control, and habit strength for 12 physical activity and nutrition behaviors, as well as their daily routine. Linear regressions were run to examine associations between the variables of interest. Moreover, potential mediating or moderating effects of trait self-control on the conscientiousness/neuroticism-automaticity relationship were investigated using the PROCESS macro.

**Results.** Although inconsistent, some very small mediating and moderating effects were found. Conscientiousness had no direct effects on habit strength for any behavior, but indirectly predicted automaticity for some unhealthy behaviors through trait self-control. Neuroticism predicted automaticity for exercising in a direct manner, and for unhealthy behaviors in an indirect manner through trait self-control. Self-control itself was associated with unhealthy habits, which was surprising. Moreover, it played a moderating role in the relationships conscientiousness-sitting habit, conscientiousness-drinking water habit, and neuroticism-drinking water habit. However, for all other health behaviors, no effects were found.

**Conclusion.** Findings indeed indicate a possible influence of the investigated traits, making them a considerable habit determinant. However, longitudinal designs are necessary to examine their impact on the health habit formation process. Moreover, further research should clarify under which conditions potential effects exist.

Gardner, B. (2015). A review and analysis of the use of 'habit' in understanding, predicting and influencing health-related behaviour. *Health Psychology Review*, 9(3), 277-295. <https://doi.org/10.1080/17437199.2013.876238>

Gardner, B., Arden, M. A., Brown, D., Eves, F. F., Green, J., Hamilton, K., Hankonen, N., Inauen, J., Keller, J., Kwasnicka, D., Labudek, S., Marien, H., Masaryk, R., McCleary, N., Mullan, B. A., Neter, E.,

Orbell, S., Potthoff, S., & Lally, P. (2021). Developing habit-based health behaviour change interventions: twenty-one questions to guide future research [Review]. *Psychol Health*, 38(4), 518-540. <https://doi.org/10.1080/08870446.2021.2003362>

Judah, GD; (2015) An Investigation into the Psychological Determinants of Health Habit Formation. thesis, London School of Hygiene & Tropical Medicine. <https://doi.org/10.17037/PUBS.02121556>

Lally, P., van Jaarsveld, C. H. M., Potts, H. W. W., & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real world. In *European Journal of Social Psychology* (Vol. 40, Issue 6, pp. 998-1009). <https://doi.org/10.1002/ejsp.674>

Wrzus, C., & Roberts, B. W. (2017). Processes of Personality Development in Adulthood: The TESERA Framework. *Personality and Social Psychology Review: An Official Journal of the Society for Personality and Social Psychology, Inc*, 21(3), 253-277

## Current State of Knowledge on Toxic Leadership and Its Consequences in High-Performance Sports: Results from a Scoping Review

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Oral presentation 22: Music, Dance and Performing Arts & Physical activity & Elite sports and expertise,  
Hall Grenoble, Juli 17, 2024, 13:30 - 14:30

**Objectives:** Evidence from business, politics, and the military indicates that toxic leadership is common and adversely impacts individuals and organizations (Schyns & Schilling, 2013). Toxic leadership and socially undesirable behaviors in high-performance sports are now gaining increasing attention (e.g., Serpell et al., 2021), highlighting a plausible contradiction between achieving success and maintaining ethical and moral standards. The objective of this review is to identify the current state of knowledge on toxic leadership in high-performance sports and its consequences for mental health and performance at the individual, interpersonal, and organizational levels.

**Methods:** Recognizing the terminological inconsistency in the current literature (Mackey et al., 2021), "toxic leadership" was adopted as an umbrella term for harmful leadership with adverse impacts on followers. Studies were included if they focused on toxic leadership within high-performance sports by investigating sports leaders' behavioral/personality traits (e.g., the dark triad; Paulhus, 2014) or contextual factors sustaining toxic leadership (e.g., Padilla et al., 2007). Abstract screening (n=768) and assessment of eligibility through full-text review (n=83) resulted in the inclusion of 26 studies.

**Results:** Studies were predominantly conducted in North America and Europe, toxic leadership was generally poorly defined and most of the studies were qualitative in nature. Several antecedents to toxic leadership were identified, such as individual characteristics of leaders, performance-oriented culture, status and hierarchical power structures, and a lack of reporting measures or consequences within the organization. The empirical literature provided initial support for the negative consequences of toxic leadership on athletes' mental health, injuries, and motivation to remain in high-performance sports, but research on its consequences for sports organizations was limited.

**Conclusion:** Research on toxic leadership in high-performance sports is in its initial stage. We recommend that researchers, governing bodies, and sports organizations

increase awareness of toxic leadership and develop strategies to mitigate or prevent its negative consequences.

Mackey, J. D., Ellen III, B. P., McAllister, C. P., & Alexander, K. C. (2021). The dark side of leadership: A systematic literature review and meta-analysis of destructive leadership research. *Journal of Business Research*, 132, 705-718.

Padilla, A., Hogan, R., & Kaiser, R.B. (2007). The toxic triangle: Destructive leaders, susceptible followers, and conducive environments. *The Leadership Quarterly*, 18(3), 176-194. <https://doi.org/10.1016/j.leaqua.2007.03.001>.

Paulhus, D. L. (2014). Toward a taxonomy of dark personalities. *Current Directions in Psychological Science*, 23(6), 421-426. <https://doi.org/10.1177/0963721414547737>

Serpell, B. G., Harrison, D., Lyons, M., & Cook, C. J. (2021). Dark traits as a potential feature of leadership in the high-performance sports coach. *International Journal of Sports Science & Coaching*, 16(2), 281-290. <https://doi.org/10.1177/1747954120964059>

Schyns, B., & Schilling, J. (2013). How bad are the effects of bad leaders? A meta-analysis of destructive leadership and its outcomes. *The Leadership Quarterly*, 24(1), 138-158. <https://doi.org/10.1016/j.leaqua.2012.09.001>

## Mental health and self-compassion among the performing arts

**Courtney Walton**<sup>1</sup>, Sabrina McKenzie<sup>1</sup>, Caroline Gao<sup>1</sup>, Simon Rice<sup>1</sup>, A/ James Kirby<sup>2</sup>, Margaret Osborne<sup>1</sup>

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Oral presentation 22: Music, Dance and Performing Arts & Physical activity & Elite sports and expertise,  
Hall Grenoble, Juli 17, 2024, 13:30 - 14:30

**Objectives:** Many stressors exist within the performing arts which may contribute to mental ill-health. These include occupational hazards (e.g., performance stress, abuse, financial insecurity), but also self-relating processes (self-criticism, maladaptive perfectionism, etc) (Willis et al., 2019). Self-compassion has attracted growing attention for its potential to respond to mental health in high performance contexts like elite sport (Cormier et al., 2023; Walton et al., 2022). However, no large studies to this point have explored self-compassion in relation to mental health among performing artists. Thus, the purpose of this study was to examine how different aspects of self-compassion contribute to mental health among performing artists in a large and diverse sample across Australia.

**Methods:** This was an online cross-sectional survey of >300 performing artists in Australia. Participants were eligible across forms of dance, acting, and music, and included both those studying or working in the field. Participants completed a range of questionnaires to assess mental health and self-compassion, in addition to a range of other important demographic and descriptive factors.

**Results:** Performing artists categorised as experiencing clinically relevant depression, anxiety, or high stress, showed a pattern of reduced self-compassion. Further, in a linear regression model, self-compassion was generally associated with better mental health and wellbeing, when controlling for age, gender, sexual orientation, performer role and discipline.

**Conclusions:** This is the first study to explore the role of self-compassion on mental health among a large sample of performing artists. Findings reinforce the importance of future studies within this population, and further exploration of compassion-based intervention in performance environments.

Cormier, D. L., Kowalski, K. C., Ferguson, L. J., Mosewich, A. D., McHugh, T.-L. F., & Röthlin, P. (2023). Self-compassion in sport: A scoping review. *International Review of Sport and Exercise Psychology*, (Ahead of Print), 1-40.

Walton, C. C., Osborne, M. S., Gilbert, P., & Kirby, J. (2022). Nurturing self-compassionate performers. *Australian Psychologist*, 57(2), 77-85.

Willis, S., Neil, R., Mellick, M. C., & Wasley, D. (2019). The Relationship Between Occupational Demands and Well-Being of Performing Artists: A Systematic Review. *Frontiers in Psychology*, 10(393), 393.

## The efficiency of sport psychology protocol in reducing performance anxiety and increasing performance self-confidence in classical musicians and opera singers

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Oral presentation 22: Music, Dance and Performing Arts & Physical activity & Elite sports and expertise,  
Hall Grenoble, Juli 17, 2024, 13:30 - 14:30

**Objectives:** In recent decades, some research touched upon the relationships between sport and dance or musical performance. The main difference between most sport disciplines and musical performance lies in the established criteria objectively measuring the athletic performance – or lack thereof, in the case of music (Oates 2006; Popović, 2022). The evaluation received by musicians is often vague, if any, which affects the psychology of the performer. Kenny (2011), followed by several smaller studies, writes about both epidemiology and phenomenology, comorbidity as well as possible treatments of Music Performance Anxiety (MPA). The research, however, does not explore the actual effectiveness of the proposed interventions which was the aim of our study.

**Methods:** We conducted a preliminary assessment of classical musicians (n=48, both male and female, singers and instrumentalists). Using questionnaires and interviews we aimed to measure the status quo.

The intervention consisted of a 20-hours foundational workshop in sports psychology, including the basics of mental training, visualization, focus, cognitive restructuring, and relaxation.

We decided to use performance anxiety and self-confidence as the primary variables addressed by the intervention, as measured by CSAI-2, supported by KMPA-I and ACSI-28 questionnaires both before and after the intervention. We processed the data using t-test and two-factor ANOVA analysis.

**Results:** The results indicate a statistically significant ( $P < .003$ ) increase in self-confidence as well as decrease in MPA according to CSAI-2 subscales. Participants show an average increase from 20.2 to 25.9 points on the self-confidence scale, average decrease from 24 to 21.3 points on cognitive performance anxiety scale and decrease from 24.5 to 21 points on somatic performance anxiety scale.

**Conclusion:** The results are encouraging: the sports psychology protocol may be useful for classical musicians with necessary adaptations. A replication with a larger sample may be needed to further establish the findings and indicate possible further directions.

Ascenso, S., Perkins, R., & Williamon, A. (2018). Resounding meaning: A PERMA wellbeing profile of classical musicians. *Frontiers in Psychology*, 9(NOV). <https://doi.org/10.3389/fpsyg.2018.01895>

Conroy, D. E., Poczwadowski, A., & Henschen, K. P. (2001). Evaluative Criteria and Consequences Associated with Failure and Success for Elite Athletes and Performing Artists. *Journal of Applied Sport Psychology*, 13(3), 300–322. <https://doi.org/10.1080/104132001753144428>

Dobos, B. (2019). Music performance anxiety: Prevalence, origins, related disorders and personality traits, and ways of treatment. *Mentalhigiene Es Psichoszomatika*, 20(2), 107–138. <https://doi.org/10.1556/0406.20.2019.008>

Kenny, D. T. (2011). The psychology of music performance anxiety.

Oates, J. M., Bain, B., Davis, P., Chapman, J., & Kenny, D. (2006). Development of an auditory-perceptual rating instrument for the operatic singing voice. *Journal of Voice*, 20(1), 71–81. <https://doi.org/10.1016/j.jvoice.2005.01.006>

Oates, J. M., Bain, B., Davis, P., Chapman, J., & Kenny, D. (2006). Development of an auditory-perceptual rating instrument for the operatic singing voice. *Journal of Voice*, 20(1), 71–81. <https://doi.org/10.1016/j.jvoice.2005.01.006>

Poczwadowski, A., & Conroy, D. E. (2002). Coping responses to failure and success among elite athletes and performing artists. *Journal of Applied Sport Psychology*, 14(4), 313–329. <https://doi.org/10.1080/10413200290103581>

Popović, Ružena & Purenovic-Ivanovic, Tijana. (2022). Review of Selected Studies on Aesthetic Sports and Creative Arts. *Innovare Journal of Education*. 1-7. [10.22159/ijoe.2022v10i3.44640](https://doi.org/10.22159/ijoe.2022v10i3.44640).

Sinden, L. M. (1999). Music performance anxiety: Contributions of perfectionism, coping style, self-efficacy, and self-esteem.

Stocking, B. H. (2016). Burnout in Young Adult Performing Artists. [https://trace.tennessee.edu/utk\\_graddiss](https://trace.tennessee.edu/utk_graddiss)

Yondem, Z. D. (2007). Performance anxiety, dysfunctional attitudes and gender in university music students. *Social Behavior and Personality*, 35(10), 1415–1426. <https://doi.org/10.2224/sbp.2007.35.10.1415>

Yoshie, M., Shigemasa, K., Kudo, K., & Ohtsuke, T. (2009). Effects of state anxiety on music performance: Relationship between the Revised Competitive State Anxiety Inventory-2 subscales and piano performance. *Musicae Scientiae*, 13(1), 55–84. <https://doi.org/10.1177/1029864909013001003>

## Identification of disruptive elements of football players' concentration

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Oral presentation 23: Perception & attention,  
Hall Tirol, Juli 17, 2024, 14:40 - 15:40

There is a growing interest in the scientific literature in the notion of scanning activity as a key element of football performance (e.g. Pokolm et al., 2022). This observation has been supported by a national survey conducted by the French Football Federation's Research Centre, revealing that coaches and football experts identified concentration as one of the most important components underpinning performance. "Concentration" differs from "attention" by specifying a form of perception-action coupling, and comprises three essential elements: intention (i.e., what I am trying to do), attention (i.e., what I am paying attention to), action (i.e., what I am making sure I am doing right) (Lachaux, 2023). Considering the multitude of situations, moments, and game scenarios possible during a football match, it is likely that concentration plays a more crucial role in certain types of situations than others. Consequently, the aim of this study was to identify critical situations in terms of concentration. For this, coaches were interviewed to pinpoint the situations most likely to impact performance rather than potentially less significant situations that could emerge from questioning players. Semi-structured interviews were conducted with 12 elite national team head coaches of France's national youth football teams: men's U15 to U20 and women's U15 to U23. Initial qualitative thematic analysis of the data was performed to develop a structured categorization of the situations described by the coaches. Results showed that situations in which the game was temporarily interrupted (corners, free-kicks, substitutions, injuries), and situations with a high emotional charge, both positive and negative (goals scored, refereeing decisions, errors), represented two major categories of difficulties or drops in concentration among youth football players. These preliminary findings suggest that future work is merited to advance understanding of the attentional processes involved in emerging game situations, moments and/or scenarios and ultimately inform specific intervention programs.

Pokolm, M., Rein, R., Müller, D., Nopp, S., Kirchhain, M., Aksum, K. M., ... & Memmert, D. (2022). Modeling Players' Scanning Activity in Football. *Journal of Sport and Exercise Psychology*, 44(4), 263-271.

Lachaux, J. (2023). Améliorer sa concentration. *Cerveau & Psycho*, 152, 26-29. <https://doi-org.docelec.univ-lyon1.fr/10.3917/cerpsy.152.0026>

## Sleep to see - Does total sleep deprivation affect conscious processing?

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Oral presentation 23: Perception & attention,  
Hall Tirol, Juli 17, 2024, 14:40 - 15:40

In team sports, spectators might sometimes wonder how the player in ball possession missed passing the ball to a much better-positioned teammate, particularly when the latter appeared to be clearly visible for the player in ball possession. Such instances can often be attributed to the phenomenon of inattentive blindness, wherein individuals fail to consciously perceive unexpected objects while their attention is focused elsewhere (Mack & Rock, 1998). One approach to face such instances of inattentive blindness might be sufficient pre-competition sleep, as sleep deprivation has been shown to impair basic cognitive functions such as vigilance and attention (Leong & Chee, 2023). However, it remains unclear whether sleep deprivation affects the conscious perception of unexpected objects. We hypothesized that one night of total sleep deprivation (TSD) might result in higher rates of inattentive blindness, given that TSD reduces neuronal activity in areas responsible for visual information processing (Tomasi et al., 2009). Thus, we investigated the impact of total sleep deprivation on inattentive blindness using a between-group design. A total of 82 athletes (M = 22.5 years, SD = 2.5 years) were divided into two groups, with one group undergoing 24 hours of sleep deprivation before performing an inattentive blindness task, while the other group received a sufficient night of sleep. Contrary to our expectations, one night of total sleep deprivation did not affect the probability of detecting unexpected objects. These findings suggest that sleep deprivation may lead to minor effects on cognitive functions, such as delayed responses, but that it does not necessarily influence whether a stimulus is consciously perceived or not. We will discuss the implications of these findings for athletic performance and in light of the general inattentive blindness literature.

Leong, R. L., & Chee, M. W. (2023). Understanding the need for sleep to improve cognition. *Annual Review of Psychology*, 74, 27-57.

Mack, A., & Rock, I. (1998). *Inattentive blindness* (Vol. 33). Cambridge, MA: The MIT press.

Tomasi, D., Wang, R. L., Telang, F., Boronikolas, V., Jayne, M. C., Wang, G. J., ... & Volkow, N. D. (2009). Impairment of attentional networks after 1 night of sleep deprivation. *Cerebral cortex*, 19(1), 233-240.



## Exploring the Impact of Open- and Closed-Skill Sports on Visual and Auditory Attention in Children

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Oral presentation 23: Perception & attention,  
Hall Tirol, Juli 17, 2024, 14:40 - 15:40

**Objectives:** The ability to sustain concentration and resist distractions stemming from irrelevant visual and auditory cues is essential for human performance (Furley et al., 2021). Engaging in sports practice can play a significant role in refining this cognitive skill. However, different sport modalities (e.g., Open- and Closed-skill) can influence these skills differently (Russo et al., 2021).

This study explored the response of children involved in various sports to tasks measuring visual attention (VAT) and auditory attention (AAT) in the presence of salient irrelevant (e.g., Pokemon character) and deviant stimuli.

We hypothesized that children participating in open- or closed-skill sports would exhibit faster reaction times than their sedentary counterparts, and open-skill children would exhibit superior performance compared to their closed-skill counterparts.

**Methods:** Ninety-one participants (54 females, Mage=9.7±1.1y.o.) completed two computerized attentional tasks and were categorized into Open-skills, Closed-skills, and Control groups.

Linear-mixed effects for non-parametric data were performed, with reaction times (RT) as an independent variable. VAT analysis considered distractor presence (yes vs. no) and sport type (open- vs. closed-skills vs. control), while ATT included deviant stimuli and sport type as independent variables.

**Results:** VAT analysis indicated slower reaction times (RTs) in the presence of distracting stimuli compared to their absence. AAT analysis revealed no differences between the deviant and non-deviant stimuli. No variations were observed among the three groups in both tasks.

**Discussion:** The VAT findings align with prior research (Forster & Lavie, 2008), affirming the impact of distracting stimuli on attention. However, sport type did not affect VAT performance, likely due to the exceptional salience of distracting stimuli. Deviant stimuli in ATT, instead, did not increase RTs. These results appear consistent with

Ruhnau et al.: The modulation of auditory novelty processing by working memory load in school age children and adults: a combined behavioral and event-related potential study. *BMC Neuroscience* 2010 11:126.

Russo, G., Bigliassi, M., Ceciliani, A., & Tessari, A. (2022). Exploring the interplay between sport modality and cognitive function in open-and closed-skill athletes. *Psychology of Sport and Exercise*, 61, 102186.

Ruhnau et al.'s (2010) findings but differ from those reported by Leiva et al. (2016). In this age range, sound stimuli may affect children differently than adults.

Leiva, A., Andrés, P., Servera, M., Verbruggen, F., & Parmentier, F. B. (2016). The role of age, working memory, and response inhibition in deviance distraction: A cross-sectional study. *Developmental psychology*, 52(9), 1381.

Forster, S., & Lavie, N. (2008). Attentional capture by entirely irrelevant distractors. *Visual cognition*, 16(2-3), 200-214.

## Psychophysiological Interventions in Biathlon

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Oral presentation 23: Perception & attention,  
Hall Tirol, Juli 17, 2024, 14:40 - 15:40

**Objectives:** Biathlon places a huge demand on psychophysiological processes (Josefsson et al, 2021) yet there is limited research to investigate these. This study aimed to investigate the effect of brief educational interventions based around quiet eye and heart rate variability on shooting performance.

**Methods:** Nine international biathletes took part in a cross-over design study where shooting performance was measured at baseline and post-intervention. During shooting testing participants had their heart rate variability and gaze behaviour measured. For the intervention participants undertook educational workshops in quiet-eye and slow-paced breathing. Participants also completed workbooks to provide information on their knowledge of each topic pre- and post-intervention, this was rated on a Likert scale from "1" none at all to "7" excellent. Following testing, participants took part in focus groups to gain insight into their experiences.

**Results:** Results show that the interventions significantly improved shooting performance ( $Z = 2.34, p=0.02$ ). Given the small sample size and missing data, there should be caution around the interpretation of shooting improvement. Prior to the workshops participants had very little knowledge of the interventions (quiet eye = 1, slow paced breathing = 1.7) and following the workshops this significantly increased ( $p < 0.05$ ) (quiet eye = 4.5, slow paced breathing = 5). Participants reported positive responses to the interventions via the focus groups. For example, participants reported the quiet-eye technique helped them to have more control over their gaze behaviour and the paced breathing helped to reduce distractions and increase relaxation. There were some reported barriers to using the interventions.

**Conclusions:** Overall, there were positive influences on both shooting performance and psychological state as a result of both interventions. The findings, specifically those from the workshops and focus groups, suggest that further education for athletes into the psychophysiological factors which may underpin shooting performance is greatly needed.

Josefsson, T., Gustafsson, H., Iversen Rostad, T., Gardner, F. L., & Ivarsson, A. (2021). Mindfulness and shooting performance in biathlon. A prospective study. *European journal of sport science*, 21(8), 1176-1182.

## How to help coaches meet the psychosocial skill needs of their Generation Z athletes: A season long investigation in swimming

**Julie Johnston**<sup>1</sup>, Joseph Stanford<sup>1</sup>, Chris Saward<sup>1</sup>, Mustafa Sarkar<sup>1</sup>, Chris Harwood<sup>1</sup>, Daniel Gould<sup>2</sup>

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Oral presentation 24: Best practice & Coaching,  
Hall Strassburg Nord, Juli 17, 2024, 16:10 - 17:10

**Objectives:** Generation Z (GenZ) is classified as those individuals who are born between 1996 and 2010 (Twenge, 2017). As a result of increased digital interactions experienced from a young age coupled with shared sociological events, it is proposed that these young people view and interact with their world and significant others differently from previous generations. Therefore, the objective of this research was to help coaches meet the unique psychosocial needs of their Generation Z (GenZ) swimmers.

**Methods:** This study was conducted over two stages. Stage 1 involved a collaborative workshop with 20 swimming coaches (13 male; 7 female) to increase awareness of the unique characteristics of Gen Z swimmers. Stage 2 involved developing a set of strategies designed to enhance the psychosocial profile as determined from stage 1. Six coach-athlete dyads participated in an 8 week coach education and peer mentoring intervention during which they were asked to trial a selection of these strategies. Semi-structured interviews were conducted weekly with the coaches, and pre-, mid-, and post-intervention with the swimmers.

**Results:** Stage 1 results indicated that GenZ swimmers do have a unique psychosocial profile, including good knowledge of their sport but poor in-person communication skills and low levels of self-confidence. Key findings from Stage 2 highlighted the importance of both reflective practice and enhancing communication in positively developing the coach-athlete relationship which consequently helped coaches better meet the psychosocial needs of their GenZ swimmers.

**Conclusions:** Recommendations include providing regular opportunities for coaches to engage in reflective practice, using coach 'champions' to promote the intervention to other coaches, and expanding the strategies provided to support the delivery of the intervention to larger numbers of swimmers concurrently.

Twenge, J. M. (2017). *iGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy—and completely unprepared for adulthood—and what that means for the rest of us*. New York City, NY: Simon and Schuster.

## When “shit happens” – Developing a card game for athletes, coaches and sport psychologists

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<sup>4</sup>Independent Researcher, Miercurea Ciuc, Romania <sup>5</sup>Central Sports and Youth Association, Budapest, Hungary <sup>6</sup>Institute of Behavioral Sciences, Semmelweis University, Budapest, Hungary

Oral presentation 24: Best practice & Coaching,  
Hall Strassburg Nord, Juli 17, 2024, 16:10 - 17:10

Theoretical background: In the field of competitive sport, athletes must face several stressors (Sarkar & Fletcher, 2014), the negative effects of which have been linked to negative emotions and underperformance (Arnold, Fletcher & Daniels, 2017). At the same time, imagining negative scenarios and thinking about stressors (Oettingen, 2012; Oettingen & Reininger, 2016) could help to build a strong goal commitment and an effective self-regulation strategy. Objectives: This study aims to develop a game inspired by the card game “Shit happens” ©. In the original game, players have to evaluate the seriousness of various negative events one may encounter in their lives. The rating scale was developed by mental health experts. The objective of this study is to develop a sport-related pack of cards, serving as a valuable tool not only for working with athletes but also for raising awareness among sports psychologists. Design and results: The inclusion criteria were the following: participants had to be 1) athletes who compete on a regular and organized basis or 2) full-time coaches or 3) actively working sport psychologists. Three studies were conducted. In study 1 (n=39) negative and sometimes humorous life events related to sport were collected via online platforms. In study 2 the 115 selected events were measured (n=100; Mage=25.17; SD=7.50). Our ranking system spans from 1 to 115, corresponding to the number of cards we have. Besides the mean ranking, the game includes separate rankings for coaches, athletes and sports psychologists. In study 3 the card game was tested by two athlete groups (n=24; Mage=23.27; SD=1.12). Qualitative feedback and recommendations from athletes are incorporated into the game. Discussion: The results suggest that this game could serve as an alternative method for coping with stress related to competitive sports.

## “Giving them space for autonomy and reflection”: How coaches describe athletes’ self-regulated learning and view their role in supporting it

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Oral presentation 24: Best practice & Coaching,  
Hall Strassburg Nord, Juli 17, 2024, 16:10 - 17:10

Objectives. Self-regulated learning (SRL) involves athletes’ enactment of metacognitive, motivational, and behavioural strategies to enhance their own practice (McCardle et al., 2019). An athlete’s engagement in SRL is both an input that enhances their communication with a coach and an output of effective coach-athlete interactions (Bain et al., 2023). Despite the pertinence of SRL, it is unclear how SRL is viewed by coaches. This study aimed to explore what SRL meant to coaches, with an emphasis on how they described the concept and what value they placed on it within their coaching practice.

Methods. Twelve Canadian coaches (6 women; 6 men) of adolescent athletes from individual and team sports participated in semi-structured interviews about their perspectives on athlete SRL. Through reflexive thematic analysis, we developed five themes that summarized coaches’ descriptions of SRL and their perceived role in facilitating its development.

Results. The first theme, ‘prerequisite conditions that promote athlete SRL’, captured the necessary coach and athlete actions, responsibilities, and mindset that promoted an athlete’s self-directed practice. Second, stemming from the first theme, coaches described the ‘trial and error of practice’ that characterized SRL as a process in which athletes were refining their actions over time and within boundaries provided by the coach. The third theme, ‘coaches’ involvement in athlete SRL’ described the simultaneous actions and adjustments coaches made to continually support athlete self-directedness. Although the coaches described several ‘barriers to athlete SRL’ related to either the coach or athlete, they largely viewed SRL as being valuable for various ‘developmental outcomes’ that extended to sport development and life skills.

Conclusion. Findings demonstrate the value coaches place on SRL, which manifested in the meaning they attached to their roles in supporting it. Results coincide with, and extend, academic conceptualizations of SRL, including the Co-regulatory Coaching Interface Model (Bain et al., 2023).

Bain, L., Young, B. W., Callary, B., & McCardle, L. (2023). The Co-Regulatory Coaching Interface Model: A case study of a figure skating dyad. *The Qualitative Report*, 28(4), 1038-1069. <https://doi.org/10.46743/2160-3715/2023.5876>

McCardle, L., Young, B.W., & Baker, J. (2019). Self-regulated learning in sport training contexts: Current status, challenges, and future opportunities. *International Review of Sport and Exercise Psychology*, 12(1), 112-138. <https://doi.org/10.1080/1750984X.2017.1381141>

## Coach-Athlete-Relationship – Reflection on applied workshops for coaches in competitive sport

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Oral presentation 24: Best practice & Coaching,  
Hall Strassburg Nord, Juli 17, 2024, 16:10 - 17:10

A positive coach-athlete relationship (CAR) is considered essential for athletic performance and is associated with positive outcomes such as increased satisfaction among coaches and athletes (e.g., Jowett & Shanmugam, 2016). CAR is predominantly explained by two models: the 3+1 C model comprises the three levels closeness, commitment, and complementarity plus the aspect of co-orientation (Jowett, 2017); the COMPASS model describes different strategies to interact and communicate (e.g., Conflict management, Openness, Motivation; Rhind & Jowett, 2010). The goal of the present project was to develop, implement and evaluate a two-part workshop program based on these models as well as on the DOSB competence model (Sygusch et al., 2020). The program is designed for coaches working in high-performance sports and includes a 3-hour kick-off workshop (part 1) followed by three subsequent 4-hour intensive workshops (part 2). Both workshops were evaluated quantitatively (i.e., CAR using visual analog scales for closeness, respect, trust) and qualitatively (i.e., five finger feedback). N = 125 coaches (39 % female, Mage = 43.2, SD = 12.0, 25 sports) participated in part 1 and n = 37 coaches (5 female, Mage = 44.0, SD = 12.7, 13 sports, subsample part 1) participated in part 2. Quantitative results indicate that CAR significantly improved ( $p < .01$ ) particularly for part 1. Qualitative evaluation reveals positive feedback, emphasizing the value of cross-sport professional exchange, practical exercises, and reflective opportunities. Simultaneously, a desire for increased individualization was expressed. Moreover, re-participation and recommendation of the program were rated positively. In summary, the theory-based workshop program was well-received by high-performance sports coaches and has potential to contribute not only to their professional development but also to the socio-psychological and pedagogical growth of their athletes.

Jowett, S. & Shanmugam, V. (2016). Relational coaching in sport: its psychological underpinnings and practical effectiveness. In: Schinke, R., McGannon, K. R. & Smith, B. Routledge International Handbook of Sport Psychology, pp. 471–484.

Jowett, S. (2017). Coaching effectiveness: The coach-athlete relationship at its heart. *Current Opinion in Psychology*, 16, 154-158. <https://doi.org/10.1016/j.copsyc.2017.05.006>

Rhind, D. J. & Jowett, S. (2010). Relationship maintenance strategies in the coach-athlete relationship: The development of the COMPASS model. *Journal of applied sport psychology*, 22(1), 106-121. <https://doi.org/10.1080/10413200903474472>

Sygusch, R., Mucho, M., Liebl, S., Fabinski, W. & Schwind-Gick, G. (2020). Das DOSB-Kompetenzmodell für die Trainerbildung – Teil 1 [DOSB competence model for further education for coaches – Part 1]. *Leistungssport*, 1, 41-47.

## What do we know about the development of talent in sports? Not that much...

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Oral presentation 25: Talent identification/development,  
Hall New Orleans, Juli 17, 2024, 16:10 - 17:10

**Objectives.** Talent development revolves around the question how an athlete's potential (talent) develops into excellent abilities in a particular sport (Den Hartigh et al., 2018). Understanding, and stimulating, the development of talent is an important focus in sport psychology research and practice. However, based on all the research since the early 2000s, what do we actually know about this process of talent development? To answer this question, we performed a systematic review in the soccer context, where most talent development studies have been conducted.

**Methods.** Following a literature search in Web of Science, Scopus, PsycINFO, and PubMed, we included 85 empirical studies. Each study was classified according to a two-dimensional taxonomy, based on how talent development was examined. The first dimension was static versus dynamic: Did the study examine how temporal changes of (e.g., psychological, physical) talent factors influence the developmental process? The second dimension reflected whether the study had an intra-individual (within-person) or inter-individual (between-person) focus.

**Results.** The great majority of studies (n=60) examined talent development from a static-interindividual perspective. This means that the studies explored, on an aggregate level, which factors explained future ability levels in groups of soccer players. Only three studies examined how future ability emerged from interacting talent factors that changed over time for individual players, and could therefore be classified as dynamic-intraindividual.

**Conclusion.** This systematic review reveals that empirical studies on talent development often omit information about temporal individual processes. As a consequence, scientifically speaking, we still know little about how talent actually develops in sports (Verbeek et al., 2023). We recommend that future studies focus more explicitly on the temporal process of talent development, thereby considering the underlying dynamic and individual nature of this process (Den Hartigh et al., 2018; Krebs, 2009; Phillips et al., 2010).

Den Hartigh, R. J. R., Hill, Y., & Van Geert, P. L. C. (2018). The development of talent in sports: A dynamic network approach. *Complexity*, 2018, 1–13. <https://doi.org/10.1155/2018/9280154>

Krebs, R. J. (2009). Bronfenbrenner's Bioecological Theory of Human Development and the process of development of sports talent. *International Journal of Sport Psychology*, 40(1), 108–135.

Phillips, E., Davids, K., Renshaw, I., & Portus, M. (2010). Expert performance in sport and the dynamics of talent development. *Sports Medicine*, 40(4), 271–283. <https://doi.org/10.2165/11319430-000000000-00000>

Verbeek, J., Van Der Steen, S., Van Yperen, N. W., & Den Hartigh, R. J. R. (2023). What do we currently know about the development of talent? A systematic review in the soccer context. *International Review of Sport and Exercise Psychology*, 1-23. <https://doi.org/10.1080/1750984X.2023.2283874>

## Successful talent development environments and achievement goals of age-specific national teams in football, handball, and ice hockey

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Oral presentation 25: Talent identification/development,  
Hall New Orleans, Juli 17, 2024, 16:10 - 17:10

**Objectives:** A recent literature review showed that research on successful talent development environments (TDEs) is focused on male samples (Hauser et al., 2022), supporting the notion of a general gender gap in sport research (Cowley et al., 2022). The present study departs from the Model of Effective Talent Identification and Development Procedures (Martindale et al., 2005), and investigate the importance of the TDE on achievement and achievement goals among female and male athletes on age-specific national teams.

**Methods:** Participants (N=261, 125 male, 136 female) were recruited from handball, football, and ice hockey (mean age=16.36, SD=.94). Questionnaires were administered by hand, with following instruments and variables included for analysis: 1) the Norwegian version of the Talent Development Environment Questionnaire (TDEQ-5; Gangsø et al., 2021; Li et al., 2015), 2) the 2 x 2 Achievement Goal Questionnaire for Sport (AGQ-S; Conroy et al., 2003), 3) self-reported achievement measured through two questions asking about achievement in club and achievement on national team, and 4) gender.

**Results:** A series of t-tests showed that male athletes scored higher on communication, social network, self-reported achievement, and mastery-avoidance. Female athletes scored higher on performance-approach. The main analysis was a structural equation model (SEM) with achievement functioning as a mediating variable between TDE and achievement goals. The SEM met all thresholds indicating a good fit:  $\chi^2(21) = 28.96$  ( $p > .05$ ),  $\chi^2/df(1.4)$ , RMSEA = .04 (.00-.07), SRMR = .04, CFI = .96, TLI = .93. Holistic quality preparations (Beta=.19) and alignment of expectations (Beta=-.17) impacts achievement the most. In addition, holistic quality preparations (Beta=-.14) and social network (Beta=-.13) has a direct impact and reduces mastery-avoidance.

**Conclusion:** male and female athletes experience their TDEs to be somewhat different and self-reported achievement mediates the impact of TDEs on the achievement goals of athletes.

Conroy, D. E., Elliot, A. J., & Hofer, S. M. (2003). A 2x 2 achievement goals questionnaire for sport: Evidence for factorial invariance, temporal stability, and external validity. *Journal of Sport and Exercise Psychology*, 25(4), 456-476.

Cowley, E. S., Olenick, A. A., McNulty, K. L., & Ross, E. Z. (2021). "Invisible sportswomen": the sex data gap in sport and exercise science research. *Women in Sport and Physical Activity Journal*, 29(2), 146-151.

Gangsø, K., Aspvik, N. P., Mehus, I., Høigaard, R., & Sæther, S. A. (2021). Talent development environments in football: Comparing the top-five and bottom-five-ranked football academies in Norway. *International Journal of Environmental Research and Public Health*, 18(3), 1321.

Hauser, L.-L., Harwood, C. G., Höner, O., O'Connor, D., & Wachsmuth, S. (2022). Talent development environments within sports: a scoping review examining functional and dysfunctional environmental features. *International Review of Sport and Exercise Psychology*, 1-27.

Li, C., Wang, C. K. J., Pyun, D. Y., & Martindale, R. (2015). Further development of the talent development environment questionnaire for sport. *Journal of Sports Sciences*, 33(17), 1831-1843.

Martindale, R. J., Collins, D., & Daubney, J. (2005). Talent development: A guide for practice and research within sport. *Quest*, 57(4), 353-375.



## Talent Identification, Artificial Intelligence and Big Data: The looming threat of digital determinism and discrimination

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Oral presentation 25: Talent identification/development,  
Hall New Orleans, Juli 17, 2024, 16:10 - 17:10

**Objectives:** Machine learning algorithms which are designed to analyze information and recognize patterns being increasingly adopted as decisional aides in many occupational settings. In professional sports, predictive big data analytics are used to scan through increasing number of players and previous seasons data in an attempt to account for variety of factors such as level of competition, teammates, style of play, and player's ability to evolve. As the information for such analysis arrives from a variety of sources (e.g., player's stats, qualitative scout reports, physical ability tests, anthropometric measures, personality evaluation), advanced analytical models allow integration and adjustment of the diverse parameters. Until recently, broadcasting and large-scale data collection and storage were limited to professional high-budget sports. However, the growing implementation of automatic low-cost broadcast systems, such as Pixellot and PlaySight, alongside the development of automated computer-vision data collection tools, will inevitably bring big data analytics to youth sports.

**Methods:** This paper aims to present several findings on algorithmic biases in organizational settings and to discuss the prospects of using big-data-based predictive tools in the context of youth sports.

**Results:** The recent widespread deployment of algorithm-based decision support systems have been shown to pose serious ethical threats in medical, criminal, educational, and financial evaluation. These threats are relevant to athletes' evaluation as well.

**Conclusion:** Big data analytics in the domain of youth talent identification should be approached with caution and in-depth consideration of ethical issues needs to be undertaken before automated predictive tools can be widely adopted.

## Building Capacity: Understanding the Development and Maintenance of Resilience among Women Collegiate Student-Athletes

**Amber Mosewich**<sup>1</sup>, Ben Sereda<sup>1</sup>, Paula Mazur<sup>1</sup>, Ben Gallaher<sup>1</sup>, Katie Gunnell<sup>2</sup>, Nicholas Holt<sup>3</sup>, Tara-Leigh McHugh<sup>1</sup>, Klaudia Sapieja<sup>1</sup>

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Oral presentation 25: Talent identification/development,  
Hall New Orleans, Juli 17, 2024, 16:10 - 17:10

**Objectives:** Resilience can support sustained well-being and success in sport, and can be systematically developed within sport programs (Sarkar & Page, 2022). The purpose of this study was to explore women collegiate student-athletes' perceptions of how their resilience is fostered and maintained.

**Methods:** The present study involved five women athletes (aged 21-23 years) selected from a larger mixed-methods project to engage in semi-structured interviews to explore factors that support resilience. Within an interpretive description framework (Thorne, 2016), data were analysed using reflective thematic analysis (Braun & Clarke, 2019; Braun et al., 2023).

**Results:** Athletes highlighted five themes around developing and maintaining resilience. First, athletes perceived that resilience was supported through an ability to recognize, acknowledge, and accept demands, while emphasizing what they can control, being aware of their needs, and trusting themselves. Second, resilience was facilitated by an ability to manage and respond to demands through effective emotion regulation, appropriate coping and psychological skills, supporting and accommodating oneself, managing expectations of the self and others, and continual reflection. Third, the importance of preparation was illustrated through consistently engaging in helpful behaviours and cognitions, plans to prompt use of supportive strategies, and the creation and maintenance of a realistic schedule that incorporates all commitments and needs. Fourth, a focus on personal development included reflection on and refinement of strategies and skills and an openness to trial and evaluation. Fifth, social support involved the ability to identify sources of support, ask for help, and harness the support of others.

**Conclusion:** Resilience is influenced by an interplay of factors. Awareness, acceptance, adaptive actions, and social support appear to be critical, providing valuable insights for systematically fostering and sustaining resilience among women collegiate student-athletes.

This research was supported by the Social Sciences and Humanities Research Council of Canada. Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise, and Health*, 11(4), 589-597.

<https://doi.org/10.1080/2159676X.2019.1628806>

Braun, V., Clarke, V., Hayfield, N., Davey, L., & Jenkinson, E. (2023). Doing reflexive thematic analysis. In S. Bager-Charleson & A. McBeath (Eds.), *Supporting research in counselling and psychotherapy: Qualitative, quantitative, and mixed methods research* (pp. 19-38). Palgrave Macmillan.

Sarkar, M., & Page, A. E. (2022). Developing individual and team resilience in elite sport: Research to practice. *Journal of Sport Psychology in Action*, 13(1), 40-53. <https://doi.org/10.1080/21520704.2020.1861144>

Thorne, S. (2016). *Interpretive description: Qualitative research for applied practice*. Routledge.

## Real-Time Auditory Feedback Affects Balance in a Virtual Environment Among Young and Older Adults

**Alberto Cordova**<sup>1</sup>, Michael Stewart<sup>2</sup>, Rasel Mahmud<sup>3</sup>, John Quarles<sup>1</sup>, Wan Xiang Yao<sup>1</sup>, Se-Wong Park<sup>1</sup>, William Land<sup>1</sup>, David Ogu<sup>1</sup>

<sup>1</sup>University Of Texas San Antonio, San Antonio, United States <sup>2</sup>Texas Tech University, Lubbock, TX, United States <sup>3</sup>Southern New Hampshire, Manchester, NM, United States

Oral presentation 26: Perception & attention & Physical activity,  
Hall Tirol, Juli 18, 2024, 11:00 - 12:00

Normal aging is often associated with the decline in postural stability and balance in older adults. Consequently, many older adults may face difficulties when using virtual reality (VR) systems, where users often experience imbalance effects. Age-related deficits in balance and the imbalance effects caused by VR systems presents a challenging limitation for older adults and general VR usability. We recruited 20 older adults (>50 years) and 20 young adults (18-24 years) to investigate and compare the effects of four audio-based feedbacks on postural stability and balance while in an immersive virtual environment (VE). The audio-based feedbacks consisted of: spatial, static, rhythmic, and center of pressure-based feedback and a no feedback in VR condition. Participants performed a non-VR standing balance task and a standing reach-to-grasp task. Then, using a head-mounted display (HMD), each participant performed a virtual replication of both the standing balance and standing reach-to-grasp task in VR. A force plate was used to calculate the participants mean center-of-pressure (CoP) velocity for each audio-based feedback condition during each balance study task. The within-subject results indicated that when spatial feedback was available, older adults exhibited significantly decreased CoP velocity and therefore increased postural stability for both the standing balance task and standing -reach-to-grasp task. However, we did not find significant differences in CoP velocity for the static, rhythmic, and CoP-based feedback conditions, nor did we find significant differences in CoP velocities within the young adult participants. Results suggest that spatial feedback techniques appear to be useful in improving postural stability and balance in older adults using immersive VR environments.

## A Systematic and Narrative Review of Physical Literacy Frameworks Published Since 2012

**Richard Keegan**<sup>1</sup>, Dean Dudley<sup>2</sup>, Lisa Barnett<sup>3</sup>, Petra Juric<sup>3</sup>, Alethea Jerebine<sup>3</sup>, Nicola Ridgers<sup>4</sup>, Lauren Arundell<sup>3</sup>, Jo Salmon<sup>3</sup>, Amanda Derbyshire<sup>5</sup>

<sup>1</sup>University Of Canberra, Canberra, Australia <sup>2</sup>Macquarie University, Sydney, Australia <sup>3</sup>Deakin University, Melbourne, Australia <sup>4</sup>University of South Australia, Adelaide, Australia <sup>5</sup>University of Western Australia, Perth, Australia

Oral presentation 26: Perception & attention & Physical activity,  
Hall Tirol, Juli 18, 2024, 11:00 - 12:00

**Objectives:** The concept of physical literacy has gained substantial interest amongst researchers, practitioners, and policymakers alike, since being introduced around 2010. Different countries and organisations developed their own frameworks for representing, communicating, developing and evaluating physical literacy. The proliferation of competing frameworks has been criticised as being confusing, and may undermine engagement from user-groups and/or limit the interpretation of research findings.

**Methods:** We conducted a systematic review of physical literacy frameworks published since 2012. We searched both the published (academic) literature and grey (non-academic) literature using clear, replicable search terms and agreed inclusion/exclusion criteria, leading to the inclusion of 19 recent physical literacy frameworks, published by national or international organisations. Using a qualitative/narrative analysis approach, we detailed each frameworks' origins (year, authors, location), key properties and characteristics, and we also attempted to map their interconnections, and wider impacts.

**Results:** Almost all frameworks asserted that physical literacy should be viewed as holistic and interconnected, and that it applies to all age-groups, capabilities, and backgrounds. We observed trends such as a shift in how physical literacy is defined (from 'disposition' towards 'learning'); and a shift from constructing physical literacy from motivation, confidence, competence, and knowledge towards its domains (physical, affective, cognitive, and social). We traced differences between frameworks to their stated aims or intent (health, versus active lifestyle, versus education, or wider human thriving), their cultural and geographical foundations, and their underpinning philosophies.

**Conclusion:** Overall, as physical literacy frameworks become have evolved, there has been a trend towards viewing physical literacy as 'person-within-environment' and adopting the domain-based composition over the attributes-based one. Put simply, the importance of context/environment is being increasingly recognised, and less restrictive wording is being used to describe what physical literacy comprises. We also reflected on the importance of how such frameworks are appraised, evaluated, and perceived.

## Empowering and Disempowering Motivational Climate and Flow in Physical Education and Physical Activity: The Mediating Role of Tripartite Efficacy Beliefs

**Nurgül Keskin Akin**<sup>1</sup>, Fevziye Hülya Aşçı<sup>2</sup>

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Oral presentation 26: Perception & attention & Physical activity,  
Hall Tirol, Juli 18, 2024, 11:00 - 12:00

**Objectives:** Supportive teacher behaviors in physical education positively influence tripartite efficacy beliefs, leading to positive psychological and behavioral outcomes. Guided by Duda(2013)'s hierarchical conceptualization of motivational climate, this study examines the mediating role of tripartite efficacy beliefs (self-efficacy, other-efficacy, relation inferred self-efficacy/RISE) in the relationship between teacher-created motivational climate and dispositional flow in PE and leisure time physical activity (LTPA) from a transcontextual perspective. Using the structural equation model (SEM), the direct and indirect effects of the empowering and disempowering motivational climate on tripartite efficacy beliefs, flow, and LTPA were investigated. Using the same model, the direct and indirect effects of tripartite efficacy beliefs on flow and LTPA and the direct effect of flow on LTPA were analyzed.

**Methods:** 785 secondary school students aged between 11-13 years voluntarily participated in this study. The Self-Efficacy, Other-Efficacy, and RISE Scales in PE, the Teacher-Created Empowering and Disempowering Motivational Climate Questionnaire in PE, Short Dispositional Flow Scale-2 for PE, and Weekly Physical Activity Questionnaire were administered in the study. SEM was used to analyze the data through SPSS AMOS 24.

**Results:** The fit values of the model ( $\chi^2/df=1,791$ , RMSEA=0,032, CFI=0,932, TLI=0,929, IFI=0,933, SRMR=0,056) provided adequate fit. The study results indicate that students' self-efficacy beliefs are positive determinants of flow in PE ( $\beta=0,664$ ;  $p<0,001$ ). Empowering motivational climate was a positive determinant of both other-efficacy ( $\beta=0,785$ ;  $p<0,001$ ) and RISE ( $\beta=0,616$ ;  $p<0,001$ ). Empowering motivational climate had positive direct effect on flow ( $\beta=0,126$ ;  $p<0,05$ ) and flow had a positive effect on LTPA ( $\beta=0,156$ ;  $p<0,05$ ). The relationship between empowering motivational climate and flow was mediated by RISE ( $\beta=0,099$ , %95 BCA [CI 0,032, 0,131]). The relationship between empowering motivational climate and LTPA was mediated by self-efficacy ( $\beta=-0,019$ , %95 BCA [CI -4,104, -0,184]).

**Conclusion:** In conclusion, students's relational efficacy beliefs promote the relationship between perceived motivational climate and LTPA levels.

Duda, J. L. (2013). The conceptual and empirical foundations of Empowering Coaching™: Setting the stage for the PAPA project. *International Journal of Sport and Exercise Psychology*, 11:4, 311-318.

## A systematic scoping review of engagement to physical activity following stroke

**Bettina Pasztor**<sup>1</sup>, Avril Drummond<sup>2</sup>, Jennie Hancox<sup>1</sup>, Ian M. Taylor<sup>1</sup>

<sup>1</sup>Loughborough University, Loughborough, United Kingdom <sup>2</sup>University of Nottingham, Nottingham, United Kingdom

Oral presentation 26: Perception & attention & Physical activity,  
Hall Tirol, Juli 18, 2024, 11:00 - 12:00

**Objectives:** The aim of the review was to synthesize what is currently known about physical activity engagement in outpatient stroke survivors by answering the following questions: (1) What are typical trends in stroke survivors' engagement with physical activity rehabilitation? (2) How is physical activity engagement measured? (3) How is physical activity engagement supported? (4) What type of physical activity is being measured or promoted?

**Methods:** A systematic scoping review was carried out on physical activity engagement in outpatient stroke survivors (aged ≥18 years) based on systematic scoping review guidance (Peters et al., 2015), and the Preferred Reporting Items for Systematic Reviews and Meta-analyses protocols extension for Scoping reviews (PRISMA-ScR). Six electronic databases Scopus, PubMed/MEDLINE, Cochrane Central Register of Controlled Trials, CINAHL, PsycINFO/PsycARTICLES, and Web of Science were searched from inception to October 2023. We used narrative synthesis to summarise the data collected.

**Results:** In total, 15 studies were included in this review. More than half of the studies reported improved engagement in physical activity following intervention. 60% of the studies used subjective measures (e.g., self-reported logs and logbooks, physical activity diaries) of physical activity, whereas the rest used objective measures (e.g., accelerometers). Almost half of the studies provided additional support (i.e., education program, individualised coaching, or motivational training) during their intervention to participants. Walking and walk-related tasks were the most promoted type of physical activity.

**Conclusion:** This study demonstrated typically lower physical activity engagement rates in studies using objective measures of physical activity compared to those using subjective measures. Future interventions that provide additional support should be underpinned by contemporary motivation theory.

Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., & Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *JBIC Evidence Implementation*, 13(3), 141-146.

## Walk It Out: The Effects of Emotional and Cognitive Fatigue on a Self-Selected Intensity Physical Activity Task

**Samira Sunderji**<sup>1</sup>, Catherine M. Sabiston<sup>1</sup>

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Oral presentation 27: Exercise psychology,  
Hall Strassburg Süd, Juli 18, 2024, 11:00 - 12:00

**Objectives:** Mental fatigue (MF), characterized by tiredness and a lack of energy, is experienced during or following prolonged and challenging activity. MF is consistently reported by university students as a barrier to physical activity (PA), yet cognitive and emotional facets of MF have not been tested on PA outcomes. The purpose of this study was to determine the effects of cognitive and emotional fatigue on PA variables (enjoyment, arousal, affect, and perceived exertion) within inactive university students. **Methods:** Participants (N=48) were randomized into a cognitive fatigue (CF) completing a Stroop task, emotional fatigue (EF) completing a relived emotion writing task, or mindfulness meditation (MM) comparison group. Participants then completed a 10-minute treadmill task at a desirable pace and self-selected intensity. At each minute, participants verbally responded to scales specific to enjoyment, arousal, affect, and perceived exertion (RPE). Within-group manipulation check (t-tests), and Repeated Measures ANOVA explore main effects of time (1-, 5-, and 10-minute data), group, and timeXgroup interactions while controlling for gender identity. **Results:** Manipulations successfully elicited fatigue states for participants within the CF (CFpre=24.63±13.56; CFpost=60.19±17.46) and EF (EFpre=37.25±25.55; EFpost=58.63±23.32) conditions, with higher mean score responses indicating higher levels of fatigue post-manipulation. The MM group reported significantly lower scores on fatigue (MMpre=51.63±24.21; MMpost=31.13±22.97) compared to CF and EF groups. There was a significant Group effect,  $F(8,84)=2.14$ ,  $p=.03$  and Time effect,  $F(8,37)=3.91$ ,  $p=.002$  but no interaction,  $F(16,76)=1.16$ ,  $p=.32$ . Overall, MM group reported higher enjoyment and affect across the PA task compared to CF and EF. The EF group reported higher arousal and the CF group reported the lowest RPE throughout the PA task. **Conclusion:** These findings demonstrate potential impact of CF and EF on PA outcomes in inactive individuals. Future research should determine if other factors (i.e., motivation), in combination with CF and EF, contribute to these key PA outcomes.

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2. Van Cutsem, J., Marcora, S., De Pauw, K., Bailey, S., Meeusen, R., & Roelands, B. (2017). The Effects of Mental Fatigue on Physical Performance: A Systematic Review. *Sports Medicine*, 47(8), 1569-1588. <https://doi.org/10.1007/s40279-016-0672-0>

3. Smith, A. P. (2018). Cognitive Fatigue and the Wellbeing and Academic Attainment of University Students. *Journal of Education, Society and Behavioural Science*, 24(2), 1-12. <https://doi.org/10.9734/JESBS/2018/39529>

4. Salmon, J., Owen, N., Crawford, D., Bauman, A., & Sallis, J. F. (2003). Physical activity and sedentary behavior: A population-based study of barriers, enjoyment, and preference. *Health Psychology*, 22, 178-188. [doi.org/10.1037/0278-6133.22.2.178](https://doi.org/10.1037/0278-6133.22.2.178)

## Individualized Pleasure-Oriented Exercise Sessions on Exercise Frequency and Affective Outcomes: A Pragmatic Randomized Controlled Trial

**Diogo Teixeira**<sup>1</sup>, Vasco Bastos<sup>1</sup>, Ana Andrade<sup>1</sup>, António Palmeira<sup>1</sup>, Panteleimon Ekkekakis

<sup>1</sup>Lusófona University, Lisbon, Portugal <sup>2</sup>Michigan State University, Michigan, United States

Oral presentation 27: Exercise psychology,  
Hall Strassburg Süd, Juli 18, 2024, 11:00 - 12:00

**Objective:** Given the need to help develop and support motivation for sustained exercise participation, and grounded on hedonic assumptions (Dukes et al., 2021; Ekkekakis et al., 2018), the present study sought to determine the impact of an individualized exercise-intensity prescription targeting pleasure on exercise frequency and affective outcomes.

**Method:** We performed a randomized, single-blinded, controlled superiority trial with two parallel groups (Teixeira et al., 2023). Forty-six non-regular exercisers (Mage = 32.00; SD = 8.62 years; 56.5% female) participated in three exercise sessions. All sessions for both groups were structured with the Frequency-Intensity-Time-Type (FITT) principles. However, the intensity in the experimental group was defined through i) individual preference, ii) self-regulating to promote pleasure, and iii) continuous assessments of affective responses. The primary outcome was the eight-week post-intervention weekly exercise frequency; the secondary outcomes were the affective responses, end-session enjoyment, core affective experiences, and the remembered/anticipated affective responses. Split-plot ANOVAs were performed to evaluate between-within effects.

**Results:** Between-group differences were found for exercise frequency eight weeks post-intervention ( $p = .009$ ,  $\eta^2p = .144$ ), favoring the experimental group (mean difference = .777; 95% CI 1.416 to .138). Affective response differences favoring the experimental group were present in most within and between-group analyses in all sessions (between-subjects  $\eta^2p$  ranging from .33 to .37 on FS and from .06 to .09 on FAS). End-session enjoyment and core affective experiences did not differ significantly. The remembered and anticipated affective responses showed between-group differences ( $p = .021$ ,  $\eta^2p = .116$  and  $p = .022$ ,  $\eta^2p = .114$ ) favoring the experimental group.

**Conclusion:** Increased weekly exercise frequency over the next eight weeks and an improved affective-valence response were found in both groups, albeit more salient in the experimental group. Integrating pleasure-oriented sessions may be a valuable, low-cost, and easy-to-implement approach for exercise adherence.

Dukes, D., Abrams, K., Adolphs, R., Ahmed, M. E., Beatty, A., Berridge, K. C., & Clay, Z. (2021). The rise of affectivism. *Nature Human Behaviour*, 5(7), 816–820. <https://doi.org/10.1038/s41562-021-01130-8>  
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## Feasibility and Effects of High-Intensity Interval Training in Older Adults with Mild to Moderate Depressive Symptoms: A Pilot Study

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Oral presentation 27: Exercise psychology,  
Hall Strassburg Süd, Juli 18, 2024, 11:00 - 12:00

**Objectives:** This pilot study investigated the feasibility and effects of a 16-week high-intensity interval training (HIIT) in Hong Kong Chinese older adults with mild-to-moderate depressive symptoms.

**Theoretical background:** This study was evidence and guideline-based but not theoretical-based. The intervention was based on HIIT program introduced by “ACSM’s Exercise for Older Adults” (ChodzkoZajko et al., 2009), “Interval training protocol” (ACSM, 2022), and evidence from previous research (Marriott et al., 2021).

**Design:** This study was a cluster-randomized-controlled trial. Three elderly centers involving 24 eligible participants were randomized into one of three groups: HIIT, Baduanjin, or recreation workshop. Participants received assigned intervention twice a week for 16 weeks. Assessments were conducted at baseline and post-intervention. The primary outcome was feasibility, and the secondary outcomes were depressive symptoms and physical fitness.

**Results and Discussion:** The retention rate was 87.5%, 87.5% and 75% for HIIT, Baduanjin, and workshop, respectively. The attendance rate was  $86.6\% \pm 0.059$ ,  $88\% \pm 0.109$ , and  $90.6\% \pm 0.077$  for HIIT, Baduanjin, and workshop, respectively. The average %HRmax was  $78.4\% \pm 0.01$  during HIIT, including workout and recovery. A significantly higher RPE ( $p < 0.001$ ) was reported in HIIT ( $7.66 \pm 0.82$ ) compared to Baduanjin ( $2.83 \pm 0.47$ ) across all exercise sessions. Two adverse events of knee soreness and lower back pain resolved after rest were reported in HIIT. HIIT group did not show significantly greater acceptability compared to Baduanjin. HIIT group prominently alleviated depressive symptoms with a larger effect size than Baduanjin ( $d = -1.02$ ) and workshop ( $d = -1.32$ ). Both HIIT and Baduanjin showed favourable improvements in physical fitness compared to workshop with large effect sizes ( $d = 1.26-1.39$ ).

It is the first study to provide evidence of HIIT’s feasibility and preliminary effect on depressive symptoms and physical fitness in older adults.

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## The Beneficial Effects and Neural Mechanisms of Acute High-Intensity Interval Exercise on Food-related Cognitive Control among Young Adults With Obesity

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Oral presentation 27: Exercise psychology,  
Hall Strassburg Süd, Juli 18, 2024, 11:00 - 12:00

**Objectives:** Obesity has become a prominent global public health issue. Several approaches are available for controlling obesity, each yielding different effects, while scientific exercise benefits to prevent obesity. High-intensity interval exercise (HIIE) emerges as a time-efficient and effective method, positively impacting blood sugar regulation and weight/fat reduction (Mohammad et al., 2024; Wewege, Van Den Berg, Ward, & Keech, 2017). However, the neural mechanism underlying HIIE promote weight loss require further investigation.

**Methods:** A within-subject design was conducted. Fifteen young male adults with obesity (BMI = 33.88 ± 4.22 kg/m<sup>2</sup>, age = 24.60 ± 5.29 years) were recruited. Participants took part in a 30 minutes HIIE session [stationary cycle exercise intervention including 5-min warm-up, 20-min HIIE (10 cycles of 1-min 80-90% HRmax exercise separated by 1-min 50-65% HRmax active relax), and 5-min cool down] and a time-matched control session in a counterbalanced order. Behavioral (reaction time and accuracy) and event-related potential (ERP) measures (P3 and LPP) elicited during a food-related Flanker task [inhibit the flankered stimuli (congruent vs. incongruent) and choose the target stimulus' type (high-calorie food vs. neutral picture)] were measured following two sessions.

**Results and Discussions:** Faster reaction time following acute HIIE than the control session was observed, regardless of congruency or picture type, and with no change in accuracy. The amplitude of P3 and LPP were increased following the HIIE than control session. These findings suggest that acute HIIE could increase recruitment of cognitive resources, thereby enhancing cognitive and inhibitory control over high-calorie foods in obese young adults with obesity. The results align with our previous researches indicating that acute HIIE enhances cognitive function in obese adults (Xie et al., 2020), and further extend this effect to food-related cognitive control. These findings offer new insights into the cognitive neural mechanisms through which exercise promotes weight loss.

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Xie, C., Alderman, B. L., Meng, F., Ai, J., Chang, Y. K., & Li, A. (2020). Acute high-intensity interval exercise improves inhibitory control among young adult males with obesity. *Frontiers in Psychology*, 11, 1291. doi:10.3389/fpsyg.2020.01291

## The interaction between goal types and goal motives, and subsequent effects on performance related outcomes in a novel walking task

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Oral presentation 28: Motivation,  
Hall Igls, Juli 18, 2024, 11:00 - 12:00

**Objectives:** Research has demonstrated that both goal types (e.g., specific, open, learning) and goal motives (e.g., autonomous and controlled) are important considerations for successful goal pursuit. However, no studies have examined how these factors may interact and affect outcomes such as performance and other variables related to sustained engagement. The aim of this study was to assess the interaction between goal types and goal motives, and the subsequent effect on performance outcomes during a simple and a complex task.

**Methods:** Using a between-within study design (pre-registered on OSF: [https://osf.io/74fxn/?view\\_only=cdb08620b9b746f99ba6c7f0b3e4ff37](https://osf.io/74fxn/?view_only=cdb08620b9b746f99ba6c7f0b3e4ff37)), participants (N = 90) completed the Corsi Block Tapping test (CBTT; Corsi, 1972) for familiarisation and to calculate a baseline, followed by the Walking Corsi test (WalCT; Piccardi et al., 2013). Before completing the WalCT, participants were randomly assigned one of three goal conditions: Specific ("successfully replicate n\* sequences"); Open ("see how well you can do at successfully replicating the sequences"); and Learning ("identify and implement one strategy to successfully replicate n\* sequences"). After receiving the goal, participants took part in the simple and complex trials of the WalCT. Before each condition, participants answered questions relating to goal motives and perceptions of the task, and afterwards on challenge/threat appraisal, future interest to participate, and perceived complexity.

**Results:** Different goal types did not elicit different goal motives (F[8,160] = .57, p = .80; Wilk's  $\eta^2$  = .95; partial  $\eta^2$  = .03). While WalCT performance was greater when pursuing specific goals and future interest to participate was highest when pursuing the learning goal the differences were non-significant.

**Conclusion:** This is the first study to examine the interaction between goal types and goal motives during a performance task, whilst exploring the effects in simple and complex conditions. Findings will be discussed in relation to goal setting in physical activity contexts.

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Piccardi, L., Bianchini, F., Argento, O., De Nigris, A., Maialetti, A., Palermo, L., & Guariglia, C. (2013). The Walking Corsi Test (WalCT): standardization of the topographical memory test in an Italian population. *Neurological Sciences*, 34, 971-978.

## The mediating role of perceived stress and control in the relationship between athletes' motivational climate and emotions: A multilevel study

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Oral presentation 28: Motivation,  
Hall Igls, Juli 18, 2024, 11:00 - 12:00

Athletes are exposed to several stressors and emotions in competition, and coaches may modify their experience through their motivational climate. As such, the study aimed to explore the relationship between athletes' motivational climate, stress and control perceived and emotions. A sample of 233 French athletes (Mage=18.15; SD=1.33; 140 men and 96 women) completed three measures. Firstly, participants responded to the Motivational Climate Scale for Youth Sports. Secondly, the athletes completed the Perceived Stress Scale within two hours before the competition to not interfere with the athletes' preparation routines. Finally, participants completed the Sports Emotion Questionnaire two hours after the competition. The Sobel test was performed to investigate whether stress and control mediate the relationship between athletes' motivational climate and emotions. Results of Sobel test revealed that: (a) control significantly negatively mediated the relationship between Task-Climature (Level 2; between-person level of analysis or training groups) and dejection; (b) control significantly negatively mediated the relationship between Task-Climature (Level 2) and anger; (c) control negatively significantly mediated the relationship between Task-Climature (Level 2) and excitement; (d) control positively significantly mediated the relationship between Task-Climature (Level 2) and happiness; (e) stress negatively significantly mediated the relationship between Task-Climature (Level 2) and anxiety; (f) stress negatively significantly mediated the relationship between Task-Climature (Level 2) and dejection; (g) stress negatively significantly mediated the relationship between Task-Climature (Level 2) and anger; (h) stress positively significantly mediated the relationship between Task-Climature (Level 2) and happiness. In conclusion, it should be highlighted the crucial role of Task-Climature (Level 2) which was the only motivational climate variable that was mediated by stress and control. It means that the perception of Task-Climature from athletes is crucial when handling stress and emotions in competitions. Therefore, coaches should highlight the Task-Climature atmosphere in coaching athletes as a means to handle emotions in competition.

## Effort revealed: A scoping review to define and operationalize effort

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Oral presentation 28: Motivation,  
Hall Igls, Juli 18, 2024, 11:00 - 12:00

Effort is pervasive and performance-determining in a variety of contexts (e.g., Rigoli & Pezzulo, 2022). It is widespread across psychology, economics, and philosophy; however, the concept of effort is rarely defined (e.g., Steele, 2021). On the one hand, a precise definition is essential for successful theory building that addresses effort; on the other hand, it is essential for reliable and valid measurement (Richter & Slade, 2017). In this scoping review, we systematically elaborate how effort is currently (1) defined, (2) operationalized, and (3) how previous research combines definitions and operationalization.

The preregistered scoping review ([https://osf.io/yzm83/?view\\_only=1fc-c88d4152648609a39f3c4321d20f5](https://osf.io/yzm83/?view_only=1fc-c88d4152648609a39f3c4321d20f5)) was conducted in line with the JBI methodology (Peters et al., 2015) and the PRISMA-ScR checklist (Tricco et al., 2018). In the databases, Web of Science, PubMed, Scopus, PsycINFO, PsychArticle, and ProQuest, 34832 potentially relevant articles (9499 duplicates) were found.

Among the relevant studies (N = 1158), 67 only defined effort (RQ1), 967 only operationalized effort (RQ2), and 124 defined and operationalized effort (RQ3). Based upon the stepwise procedure of Podsakoff and colleagues (2016), in this study existing definitions were analyzed, and a new advanced definition was developed. The data of the operationalization was synthesized and mapped to evaluate across studies. For example, 462 studies used a one-item scale to measure effort. The results indicated that effort is rarely defined when it is measured, but that the measurement itself is used as the definition. Overall, there is a lack of transparent operationalization based on definitions.

The ambiguity of effort definitions and operationalization (e.g., measurement as the definition) fosters misunderstanding and impedes valid research (MacKenzie et al., 2011). Our newly developed definition will allow us to investigate effort-related links and adapt effort operationalizations according to the definition which supports investigating effort more reliable and valid.

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Rigoli, F., & Pezzulo, G. (2022). A reference-based theory of motivation and effort allocation. *Psychonomic Bulletin & Review*, 29(6), 2070-2082.

Steele, L. M., Hardy III, J. H., Day, E. A., Watts, L. L., & Mumford, M. D. (2021). Navigating creative paradoxes: Exploration and exploitation effort drive novelty and usefulness. *Psychology of Aesthetics, Creativity, and the Arts*, 15(1), 149.

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., ... Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, 169(7), 467-473. [https://doi.org/10.7326/M18-0850/SUPPL\\_FILE/M18-0850-SUPPLEMENT.PDF](https://doi.org/10.7326/M18-0850/SUPPL_FILE/M18-0850-SUPPLEMENT.PDF)

## A Systematic Review about the Effects of Self-Determination Theory (SDT)-Interventions on Motivational Variables in Physical Education Teachers

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Oral presentation 28: Motivation,  
Hall Igls, Juli 18, 2024, 11:00 - 12:00

**Background:** Focused on Physical Education (PE) context, self-determination theory (SDT)-interventions on students' motivational variables have been widely implemented (Vasconcellos et al., 2020). However, to our knowledge, there is scarce evidence on the effects of these SDT-interventions on PE teachers' motivational outcomes (Reeve & Cheon, 2021).

**Objective:** For this reason, the main proposal of this work was to carry out a systematic review to synthesize the evidence regarding the effects of SDT-interventions on PE teachers' self-perceptions of their antecedents, (de-)motivating teaching style, motivational variables, and affective, behavioural, and cognitive outcomes.

**Method:** A systematic search for qualitative and quantitative studies was conducted (July 2023) and registered in PROSPERO (CRD42023404923). We used Web of Science, Medline, Scopus, and Eric databases following the PRISMA Guidelines (Page et al., 2021). The risk of bias and the quality of the studies were also examined.

**Results:** A total of 14 studies comprising 795 PE teachers from five countries were finally selected from a search and screening of 6,339 references identified. Geographically, most of the interventions (ranged from three to 12 hours) were developed in Korea (N = 7) and via face-to-face, analysing the effects on teachers related variables through a quantitative methodology. These SDT-based interventions found positive effects on teachers' motivational antecedents such as beliefs, goals orientations, and other outcomes like more psychological needs satisfaction, job satisfaction, or less job stress. In addition, SDT-interventions showed positive effects on students' motivation variables.

**Conclusion:** PE teachers who participate in SDT-training programs not only perceive improvements in their antecedents and teaching behaviours, but also in a set of motivational variables and adaptive outcomes.

Page, M. J., Moher, D., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... McKenzie, J. E. (2021). PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *BMJ*, 372, 160.

Reeve, J., & Cheon, S. H. (2021). Autonomy-supportive teaching: Its malleability, benefits, and potential to improve educational practice. *Educational Psychologist*, 56(1), 54-77.

Vasconcellos, D., Parker, P. D., Hilland, T., Cinelli, R., Owen, K. B., Kapsal, N., Lee, J., Antczak, D., Ntoumanis, N., Ryan, R. M., & Lonsdale, C. (2020). Self-determination theory applied to physical education: A systematic review and meta-analysis. *Journal of Educational Psychology*, 112(7), 1444-1469.

## Resistance training and body image: A mixed-methods study of young adult women's experiences

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Oral presentation 29: Exercise psychology,  
Hall Strassburg Süd, Juli 18, 2024, 13:30 - 14:30

**Objective:** Resistance training (RT) has received relatively limited attention in body image research compared to other forms of physical activity, despite its potential for unique benefits (SantaBarabara et al., 2017). This study explores the body image experiences of women who engage in various modalities of RT.

**Methods:** 154 purposefully sampled women (Mean age = 29.6 ± 5.2 years, Mean RT = 202.1 ± 169.9 minutes/week) completed an online survey featuring open and closed-ended questions probing physical activity behavior and body image. Descriptive analyses explored the perceived influence of RT on the four facets of body image (perceptions, thoughts, feelings, and behaviors). A multivariate analysis of variance explored differences in measures of body image (body appreciation, functionality appreciation, and body-related self-conscious emotions) between distinct RT modalities (body building, CrossFit, strength sports, and general fitness). Responses to open-ended questions were analyzed using a qualitative description approach.

**Results:** 14.3% of participants reported bodybuilding as their primary mode of RT, 20.8% CrossFit, 20.1% strength sports, and 44.8% general fitness. Majority of participants perceived RT as having a positive influence on their body-related perceptions (91.4%), thoughts (91.4%), feelings (82.2%), and behaviors (83.7%). A minority reported a negative influence on their body-related perceptions (6.8%), thoughts (10.2%), feelings (13.6%), and behaviors (12.2%). No significant differences were detected in measures of body image across distinct modalities of RT. Examples of positive themes include prioritizing self-care and wellness, physical empowerment, and valuing functionality over aesthetics. Examples of negative themes include increased exercise guilt, heightened body surveillance, and a pervasive sense of underachievement concerning physical abilities and appearance.

**Conclusion:** The findings illuminate the nuanced experiences of women engaging in RT and its potential to foster a positive change in body image. The data contribute to body image and RT intervention design, and theoretical advances in body image and physical activity.

SantaBarabara, N. J., Whitworth, J. W., & Ciccolo, J. T. (2017). A systematic review of the effects of resistance training on body image. *The Journal of Strength & Conditioning Research*, 31(10), 2880-2888.

## Weight commentary and sport dropout: An exploration of the interpersonal dynamics in adolescent girls' sports

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Oral presentation 29: Exercise psychology,  
Hall Strassburg Süd, Juli 18, 2024, 13:30 - 14:30

In sport contexts, physical appearance and weight are often emphasized and scrutinized, contributing to self-consciousness and body image concerns (Sabiston et al., 2020). These concerns impact girls' enjoyment and commitment in sport – both critical factors to prevent sport dropout (Slater & Tiggemann, 2011). Qualitative findings suggest that comments tied to the body and weight are related to poor sport experiences; however, a direct test of the associations between weight commentary and sport outcomes has not been done. The purpose of this study was to examine the prevalence of weight commentary in girls' sport, sources of commentary, and whether weight commentary during adolescence predicts sport dropout in early adulthood. **Methods:** Women (N=124, Mage=21.5 years) who participated in a longitudinal study as athletes throughout adolescence were purposefully recruited to complete a follow-up self-report survey nearly 5 years after baseline data collection. Data were analyzed using descriptive statistics to analyze the prevalence of commentary and its sources, and logistic regression analysis to explore weight commentary received during adolescent sport as a predictor of sport dropout. **Results:** The majority (71.5%) of the sample of girls who participated in the longitudinal study as athletes in non-aesthetic sports had dropped out by age 21. In total, 73.4% of girls reported weight commentary during adolescent sport, with 33% reporting one main source of weight commentary, 21% reporting two sources, and 20% reporting more than 3 sources. Of these sources, girls reported comments from parents (44.4%), teammates (24.2%), opponents (22.6%), coaches (37.1%), and spectators (21.3%). Controlling for age and weight perception, receiving comments about weight during adolescent sport significantly predicted sport dropout at age 21 (OR=2.15, 95%CI=1.01-5.04). **Conclusion:** These findings provide insight into adolescent girls' weight commentary experiences in sport. Understanding the interpersonal dynamics is crucial for promoting inclusive and positive environments to foster lifelong participation.

Sabiston, C. M., Lucibello, K. M., Kuzmochka-Wilks, D., Koulanova, A., Pila, E., Sandmeyer-Graves, A., & Maginn, D. (2020). What's a coach to do? Exploring coaches' perspectives of body image in girls sport. *Psychology of Sport and Exercise*, 48, Article 101669. <https://doi.org/10.1016/j.psychsport.2020.101669>

Slater, A., & Tiggemann, M. (2011). Gender differences in adolescent sport participation, teasing, self-objectification and body image concerns. *Journal of Adolescence*, 34(3), 455-463. <https://doi.org/10.1016/j.adolescence.2010.06.007>

## Connecting Breast Cancer Survivors for Exercise: A Virtual Partner-based RCT with Qualified Exercise Professionals

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Oral presentation 29: Exercise psychology,  
Hall Strassburg Süd, Juli 18, 2024, 13:30 - 14:30

**Objective:** Peer-based exercise interventions may offer support to increase physical activity (PA). It is not clear whether adding qualified exercise professional (QEP) support improves PA outcomes. This study examined whether dyads of women diagnosed with breast cancer (WBC) and receiving virtually delivered QEP support have improved PA compared to WBC dyads who do not receive QEP support.

**Methods:** Medically-cleared inactive WBC were matched into dyads (Sabiston et al., 2023) and 1:1 randomized to intervention [remote QEP-led PA program for 10-weeks (MatchQEP)] or control [dyad PA information]. Self-reported (SR) and device-measured (DM) moderate-to-vigorous PA (MVPA) were measured at baseline (T1), post-intervention (T2), and at 12 weeks follow-up (T3). Multilevel linear models were used to examine the effects of the intervention on MVPA. Actor-partner interdependence models (APIM) with indistinguishable dyads (Kenny et al., 2006) were used to determine actor and partner time lagged effects of MVPA.

**Results:** WBC included 108 women paired 54 dyads (Mage = 51 years; 73% > Stage 2; 76% chemotherapy). There was no significant group difference in post-intervention self-report or device-measured MVPA. In APIM with SR, actors' T1MVPA did not relate to T2MVPA ( $b=.16$ ,  $SE=.12$ ,  $p=.18$ ). Actors' T1MVPA on partners' T2MVPA was unrelated ( $b=-.18$ ,  $SE=.13$ ,  $p=.17$ ). Actors' T2MVPA significantly predicted T3MVPA ( $b=.39$ ,  $SE=.15$ ,  $p=.01$ ) but no effect on partner T3MVPA. For DM, actors' T1MVPA was related to T2MVPA ( $b=.64$ ,  $SE=.18$ ,  $p<.01$ ), which was related to T3MVPA ( $b=.71$ ,  $SE=.12$ ,  $p<.01$ ). Actors had no effects on partner T2 or T3MVPA.

**Conclusion:** WBC generally improved MVPA yet the effects are not clearly linked to QEP or dyad. Overall effects suggest MatchQEP also decreased MVPA at follow-up compared to control group. Future research is needed to explore the social characteristics of the dyads and impact of the intervention strategies on well-being and quality of life.

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## The importance of a self-support approach to satisfy basic psychological needs in relation to performance in athletes

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Oral presentation 30: Motivation,  
Hall Igls, Juli 18, 2024, 13:30 - 14:30

**Objects:** Based on Self-Determination Theory (SDT), athletes like others, have three necessary fundamental psychological needs for autonomy, competence, and relatedness. When an athlete can create a supportive climate to support their basic needs to experience greater satisfaction, they can show better performance, but when they fail to do this or thwart their basic needs in the absence of awareness about their needs, they show poorer performance and experience higher anxiety. The aim of this study is to examine the relation between athletes' self-support and self-thwarting psychological needs with their performance. **Methods:** Data were collected from athletes (N = 96; ages ranging from 18-29 years) in Iran. Athletes filled out self-support and self-thwarting of basic psychological needs questionnaire and elite athlete self-description questionnaire. Pearson correlation and one step regression were used to analyze data. **Results:** The results showed that athletes' self-support style positively related to their performance, whereas, athletes' self-thwarting style negatively related to their performance. The results also showed that self-support positively predicted performance, but self-thwart did not predict performance. **Conclusion:** In line with SDT, the results will be discussed and I provide practical implications for coaches and athletes in creating a self-support climate to satisfy basic psychological needs.

**Keywords:** Self-support, self-determination theory, basic psychological needs, performance

Behzadnia, B., & FatahModares, S. (2023). A self-support approach to satisfy basic psychological needs during difficult situations. *Motivation and Emotion*, 47(1), 61-83.

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford publications.

Vansteenkiste, M., Soenens, B., & Ryan, R. M. (2023). Basic psychological needs theory: A conceptual and empirical review of key criteria. *The Oxford handbook of self-determination theory*, 84-123.



## The impact of self-compassion training on the motivation to practice sports by young athletes

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<sup>1</sup>The Jozef Pilsudski University of Physical Education in Warsaw, Warszawa, Poland

Oral presentation 30: Motivation,  
Hall Igls, Juli 18, 2024, 13:30 - 14:30

**Objectives:** Self-compassion means treating ourselves with the same kindness and understanding with which we treat our closest friends, especially facing life's difficulties, failures or mistakes (Neff, Germer, 2017). The aim of the study was to check whether self-compassion training increases the motivation to practice sports, and thus result in less children and adolescents giving up sports.

**Methods:** The participants of the study were young people practicing various sports disciplines (e.g. swimming, basketball, dancing). The tools that have been used in the study are the Self-Compassion Scale (SCS-PL) and the SMS-15 Situational Motivation Scale for Children, which have been used before and after training and three months later. Self-compassion training had 3 components: psychoeducation, self-compassion meditation and compassionate writing. The study has also included a research group and control group that has not received any training.

**Results:** There was a statistically significant simple effect at the moment of measurement in the control group,  $F(2; 57) = 4.61$ ;  $p = 0.014$ ;  $\eta^2 = 0.14$ . In the control group, the level of internal motivation was higher in measurement I compared to measurement II ( $p = 0.026$ ) and III ( $p = 0.043$ ). The level of amotivation in measurement III was higher in the control group than in the research group ( $p = 0.047$ ). In the control group, the level of the self-kindness scale was higher in measurement I compared to measurement III ( $p = 0.004$ ).

**Conclusion:** There was a decrease in the level of internal motivation, amotivation and self-kindness in the control group with no such effect in the research group.

Neff, K. D. & Germer, C. (2017). Self-Compassion and Psychological Wellbeing. In J. Doty (Ed.) Oxford Handbook of Compassion Science, Ch. 27. Oxford University Press.

## You Wouldn't Catch Me doing that: A qualitative exploration of motivations in extreme sport participants

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Oral presentation 30: Motivation,  
Hall Igls, Juli 18, 2024, 13:30 - 14:30

**Objectives:** Extreme sports have been defined as sports in which a mismanaged mistake or accident can result in serious injury or death (Brymer, 2005). Understanding these motives allow us to understand what drives individuals and how they may respond in different extreme or life-threatening circumstances (e.g., military service). Therefore, the aim of this research is to investigate the proposed motivational factors for participating.

**Methods:** The research used a qualitative approach through the use of semi structured interviews, which were then analysed using thematic analysis. After obtaining ethical approval via the University ethical committee, seventeen ( $n=17$ ) extreme sport participants (6 female, 11 male) were interviewed. Participants sports included freestyle skiing (1), downhill mountain biking (3), wingsuit/ BASE jumping (3), big wave surfing (1) and climbing (9).

**Results:** The reflexive thematic analysis led to the identification of five overarching themes that all related to individuals' engagement in extreme sport; Experiential (Motivations were based on specific experiences within their sport), Motivation (Individuals were predominately motivated by both intrinsic and extrinsic factors and many aligned to self-determination theory of motivation), Risk (Risk was perceived differently by each person), Analogies with Addiction (ES were sometimes understood to lead individuals to feel a loss when not participating or needing their sport to feel fulfilled) and Personal Factors (personal factors relates to traits and states). Each overarching theme consisted of several sub-themes.

**Conclusion:** In conclusion, the interviews highlighted that there are multiple reasons individuals are motivated to participate in extreme sport. Researchers need to consider the subjective nature of the different motives and how different extreme sports can elicit differences. Future research is needed to understand how these different motives link together and could predict one another.

Brymer, E. (2005). Extreme Dude! A phenomenological perspective on the extreme sport experience. Research Online, 1-158.

## The double lockdown: School closure and limited opportunities to practice sport among Swedish student-athletes during the COVID-19 pandemic.

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Oral presentation 31: Sports psychology and world events,  
Hall Grenoble, Juli 18, 2024, 13:30 - 14:30

Worldwide, educational and sport systems were largely affected by the COVID-19 pandemic. Upper-secondary students were faced with school closures and distance education. For many student-athletes closed training facilities added additional challenges. The objective of the study was to explore Swedish upper-secondary school student-athletes' experiences of getting through the pandemic in relation to both schoolwork and sport during 2020–2021.

Focus group interviews (FGI) were used to generate data for the study. Four FGI were conducted seven months after the outbreak (October 2020), and four FGI were performed 14 months after the outbreak (May 2021). In total, 47 student-athletes (25 females and 22 males) participated. The mean age of the student-athletes was about 18 years, and 37 represented team sports (e.g., soccer) and 10 individual sports (e.g., golf). The data analysis was based on an inductive thematic analytic strategy using a six-phase procedure.

Four themes appeared when the students described their experiences of getting through the pandemic: Reevaluating and longing for social life, Speeding up the transition to adulthood, Management of everyday life, and Responsibility and problem-solving. The students experienced challenges in handling school, sports, and social life, such as maintaining motivation over time, but they also experienced increased responsibility, maturity, and awareness of the importance of nurturing social relationships. A recurring theme among the student-athletes was the experience of balancing everyday life in a constructive way, but this challenge seems to positively develop over time.

Student-athletes are a common responsibility between schools and sports, and lessons learned from student athletes' experiences of the double lockdown during the COVID-19 pandemic, are important to acknowledge to increase readiness for action when major societal challenges may occur. Possible risk scenarios for this group in the footsteps of COVID-19 are impaired future academic chances, youth dropping out of sports, and decreased psychosocial health.

## Dealing with uncertainty: Student-athletes and teachers in Swedish certified sport-oriented upper secondary schools experiences of the COVID-19 pandemic

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<sup>1</sup>Halmstad University, Halmstad, Sweden

Oral presentation 31: Sports psychology and world events,  
Hall Grenoble, Juli 18, 2024, 13:30 - 14:30

The COVID-19 pandemic had a significant impact on educational and sporting systems worldwide, with, for example, school closures, transitions to remote teaching, and limited opportunities for practicing sports. Consequently, this study aimed to explore how student-athletes and teachers at certified sports-oriented high schools in Sweden experienced uncertainty in relation to the COVID-19 pandemic and how the pandemic impacted their everyday life experiences and well-being.

This study is based on a secondary analysis of two former studies that explored the experiences of teachers and student-athletes at certified sport-oriented upper secondary schools in Sweden during the COVID-19 pandemic. In study one, individual in-depth interviews were conducted with 13 teachers (mean age: 44 years). In study two, 53 student-athletes (mean age: 18 years) participated in focus group interviews. The amplified secondary analysis was based on qualitative content analysis and allowed for posing new research questions to the existing data and examining common and divergent themes across the two datasets.

The analysis resulted in four themes: 'Social life in uncertain times', 'Uncertainty affects health and well-being', 'Rapid changes, uncertainty, and adaptation', and 'Lessons learned for the probabilistic future' that illuminate the student-athletes and teachers experiences. The student-athletes and teacher experiences shared some similarities (e.g., decreased social contacts and loneliness, uncertainty in relation to constantly changing restrictions). Importantly, however, their experiences also differed in several ways; for example, the teachers coped better with the second lockdown, while the second lockdown was more difficult to handle for the student-athletes.

In conclusion, the study highlights the multifaceted impact of the COVID-19 pandemic on student-athletes and teachers' social lives, study and work situations, opportunities for practicing or teaching sports, and well-being. The results emphasize the need for support, flexibility, and preparedness for future uncertainties, such as new pandemics, for student-athletes and teachers.

## Basketball referee burnout. A scoping review

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Oral presentation 31: Sports psychology and world events,  
Hall Grenoble, Juli 18, 2024, 13:30 - 14:30

The concept of burnout, as defined by Maslach and Jackson (1986), consists of three factors (exhaustion, depersonalization, decreased performance). In basketball referees, burnout has not been explored enough. The basketball referee acts as a mediator to resolve tension between players and also as a judge who makes impartial decisions for all players. This study aims to review burnout literature related to basketball referees as well as to explore the factors and consequences of burnout related to basketball referees.

This Scoping Review (ScR) was performed in accordance with the PRISMA ScR guidelines (Arksey & O'Malley, 2005). The process included five basic steps, defining research questions, identifying relevant studies, eligibility criteria, mapping data, and reporting results. The systematic search used the following databases: Scopus, PubMed, SPORTDiscus, ERIC, PROQUEST, SPONET, and ORIA. The inclusion criteria were studies written in English and Spanish that examined basketball referee burnout, with no restrictions on the year of publication. Eight studies were included in the review.

The results indicated significant discrepancies in both measurement tools used and variables examined. All studies were cross-sectional and quantitative in nature, having used questionnaires or specifically designed scales to assess burnout variables. The synthesis of the results highlights the factors that lead to burnout, such as emotional exhaustion, reduced personal fulfillment, low levels of resilience, interpersonal conflict, time pressure and fear of physical harm. Furthermore, regarding burnout consequences, the intention to terminate refereeing activities, reduced concentration and decision-making ability, as well as negative emotions, low levels of satisfaction and motivation of basketball referees were mentioned.

Overall, this scoping review provides important information regarding the overall research carried out so far on basketball referee burnout. The study further highlights the areas on which future research should focus to understand better the phenomenon of basketball referee burnout.

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19-32. doi: 10.1080/1364557032000119616

Maslach, C., & Jackson, S. E. (1986). *Maslach burnout inventory manual* (2nd ed.). Palo Alto, CA: Consulting Psychologists Press.

## Examining the roles of stigma on the effects from mental health literacy to athlete help-seeking attitude: A longitudinal study

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Oral presentation 31: Sports psychology and world events,  
Hall Grenoble, Juli 18, 2024, 13:30 - 14:30

**Objectives:** Despite the prevalence and negative consequences of mental health issues among elite athletes, studies suggest many do not seek professional help (Rice et al., 2016), some barriers exist in the process of help-seeking such as a high level of stigma, lack of mental health knowledge (Gulliver et al., 2012). Therefore, understanding barriers and facilitators to help-seeking is imperative to reduce the burden of mental health symptoms and disorders. Cross-sectional evidence suggests that mental health literacy might correlate to attitudes of help-seeking via self-stigma and public stigma (Wang et al., 2021). In the current study, a longitudinal design is conducted to extend knowledge of these hypothesized mediational pathways.

**Methods:** The data were collected three times with an interval of three months each. A final sample of 82 elite athletes aged 20.6 years (SD = 2.86, ranging from 18 to 31; male = 39) reported their mental health literacy at Time 1, self-stigma and public stigma at Time 2, and help-seeking attitudes at Time 3. Path analysis was employed to test the mediating roles of self-stigma and public stigma on the effects from mental health to help-seeking attitudes (Preacher & Hayes, 2004).

**Results:** Self-stigma was found to be a partial mediating factor in the relationship between mental health literacy and help-seeking attitudes. Public stigma was found to be a full mediating factor in this relationship. In addition, the indirect effect of public stigma ( $\beta = .23, p < .01$ ) was larger than the figure of self-stigma ( $\beta = .11, p < .05$ ).

**Conclusion:** According to the longitudinal evidence for the mediating effects of self-stigma and public stigma, future studies with experimental designs could consider testing the potential changing mechanisms of mental health literacy on improving help-seeking attitudes for elite athletes.

Gulliver, A., Griffiths, K. M., & Christensen, H. (2012). Barriers and facilitators to mental health help-seeking for young elite athletes: a qualitative study. *BMC Psychiatry*, 12(1), 157-157.

Rice, S. M., Purcell, R., De Silva, S., Mawren, D., McGorry, P., & Parker, A. G. (2016). The mental health of elite athletes: A narrative systematic review. *Sports Medicine*, 49, 1333-1353.

Wang, X. (2021). The effects of mental health literacy and stigma of professional psychological help-seeking on attitudes toward seeking psychological help in Chinese elite athletes [master thesis]. Wuhan Sports University. (In Chinese).

## Sport-related stressors and athletes' emotional states in intensive rugby training centres: The buffering effect of coach's need-supportive style

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Oral presentation 32: Social psychology,  
Hall New Orleans, Juli 18, 2024, 13:30 - 14:30

**Objective.** Among the variety of demands that athletes have to face in competitive context, sports-related stressors (i.e., performance demands, injury concerns, training adaptation) have emerged as particularly important (Fletcher & Hanton, 2003). Given the potential impact of these sport-related stressors on athletes, it seems important to identify the conditions under which these stressors may be particularly damaging. Among the numerous factors that may moderate the effects of sport-related stressors, coach support appears particularly relevant to investigate (Arnold, Edwards, & Rees, 2018). Based on basic psychological need theory (Vansteenkiste, Ryan, & Soenens, 2020), this study aimed to explore the main and buffering effect of perceived coach need-supportive style on the relationships between sport-specific stressors and athletes' perceived stress and negative emotions from a dynamic perspective.

**Methods.** 58 adolescent athletes (16.5 ± 0.7 years; 69% male) involved in intensive rugby training centres completed self-reported measures of sport-specific stressors, coach need-supportive style, negative emotions, and stress, twice at one-month intervals.

**Results.** Multiple regression analyses showed significant associations between (1) the evolution of perceived performance demands and athletes' stress and negative emotions, and (2) the evolution of perceived injury demands and athletes' negative emotions. We observed no significant main effect of the evolution of coach need-supportive style on negative emotions and perceived stress. However, moderated regression analyses indicated that the evolution of coach need-supportive style significantly moderated the relations between perceived performance demands and athletes' negative emotions and stress. Specifically, athletes' levels of perceived stress and negative emotions were less affected by an increase in perceived performance demands when they perceived a positive evolution of need-support coming from their coaches.

**Conclusion.** Findings suggest that the adoption of a supportive coaching style could be a protective factor with respect to the negative impact of sport-related stressors on athletes' emotional states.

Arnold, R., Edwards, T., & Rees, T. (2018). Organizational stressors, social support, and implications for subjective performance in high-level sport. *Psychology of Sport and Exercise*, 39, 204212. <https://doi.org/10.1016/j.psychsport.2018.08.010>

Fletcher, D., & Hanton, S. (2003). Sources of Organizational Stress in Elite Sports Performers. *The Sport Psychologist*, 17(2), 175195. <https://doi.org/10.1123/tsp.17.2.175>

Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion*, 44(1), 131. <https://doi.org/10.1007/s11031-019-09818-1>

## The relationships among group cohesion profiles, coping and affects during competition

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Oral presentation 32: Social psychology,  
Hall New Orleans, Juli 18, 2024, 13:30 - 14:30

This study aimed to determine group cohesion profiles in athletes and evaluate if athletes from different profiles differed significantly in their affective states and coping before and during competition. A sample of 296 athletes (Mage = 21.61; Age range = 18-42; SD = 145 6.32; 33% were female and 67% were male) participated in the study and completed the following questionnaires: the Group Environment Questionnaire (GEQ), The Coping Inventory for Competitive Sport (CICS) and the French version of the Positive and Negative Affect Schedule, including a direction scale (PANAS-D). The athletes completed the surveys two days before the competition, two hours before the competition, and two hours after the competition. The LPA model results revealed that three profiles were the most suitable solution: (a) Low group cohesion profile, (b) a mixed group cohesion profile and (c) a high cohesion profile. In particular, (c) athletes from the high group cohesion profile revealed lower scores in intensity of negative affects during the competition, lower precompetitive relaxation, lower precompetitive mental distancing, lower precompetitive mental distraction, lower intracompetitive relaxation, lower intracompetitive logical analysis, lower intracompetitive mental distancing, lower intracompetitive mental distraction and lower intracompetitive disengagement. Regarding coping mechanisms, the (b) mixed group cohesion profile indicated the weakest combination of the three profiles, which may be a profile at risk of underperforming in competition. In conclusion, it is vital to consider group cohesion as a multivariate experience for a better understanding of this phenomenon. The profile approach used in the present study might be instrumental in identifying higher risk profiles for individuals involved in competitive environment settings. Understanding relationships of group cohesion profiles with key sports outcomes such as pre-and intra-competitive affective states and coping is paramount for designing prevention and intervention strategies most salient to a particular athlete.

## Loneliness in sport: a systematic review

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Oral presentation 32: Social psychology,  
Hall New Orleans, Juli 18, 2024, 13:30 - 14:30

**Objectives:** The purpose of this study was to review existing literature on loneliness in sport. We sought to identify the characteristics of relevant studies with regards to methods and measures used; risk and protective factors; and health, social, and behavioural outcomes associated with loneliness in sport; and the characteristics and effects of interventions targeting loneliness in sport.

**Theoretical background:** Loneliness is the perceived loss or lack of meaningful social relationships and is an established risk factor for mental and physical health problems (Cacioppo & Cacioppo, 2018). Within sport, there are many unique stressors that could exacerbate the risk of experiencing loneliness and attendant health consequences (Arnold et al., 2012). Researchers and policymakers have called for more research to better understand loneliness and its aetiology, to inform interventions (Hickin et al., 2021). Thus, it seems timely and important to review the literature on loneliness in sport.

**Design:** A systematic mixed studies review was conducted. Searches were undertaken of four electronic databases in January 2024. Studies could be included if they reported primary data on loneliness in populations (e.g., athletes, coaches, other stakeholders) involved in sport. Records retrieved through electronic data searches and manual screening were screened independently at two stages by two authors independently. Contextual information was extracted from included studies and relevant data addressing our research questions were extracted, analysed, and synthesised.

**Results and discussion:** 180 studies presenting data on loneliness in sport were included. Our findings synthesise understanding of: the characteristics of studies conducted on loneliness in sport; how loneliness is conceptualised in sport; measures that have been used to assess loneliness in sport; risk factors, protective factors for loneliness in sport; and health, social, and behavioural outcomes associated with loneliness in competitive sport. Theoretical, methodological and practical implications of the findings will be discussed.

Cacioppo, J. T., & Cacioppo, S. (2018). The growing problem of loneliness. *The Lancet*, 391(10119), 426.

Arnold, R., & Fletcher, D. (2012). A research synthesis and taxonomic classification of the organizational stressors encountered by sport performers. *Journal of Sport and Exercise Psychology*, 34(3), 397-429.

Hickin, N., Käll, A., Shafran, R., Sutcliffe, S., Manzotti, G., & Langan, D. (2021). The effectiveness of psychological interventions for loneliness: A systematic review and meta-analysis. *Clinical Psychology Review*, 88, 102066.

## Social Media Propagation: Exploring the Spread of Fitspiration in

## China and Feminism's Shield Against Body Dissatisfaction

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Oral presentation 32: Social psychology,  
Hall New Orleans, Juli 18, 2024, 13:30 - 14:30

**Background:** The Fitspiration trend, replacing the thin-ideal with a fit-ideal physique, dominates social media platforms as the mainstream body beauty standard for women, closely linked to health and exercise discourse. Despite its appearance as a healthy alternative, accumulating research reveals a positive correlation between the fit-ideal and negative outcomes like body dissatisfaction and compulsive exercise. While studies have predominantly examined its influences in Western contexts, investigating its global impact is essential given the transcultural nature of social media. Additionally, countering the negative impact of fitspiration requires urgent attention.

**Objectives:** This study employs a portion of the traditional tripartite model of body image to explore: 1. Whether fit-ideal internalization mediates the relationship between body dissatisfaction and social media appearance awareness among Chinese young adult women; and 2. Whether feminist beliefs moderate fit-ideal internalization, akin to thin ideal internalization.

**Method:** Data was collected through online questionnaires from 303 Chinese women aged between 18 and 42 years, recruited via online social media advertisements. Moderated mediation models were then analyzed using structural equation modeling.

**Result:** 1. Fit-ideal internalization mediated the relationship between body dissatisfaction and social media appearance awareness among Chinese women. 2. Feminist beliefs served as a protective moderator against fit-ideal internalization from social media, buffering body dissatisfaction.

**Conclusion:** This study underscores the pervasive influence and global reach of fitspiration through aggressive social media promotion. The fact that feminist beliefs may offer a potential avenue for mitigating body dissatisfaction also provides a path that calls for the need for critical awareness, discourse, and actions surrounding this singular socio-cultural body ideal. Moving forward, countering the negativity of fitspiration is a pressing concern, and unraveling its embedded mechanism is also crucial for societal implications. Future research that may explore how women perceive, navigate, confront, critique, and challenge the fit-ideal in their daily lives.

Donovan, C. L., Uhlmann, L. R., & Loxton, N. J. (2020). Strong is the new skinny, but is it ideal?: a test of the tripartite influence model using a new measure of fit-ideal internalisation. *Body Image*, 35, 171-180.

Kinsaul, J. A. E., Curtin, L., Bazzini, D., & Martz, D. (2014). Empowerment, feminism, and self-efficacy: Relationships to body image and disordered eating. *Body Image*, 11(1), 63-67. 10.1016/j.bodyim.2013.08.001



Peterson, R. D., Grippo, K. P., & Tantleff-Dunn, S. (2008). Empowerment and powerlessness: A closer look at the relationship between feminism, body image and eating disturbance. *Sex Roles*, 58(9), 639-648.

Rounds, E. G., & Stutts, L. A. (2021). The impact of fitspiration content on body satisfaction and negative mood: An experimental study. *Psychology of Popular Media*, 10(2), 267.

Simpson, C. C., & Mazzeo, S. E. (2017). Skinny is not enough: A content analysis of fitspiration on Pinterest. *Health Communication*, 32(5), 560-567.

Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). Exacting beauty: Theory, assessment, and treatment of body image disturbance. *American Psychological Association*.

Tiggemann, M., & Zaccardo, M. (2015). "Exercise to be fit, not skinny": The effect of fitspiration imagery on women's body image. *Body Image*, 15, 61-67.

Tiggemann, M., & Zaccardo, M. (2018). 'Strong is the new skinny': A content analysis of fitspiration images on Instagram. *Journal of Health Psychology*, 23(8), 1003-1011.

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Wu, Y., Harford, J., Petersen, J., & Prichard, I. (2022). "Eat clean, train mean, get lean": Body image and health behaviours of women who engage with fitspiration and clean eating imagery on Instagram. *Body Image*, 42, 25-31.

## Teaching styles and motivation to participate in PE: A multigroup analysis of the mediating role of basic psychological needs

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Oral presentation 33: Coaching & Sexual violence, sexual harassment and sexual abuse,  
Hall Tirol, Juli 18, 2024, 14:40 - 15:40

**Purpose.** Based on Mosston's Spectrum of Teaching styles and Self-Determination Theory, we aim at testing a model of the relationship between students' perceptions of the use of Teaching Styles and examine the mediating role of basic psychological needs in the relationship between teaching styles and students' motivation. Moreover, we test the group invariance of this model in students from Portugal and Scotland.

**Methods.** 548 secondary school pupils from Portugal (n=353; 47.3% females) and Scotland (n=195; 31.3% females) completed online the Teaching Styles Questionnaire (student version), the Self-regulation Questionnaire and the Basic Needs Satisfaction Scale. To test the predicted mediation model, whereby productive and reproductive styles directly and indirectly (through BPN) impact pupils' autonomous/controlling motives, structural equation models were employed. To compare the model's invariance between subsamples, a multigroup CFA was performed.

**Results.** The most frequently used styles were from the reproductive cluster. Portuguese students perceived significantly greater use of reproductive styles than Scottish students. The hypothesized model showed an adequate fit to the data for both subsamples. Productive styles were positively associated with BPNs and BPNs were positively associated with autonomous motivation. BPNs were positively associated with controlled motivation in the Scottish sample, but negatively associated in the Portuguese sample. None of the teaching clusters were directly associated with autonomous motivation in the Scottish sample.

**Conclusion.** Productive styles have direct and indirect effects, on autonomous motives, through the fulfilment of basic psychological needs. These styles engage students in decision-making, contributing to the fulfilment of BPN and development of autonomous motives. Some reproductive styles may also provide some degree of autonomy (e.g., self-check, inclusion, reciprocal). Also, reproductive styles had a direct positive effect on autonomous motivation on the Portuguese sample and neither a direct nor indirect effect on controlling motives in both samples, suggesting the influence of cultural and situational factors.

## An Ecological Analysis of Sexual Violence in Hockey Canada

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Oral presentation 33: Coaching & Sexual violence, sexual harassment and sexual abuse,  
Hall Tirol, Juli 18, 2024, 14:40 - 15:40

**Objectives:** Significant scholarly attention has been devoted to sexual violence in sport recently, although most of this has focused on the coach-athlete relationship. The purpose of this presentation is to highlight the need to attend to the organizational-level influences that shape the occurrence and concealment of sexual violence.

**Methods:** Using Bronfenbrenner's ecological model (Bronfenbrenner, 1999), this presentation will analyze a recent case in which Canadian members of the 2018 World Junior hockey roster were allegedly involved in a sexual assault and Hockey Canada subsequently concealed the case. **Results:** It was not until January 2024, that five of these team members, who now play at the professional level, were criminally charged. It was also revealed that, for years, Hockey Canada has been concealing cases of sexual violence using a secret fund dedicated to settling sexual violence cases out-of-court; these settlements included non-disclosure clauses that prevented survivors from speaking about their experiences. It was only when major sponsors such as Nike withdrew their sponsorship of Hockey Canada, that changes to the organization and its culture began. This analysis reaffirms the systematic issues embedded in Canadian hockey culture, including the elevated status of hockey and hockey players in Canada, the lack of diversity on Hockey Canada's Board of Directors, toxic masculinity, and autonomous functioning, that contribute to an environment where sexual violence persists.

**Conclusions:** This analysis emphasizes the need for an ecological understanding of sexual violence within sports organizations, moving beyond interpersonal dynamics to examine the broader organizational influences at play in order to initiate systemic change.

Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In S.L. Friedman & T.D. Wachs (Eds.), *Measuring environment across the lifespan* (pp. 3–28). Washington, DC: American Psychological Association.

## Breaking the Silence: Harassment, Abuse, and Mental Health Challenges within Swedish Cheerleading

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Oral presentation 33: Coaching & Sexual violence, sexual harassment and sexual abuse,  
Hall Tirol, Juli 18, 2024, 14:40 - 15:40

**Objectives:** Harassment and abuse (HA) in sports is associated with psychological and emotional challenges, injuries, and decreased motivation to remain in sports (Kerr et al., 2020; Stirling & Kerr, 2013), yet research on cheerleaders' experiences of HA and mental health remains limited. This study investigated the prevalence of HA and mental health issues among current and former senior competitive cheerleaders, with a secondary aim to identify the determinants of HA and mental health. The International Olympic Committee's (IOC) definitions of HA (IOC, 2017; Mountjoy et al., 2016) were adopted.

**Methods:** A cross-sectional study was conducted using an online survey to assess perceived coach-athlete relationships, sports psychological safety, resilience, mental health (anxiety, depression, wellbeing), and experiences of HA in cheerleading. A total of 284 athletes completed the survey (current athletes: n=211; former athletes: n=73; women: n=278; men: n=5; gender not disclosed: n=1).

**Results:** Psychological abuse was the most frequently reported form of HA (current athletes=21.6%; former athletes=53.5%), followed by neglect (current athletes=5.4%; former athletes=26.8%) and physical abuse (current athletes=3.9%; former athletes=12.7%). Sexual HA was the least reported. A good coach-athlete relationship was identified as protective against HA. Clinically significant levels of anxiety were reported by 33.1% of participants, depression by 8.9%, while 63.8% reported good well-being. Higher scores of anxiety and depression were linked to injury episodes, and well-being was associated with a healthy sports environment. Resilience was found to be a protective factor for overall mental health.

**Conclusion:** The notable frequency of reported HA, particularly psychological abuse, underscores the need for enhanced prevention and protection measures in cheerleading. The findings call for further empirical efforts to explore mediating variables to gain a more detailed understanding of reported HA and its potential effects on mental health during and after the athletes' sports careers.

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Mountjoy, M., Brackenridge, C., Arrington, M., Blauwet, C., Carska-Sheppard, A., Fasting, K., Kirby, S., Leahy, T., Marks, S., Martin, K., Starr, K., Tiivas, A., & Budgett, R. (2016). International Olympic Committee consensus statement: harassment and abuse (non-accidental violence) in sport. *British Journal of Sports Medicine*, 50(17), 1019-1029. <https://doi.org/10.1136/bjsports-2016-096121>

Stirling, A.E., & Kerr, G.A. (2013). The perceived effects of elite athletes' experiences of emotional abuse in the coach-athlete relationship. *International Journal of Sport and Exercise Psychology*, 11:1, 87-100, <https://doi.org/10.1080/1612197X.2013.752173>

## Safeguarding and protecting children and professionals in sport: an abuse survivor's typical journey

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Oral presentation 33: Coaching & Sexual violence, sexual harassment and sexual abuse,  
Hall Tirol, Juli 18, 2024, 14:40 - 15:40

**Objectives:** The families trust that their young ones are in a safe environment while playing sports. However, abuse reports in the media often create unfavourable images of coaches and other sports professionals. Our goal is to help children play sports safely, keep them motivated, and avoid early dropouts. Another goal is to offer sports professionals effective tools to represent and protect children's rights. To do that, we aim to analyse the survivor's typical journey.

**Methods:** The research project is organised along 3 target areas: (1) Collection of international regulations and practices, (2) Mapping the knowledge of both athletes and sports professionals. (3) Preparation of preventive and educational materials. Within the second target area, the primary research method applied in the sport psychology perspective has been a focus group interview with 44 psychologists in 7 separate groups. The topic of this presentation is a typical journey of the abuse survivor, as discussed by the focus groups.

**Results:** The risk factors identified by the participants often point towards dysfunctional social connections and discrimination. A high-pressure environment and pre-existing mental health issues may also contribute (confirming the findings of Mountjoy (2023) and Cense (2001)). An abuse incident would often be dismissed or purposefully ignored, causing further isolation and anxiety or depression. The incident would often remain unreported also because of complex procedures. In the aftermath, the victim would often leave the team or even the sport altogether and struggle with the trauma for years ahead.

**Conclusions:** An abuse incident would oftentimes amplify existing systemic problems. Addressing the identified risk factors and implementing changes within sports organisations are critical steps toward creating safer and more inclusive environment. Our chosen approach encompasses policy reforms, cultural shifts, and enhanced support mechanisms to effectively prevent and respond to instances of abuse in sports (Tuakli-Wosornu 2023).

Brackenridge, C. H., Bishopp, D., Moussalli, S., & Tapp, J. (2008). The characteristics of sexual abuse in sport: A multidimensional scaling analysis of events described in media reports. *International Journal of Sport and Exercise Psychology*, 6(4), 385-406. <https://doi.org/10.1080/1612197X.2008.9671881>

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McMahon, J., McGannon, K. R., Zehntner, C., Werbicki, L., Stephenson, E., & Martin, K. (2023). Trauma-informed abuse education in sport: engaging athlete abuse survivors as educators and facilitating a community of care. *Sport, Education and Society*, 28(8), 958–971. <https://doi.org/10.1080/13573322.2022.2096586>

McMahon, J., Lang, M., Zehntner, C., & McGannon, K. R. (2023). Athlete and coach-led education that teaches about abuse: an overview of education theory and design considerations. *Sport, Education and Society*, 28(7), 855–869. <https://doi.org/10.1080/13573322.2022.2067840>

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Tuakli-Wosornu, Y. A., Kirby, S. L., Tivas, A., & Rhind, D. (2023). The journey to reporting child protection violations in sport: Stakeholder perspectives. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.907247>

## Exergames, the future in sport and exercise? Opportunities for health psychology and sport psychology

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<sup>1</sup>*Praxis Althietzing, Vienna, Austria*

Oral presentation 34: Exercise psychology,  
Hall Strassburg Süd, Juli 18, 2024, 14:40 - 15:40

Exergames, also known as exercise games, are interactive video games that combine physical activity with gameplay. They have gained popularity in recent years and are considered by many as the future of sports and exercise. Exergames offer various opportunities for the fields of health psychology and sports psychology.

What sets Exergames apart is their ability to incorporate gamification elements, such as rewards, challenges, and competition, to motivate individuals to engage in physical activity and sports. By making exercise more enjoyable and engaging, Exergames can help people stay motivated and committed to their fitness goals either in health fields (e.g. recreational purposes, rehabilitation, daily life, well being) also in high performance settings (e.g. elite sports, military).

One exciting aspect of Exergames is the merging of reality and virtual reality (VR). With the use of VR headsets, individuals can immerse themselves in a fictional world while still being physically active. The advancement in graphics and the brain's ability to perceive VR as a new reality, especially with head movements, further enhances the immersive experience.

Exergames can be enjoyed in various settings, whether feel to fly while lying (e.g. ICAROS), walking (e.g. Zero Latency), or moving around a room (e.g. Exercube) . They can be played alone or with others all around the world, promoting social interaction and friendly competition (e.g. VR Tennistournament). Examples of Exergames platforms include Apple Vision Pro, which utilizes augmented reality technology.

Overall, Exergames offer a promising avenue for promoting physical activity, motivation, mental skills training (e.g. cognition, reaction, fear), and training in both recreational and therapeutic settings. The fusion of reality and virtual reality creates a unique and immersive experience that can revolutionize the way we approach exercise and sports.

Effects of Full Body Exergaming in Virtual Reality on Cardiovascular and Muscular Parameters: Cross-Sectional Experiment. *JMIR Serious Games* 2019;7(3): e12324

The Effects of Immersion in a Virtual RealityGame: Presence and Physical Activity. Shengjie Yao and Gyoung Kim. X. Fang (Ed.): *HCI 2019, LNCS 11595*, pp. 234–242, 2019

Enjoyment and Intensity of Physical Activity in Immersive Virtual Reality Performed on Innovative Training Devices in Compliance with Recommendations for Health Małgorzata Dębska et al. *Int. J. Environ. Res. Public Health* 2019, 16, 3673

Martin-Niedecken AL, Mahrer A, Rogers K, de Bruin ED and Schättin A (2020) "HIIT" the ExerCube: Comparing the Effectiveness of Functional High-Intensity Interval Training in Conventional vs. Exergame-Based Training. *Front. Comput. Sci.* 2:33

Virtual Reality-Based Exercise with Exergames as Medicine in Different Contexts: A Short Review. Marcos Túlio Silva Costa et al. *Clinical Practice & Epidemiology in Mental Health*, 2019, Volume 15  
Exergaming (physically active video gaming) for mental health service users in a community mental health care setting: an ethnographic observational feasibility study Seren Haf Roberts and Jois Bailey. *Roberts and Bailey BMC Psychiatry* (2023) 23:752

019

Can ten weeks intervention with exergames contribute to better subjective vitality and physical health? Semina Nani, Ourania Matsouka, Panagiotis Antoniou. *Sport Sciences for Health* (2019) 15:43–47

## A decennial update on the exercise intensity–music-tempo preference relationship

**Leighton Jones<sup>1</sup>**, Costas Karageorghis<sup>2</sup>, Tony Ker<sup>1</sup>

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Oral presentation 34: Exercise psychology,  
Hall Strassburg Süd, Juli 18, 2024, 14:40 - 15:40

Among the strategies used to elevate motivation for exercise and promote a more pleasant experience, music has proven extremely popular (see Karageorghis, 2017). Tempo is a quality of music that has attracted the most interest (e.g., Karageorghis & Jones, 2014). The present study sought to build upon a lineage of work that has examined the relationship between exercise intensity and preference for music tempo. This was achieved through addressing previous study limitations, and the use of unfamiliar, non-lyrical music to better isolate the musical quality of tempo. A repeated-measures experimental design was employed to test hypotheses pertaining to the non-linear relationship between exercise intensity and preference for music tempo identified in previous work (e.g., Karageorghis et al., 2011). Moreover, three psychological outcomes were examined: Core affect, state attention, and rating of perceived exertion. Twenty-four participants (Mage = 20.6 years, SD = 0.9 years) exercised on a cycle ergometer at five intensities (10% of peak  $\dot{V}O_2$  below ventilatory threshold [VT]; 5% of peak  $\dot{V}O_2$  below VT, at VT, midway between VT and the respiratory compensation point [RCP], and at RCP) while listening to music tracks at four tempi (90 bpm, 110 bpm, 130 bpm, and 150 bpm), or with no music. Music liking and the psychological outcome measures were recorded during the exercise bouts. Results indicated differences from previous findings, as no discernible relationship emerged between exercise intensity and preference for music tempo. The most positive affective responses were associated with fast-tempo music. Similar to previous work (e.g., Karageorghis & Jones, 2014), slow-tempo music attracted low liking scores and the least desirable psychological outcomes at all exercise intensities. The present findings have implications for the use of unfamiliar, non-lyrical music in the exercise domain. Specifically, that such music should be ~10 bpm faster than familiar, lyrical music.

arousal, association, core affect, dissociation, RPE



## What does it mean to be Trauma-Informed in Physical Activity? A Qualitative Exploration

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Oral presentation 34: Exercise psychology,  
Hall Strassburg Süd, Juli 18, 2024, 14:40 - 15:40

A growing appreciation for trauma, and its implications on the health of those affected, has led to the adoption of trauma-informed principles across many sectors where service personnel interact with people who have experienced trauma (Burge et al., 2021; Petrone & Stanton, 2021). Recently, programme developers and implementors in the physical activity sector have begun to incorporate trauma-informed principles into programme design and delivery (Pebole et al., 2023; Whitely et al., 2018). However, there is no consensus on how trauma informed principles are, or should be, implemented in physical activity. The present study aims to investigate what it means to be trauma-informed in physical activity, identifying the fundamental principles essential to physical activity programmes. Semi-structured interviews were conducted online with 14 participants who are currently delivering trauma-informed physical activity programmes. Using a realist-informed approach to thematic analysis (Fryer, 2022), four themes were identified: (i) approaching with considerate curiosity, (ii) scope of practice, (iii) the importance of shared lived experience, and (iv) meeting people where they are. These themes highlight the key considerations that must be made when adopting trauma-informed approaches to physical activity, such as the providers understanding their limits of practice and referring to other services when these limits are met. They outline how important understanding and empathy are in trauma-informed physical activity. For trauma-informed physical activity programmes to be effective, the identified principles must be consistent across programme design and delivery, with all parts of the organisation adhering to them. This study advances established trauma-informed principles specifically for the physical activity sector (Substance Abuse and Mental Health Services Administration, 2014) and proposes the key ingredients needed to make their programmes appropriate for those who have experienced trauma.

Burge, R., Tickle, A., & Moghaddam, N. (2021). Evaluating trauma informed care training for services supporting individuals experiencing homelessness and multiple disadvantage. *Housing, Care and Support*, 24(1), 14-25. <https://doi.org/10.1108/HCS-01-2021-0002>

Fryer, T. (2022). A critical realist approach to thematic analysis: Producing causal explanations. *Journal of Critical Realism*, 21(4), 365-384. <https://doi.org/10.1080/14767430.2022.2076776>

Pebole, M. M., Singleton, C. R., Hall, K. S., Petruzzello, S. J., Alston, R. J., & Gobin, R. L. (2023). Exercise preferences among men survivors of sexual violence by PTSD and physical activity level: Recommendations for trauma informed practice. *The Journal of Men's Studies*, 10608265231151248. <https://doi.org/10.1177/10608265231151248>

Petrone, R., & Stanton, C. R. (2021). From producing to reducing trauma: A call for "trauma-informed" research(ers) to interrogate how schools harm students. *Educational Researcher*, 50(8), 537-545. <https://doi.org/10.3102/0013189X21101>

SAMHSA's concept of trauma and guidance for a trauma-informed approach (2014). Substance Abuse and Mental Health Services Administration. Retrieved from: <https://store.samhsa.gov/shin/content/SMA14-4884/SMA14-4884.pdf>

Whitley, M.A., Massey, W.V., & Wilkison, M. (2018). A systems theory of development through sport for traumatized and disadvantaged youth. *Psychology of Sport & Exercise*, 38(1), 116-125. <https://doi.org/10.1016/j.psychsport.2018.06.004>

## The Effects of Rational Emotive Behavior Therapy (REBT) on Irrational Beliefs, Negative Thinking Control, and Anxiety in Baseball Players

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Oral presentation 35: Mental skills training,  
Hall Brüssel, Juli 18, 2024, 14:40 - 15:40

Rational Emotive Behavior Therapy (REBT) emphasizes that emotions and behaviors stem from individuals' beliefs about adversities. If these beliefs are irrational, they could result in maladaptive emotions and behaviors (Ellis, 1957). This study aimed to investigate the impact of REBT intervention on irrational beliefs, negative thinking control, and anxiety in baseball players. Eighteen collegiate baseball players aged 19 years ( $M = 19.61$ ;  $SD = 1.22$ ) with 10 years of playing experience ( $M = 10.45$ ;  $SD = 1.77$ ), were assigned to the REBT or control group using a paired grouping method. The REBT group received three 60-minute REBT sessions, while the control group watched three 60-minute baseball videos. Data were collected using the "Irrational Sports Performance Beliefs Scale," "Sports Performance Strategy Scale," and "Three-Dimensional Anxiety Scale." Pre-tests and post-tests were conducted during the 2023 national college-level Spring League. Generalized Estimating Equations examined group differences, with statistical significance set at  $\alpha = .05$ . The results showed that no significant differences were found in irrational beliefs and anxiety between pre-test and post-test in the REBT group or between the REBT and control groups. However, negative thinking control significantly decreased in the REBT group compared to the control group ( $p < .05$ ). In conclusion, despite scores not reaching statistical significance, the REBT program exhibited practical implications, showing decreasing trends in irrational beliefs, cognitive anxiety, and somatic anxiety, along with increasing trends in negative thinking control and anxiety regulation scores.

Ellis, A. (1957). Rational psychotherapy and individual psychology. *Journal of individual psychology*, 13(1), 38.

Turner, M., SLATER, M., & BARKER, J. (2014). The season-long effects of rational emotive behavior therapy on the irrational beliefs of professional academy soccer athletes. *International Journal of Sport Psychology*. <https://doi.org/10.7352/IJSP.20>

Chrysidis, S., Turner, M. J., & Wood, A. G. (2020). The effects of REBT on irrational beliefs, self-determined motivation, and self-efficacy in American Football. *Journal of Sports Sciences*, 38(19), 2215-2224.

<https://doi.org/10.1080/02640414.2020.1776924>

## BPS DSEP Position Statement: Psychological Skill Training for Performance Enhancement, Long-Term Development, and Wellbeing in Youth Sport

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Oral presentation 35: Mental skills training,  
Hall Brüssel, Juli 18, 2024, 14:40 - 15:40

**Objectives:** Young athletes have become an increasingly important client group for sport psychology practitioners and a population whose physical, cognitive, emotional, and social development should be carefully considered by a practitioner when delivering their services (Visek et al., 2009). The aim of this British Psychological Society (BPS) Division of Sport and Exercise Psychology (DSEP) position statement is to critically discuss the optimal service provision of psychological skills training (PST) for performance enhancement, long-term development, and wellbeing in youth sport.

**Methods:** A brief overview of the literature exploring PST during childhood (6-10 years), early adolescence (11-14 years), and late adolescence (15-19 years) will be provided. Specifically, key developmental considerations (i.e., physical, cognitive, emotional, and social) will be presented followed by a summary of the research on basic single strategy interventions (i.e., imagery, self-talk, goal setting, and relaxation), alternative strategy interventions (e.g., self-modelling, music, mindfulness, and perceptual training), and multimodal interventions with young athletes.

**Results:** The literature reports improvements in performance, development, and well-being for basic, alternative, and multi-modal PST interventions with young athletes. However, there remains a lack of systematic depth of research on any given strategy that may inform age, stage, and/or sport-specific guidance for practitioners. In addition, many of the interventions appear to have been delivered by the research team (rather than qualified practitioners), overlooked the role coaches and/or parents play in intervention effectiveness, and used carefully controlled 'fixed' experimental designs.

**Conclusion:** Critical reflections will be provided by drawing upon practitioners' experiences of working with young athletes, concluding with 10 recommendations for youth sport organisations, training and accrediting bodies, researchers, and practitioners. These recommendations illustrate joint responsibility and provide a pathway regarding how to accelerate the development and training of practitioners and move closer towards evidence-based guidelines for PST in youth sport.

Visek, A. J., Harris, B. S., & Blom, L. C. (2009). Doing sport psychology: A youth sport consulting model for practitioners. *The Sport Psychologist*, 23(2), 271-291. <https://doi.org/10.1123/tsp.23.2.271>

## The Impact of MSPE Training on Enhancing Attention Regulation in Judo Athletes

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Oral presentation 35: Mental skills training,  
Hall Brüssel, Juli 18, 2024, 14:40 - 15:40

Mindfulness is considered as one of the effective techniques in psychological skills training in sports (Birrer, Röthlin & Morgan, 2012). Due to rising interest in mindfulness in mental training, many mindfulness-based interventions have been created. MSPE (Kaufman, Glass, & Pineau, 2018) claims it improves emotion and attention control, which boosts performance. The study tested if MSPE enhances attention efficiency.

Twenty-two judokas who participated in competitions at least nationally were the subjects of the study. They were split up into two groups: a control group (no additional activity) and an experimental group that took part in the MSPE program. Prior to the start of the intervention, each subject finished the Mindful Inventory for Sports questionnaire, the Attention Network Test, the CHORT (choice reaction time test), and the PUT (visual attention test). All subjects took the same tests two weeks after the intervention.

Further analysis of Student's t-tests for dependent samples showed significant differences between the pretest and posttest in the following dimensions: awareness ( $t = -2.36$ ;  $p = 0.040$ ), % of correct answers in the CHORT test ( $t = -2.72$ ;  $p = 0.021$ ), % of correct answers in the PUT test ( $t = -2.51$ ;  $p = 0.031$ ) and attention orienting network ( $t = -2.28$ ;  $p = 0.046$ ) in the experimental group. There were no significant differences in the pretest-posttest measurement in the control group.

The research showed that MSPE training increased athletes' attention. In the experimental group, efficiency of recognition and decision-making processes, along with improved attention accuracy in understanding perceived material improved. The orienting function of attention, which controls the focus of attention, selection of significant sensory stimuli, and inhibition of irrelevant stimuli, has also improved.

Birrer, D., Rothlin, P., & Morgan, G. (2012). Mindfulness to enhance athletic performance: Theoretical considerations and possible impact mechanisms. *Mindfulness*, 3, 235-246. doi:10.1007/s12671-012-0109-2

Kaufman, K. A., Glass, C. R., & Pineau, T. R. (2018). *Mindful sport performance enhancement: Mental training for athletes and coaches*. Washington, DC: American Psychological Association.

## Moral Atmosphere, Motivational Climate, and Moral Behavior in Team Sport: The Moderating Role of Contesting Orientations and Moral Disengagement

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Oral presentation 36: Leadership & Moral action & Music, Dance and Performing Arts & Physical activity,  
Hall Innsbruck, Juli 18, 2024, 14:40 - 15:40

**Objectives:** In recent years, researchers have increasingly focused on predictors of moral behaviour in different situations (Boardley & Kavussanu, 2009; Bortoli et al, 2012, Hodge & Gucciardi, 2015). This study investigated whether perceived motivational climate and moral atmosphere were associated with prosocial and antisocial behavior in adult athletes directly and indirectly via contesting orientations and moral disengagement. **Methods:** In a cross-sectional study design, 327 (Mage:23.91 ±5.73) team sports (football, basketball, handball) athletes participated in study. Participants completed Perceived Motivational Climate in Sport, Moral Atmosphere Scale, Contesting Orientations Scale, Moral Disengagement in Sport Scale-Short and Prosocial and Antisocial Behavior in Sport Scale. Structural Equation Modeling were used to analyze data. **Results:** Structural equation modelling indicated strong support for the hypothesized model:  $\chi^2/df: 2.57$ , RMSEA: .06, NNFI: .91, IFI: .90, CFI: .90. Path analyses revealed that moral atmosphere was positively associated with antisocial behavior toward opponent ( $\beta = .35$ ;  $p < .01$ ) and teammate ( $\beta = .17$ ;  $p < .05$ ) directly and indirectly via war orientation and moral disengagement ( $p < .01$ ). Performance climate was positively associated with antisocial behavior towards teammates directly ( $\beta = .24$ ;  $p < .01$ ), and indirectly via war orientation and moral disengagement ( $\beta = .06$ ;  $p < .05$ ). Performance climate was also indirectly associated with antisocial behavior towards opponents via war orientation and moral disengagement ( $\beta = .08$ ;  $p < .05$ ). Mastery climate was positively associated with prosocial behavior toward teammate ( $\beta = .28$ ;  $p < .01$ ) and opponent ( $\beta = .31$ ;  $p < .01$ ) indirectly via partnership orientation. **Conclusions:** The current study indicates that the moral atmosphere and motivational climate that athletes perceive from the teams and coaches are effective in their antisocial and prosocial behaviors. Moreover, it can be said that contesting orientations and moral disengagement mechanisms play a mediating role in determining prosocial and antisocial behaviors of athletes towards their teammates and opponents.

1.Boardley, I. D., & Kavussanu, M. (2009). The influence of social variables and moral disengagement on prosocial and antisocial behaviours in field hockey and netball. *Journal of sports sciences*, 27(8), 843-854.

2.Bortoli, L., Messina, G., Zorba, M., & Robazza, C. (2012). Contextual and individual influences on antisocial behaviour and psychobiosocial states of youth soccer players. *Psychology of Sport and Exercise*, 13(4), 397-406.

3.Hodge, K., & Gucciardi, D. F. (2015). Antisocial and prosocial behavior in sport: The role of motivational climate, basic psychological needs, and moral disengagement. *Journal of Sport and Exercise Psychology*, 37(3), 257-273.

## Review of Sport Leadership Power

Erkut Konter<sup>1</sup>, **Harvey Anderson**

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Oral presentation 36: Leadership & Moral action & Music, Dance and Performing Arts & Physical activity,  
Hall Innsbruck, Juli 18, 2024, 14:40 - 15:40

Sport Leadership Power seems to be important not only in individual and team sports but also exercise, physical activity and daily life in terms of health, satisfaction, success, and performance (Konter, 2017, 2021 and 2022). In addition, leadership power perceptions could be influential out of sport, exercise, and physical activity participations such as military, medicine, business, polis forces, performing arts, space etc. All of these can generate a plenty of different leadership opportunities, actions, and challenges. French and Raven (1959) defined power as social and relational factor. It was put forward that people in general, teachers, coaches, sport officials, players, and even spectators possess power to influence or change the attitudes or behaviors of others (Wann, et al., 2000). The first instrument was developed to measure leadership power in sport according to French and Raven's leadership power framework, which is known as Power in Sport Questionnaires (PSQ; Wann et al., 2000). There are two versions of PSQ available to measure self-perception (PSQ-S; Power in Sport Questionnaire-Self) and other perception (PSQ-O; Power in Sport Questionnaire-Other) of interpersonal power respectively (Wann et al., 2000). These questionnaires measures of the same five factors including expert power, referent power, legitimate power, reward power, coercive power in dyed or group relationships. Present study concentrates on the Sport Leadership Power Perceptions and reviews the related references. Results indicate that Sport Leadership Power Perceptions of athletes and coaches seem to be important regarding various individual (for example; age, gender, education, familial relationship, experience, personality type, level of sport participation, psychological skills, grit, resilience, vengeange, life satisfaction, athlete and coach/leader characteristics etc.) variables and situational (for example; coach-athlete relationship, type of sport and activities etc.) factors. The present study makes suggestions for future research and applications which could be important for satisfaction, health, success, and performance.

French, J.& Raven, B. H. (1959). The bases of social power. In. D. Cartwright, (Ed.). Studies in social power (pp.150-167). Ann Arbor: Institute for Social Research.

Konter, E. Aksoy, U. (2022). Leadership Power Perceptions in Sport. İstanbul: Eğitim Yayınevi.

Konter, E. (2022). Athlete-Coach Relationship, Level of Sport Leadership Power Perceptions, Selected Individual and Performance Variables. 16th. European Congress of Sport & Exercise Psychology-FEPSAC, 11-16 July, 2022 Padova / Italy.

Konter, E. (2021). Leadership power perceptions of soccer coaches in relation to grit, coach-athlete relationship, vengeance, individual and performance variables. 15th World Congress of the International Society of Sports Psychology-ISSP, September 30-October 4, Taipei, Taiwan.

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## Translating Sport and exercise psychology to the domain of Music: Reflections on an ACT intervention with a Professional Musician

**Dan Martin**<sup>1,3</sup>, Ale Quartiroli<sup>2,3</sup>, Chris Wagstaff<sup>3</sup>, Richard Thelwell<sup>3</sup>

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Oral presentation 36: Leadership & Moral action & Music, Dance and Performing Arts & Physical activity, Hall Innsbruck, Juli 18, 2024, 14:40 - 15:40

Scholars have long explored the application of sport and exercise psychology (SEP) principles beyond sport (Green & Gallwey, 1986; Hays, 2002; Hays, 2009), including fields like music and the performing arts. The notable distinction between these domains lies in the nuanced contextual knowledge that underlies each domain (Pecen et al., 2016).

Historically, concerns about the transference of SEP to other domains have centred on ethical issues and whether SEP training adequately prepares practitioners with the necessary competencies, cultural awareness, and contextual sensitivity required for these fields. From a scientist-practitioner perspective, this presentation will focus on the use of an intervention grounded in Acceptance and Commitment Therapy (ACT) principles, with a professional musician experiencing performance anxiety during live musical performances. This was achieved through six core processes as outlined by Hayes et al. (2006): cognitive defusion, self-as-context, contact with the present moment, values, and committed action.

After providing a concise summary of the case, we will provide reflections focused on the challenges experienced throughout the consultancy from the perspective of the trainee-supervisor dyad, and the strategies we implemented to overcome them. Specifically, we will discuss the challenges faced in maintaining ethical practice within one's boundaries of competence and reflecting on the transference of sport and exercise psychology knowledge, as a scientist-practitioner, to the context of music. Furthermore, we'll examine the invaluable role of supervision in navigating these challenges, serving as a platform for reflective dialogue and the co-creation of effective solutions, particularly when venturing into unfamiliar performance domains.

Critical considerations before venturing into other performance domains will be provided. These will include the importance of critically reflecting on the performance context, defining the scope of work, and establishing clear communication channels between practitioner and client prior to applying sport and exercise psychology principles in diverse performance settings.

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## Co-Produced Research to Bridge the “Knowledge Gap” to Support Physical Activity Participation in Children and Young People with Limb Difference

**Ross Wadey**<sup>1</sup>, Keira Roche<sup>2</sup>, Carly Stewart<sup>2</sup>, Melissa Day<sup>3</sup>, Cindy Okonkwo<sup>1</sup>, Starworks Starworks Starworks<sup>4</sup>

<sup>1</sup>St Mary's University, London, United Kingdom <sup>2</sup>LimbPower, England, England <sup>3</sup>University of Chichester, Chichester, England <sup>4</sup>Starworks, England, England

Oral presentation 36: Leadership & Moral action & Music, Dance and Performing Arts & Physical activity, Hall Innsbruck, Juli 18, 2024, 14:40 - 15:40

**Objectives:** The objective of this nationwide (England), funded (National Institute for Health and Care Research), and longitudinal project was to co-produce research with and for disabled children and young people with limb difference. Its aims were to identify a timely, relevant, meaningful, and nationwide barrier to physical activity participation; and co-design resources to minimize or remove this barrier. **Methods:** Underpinned and informed by an equitable and experientially informed form of co-producing research and led by a National Disability Sporting Organization, this study involved, centered, and amplified the voices and experiential knowledge of disabled children and young people across England. To embrace a plurality of people to accommodate diverse views, families (e.g., parents), practitioners (e.g., physiotherapists), professionals (e.g., coaches), and a funded co-production organization were integral throughout. Data collection involved flexible and creative approaches (e.g., surveys, interviews, meetings, observations, drawings, sandpit events) over an 8-year period, which were co-gathered, co-designed, and co-analysed. **Results:** The nationwide barrier identified was labelled as the “Knowledge Gap” which was inclusive of three themes: Informational Know-How (e.g., what, where, when, why), Experiential Know-How (e.g., “they” don’t get “us”), and Practical Know-How (e.g., design, deliver, engage). To address the three dimensions of this barrier resources were co-designed with and for the multiple-stakeholders: (a) a “one-stop-shop” website to provide informational know-how; (b) a social-media forum to provide experiential know-how, and (c) a sustainable physical activity program to provide practical know-how. **Conclusion:** The United Nations Convention on the Rights of Persons with Disabilities (2006) enshrines the rights of “... children with disabilities to have equal access with other children to participation in play, recreation and leisure and sporting activities” (Article 31d). This project provides a modest contribution to a more equitable and socially just society by enabling disabled children and young people with the opportunity to play more.

## The effect of cold therapy on delayed onset muscle soreness and quadriceps femoris strength after high-intensity eccentric training

**Adel Belkadi**<sup>1</sup>, Mime Mokhtar<sup>1</sup>, Asli Houcin<sup>2</sup>, Benhammou Saddek<sup>1</sup>, Cherara Lalia<sup>1</sup>

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Oral presentation 37: Sports injury, prevention and rehabilitation & Consulting/counselling, Hall Tirol, Juli 19, 2024, 11:00 - 12:30

**Purpose:** The study aimed to investigate how a cold bandage applied over the quadriceps femoris muscle immediately after exercise affects muscle strength, knee joint mobility and perceived exercise pain 48 hours after exercise. **Method:** Nineteen subjects were recruited for the study. At baseline, thigh circumference, perceived exercise pain, and quadriceps femoris flexibility were assessed using Ely's test. Subjects underwent a strength training protocol containing concentric and eccentric movements. The left quadriceps was then cold-banded for 60 min. 48 hours later, all measurements were repeated. Muscle flexibility, thigh circumference, muscle strength and pain were used as assessment measures. Results showed significantly less perceived exercise pain in the treated leg than in the untreated leg during active knee extension. There was a significant increase in mean torque for the untreated leg at 180°/s. No significant difference was found in knee joint mobility, perceived exercise pain at Ely's test. **Conclusion:** Cold packs applied over the quadriceps femoris immediately after high-intensity exercise can possibly alleviate perceived exercise pain, but do not reduce the related functional impairments. Against previous literature and the discrepancy therein, further research is necessary to determine the effects of cold therapy on exercise pain.

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Miles M. P., Clarkson P. M. 1994 Exercise-induced muscle pain, soreness, and cramps. *The Journal of Sports Medicine and Physical Fitness*, 34(3), 203–216.

Belkadi A, MOKHTAR M. 2019 Effects of tow protocol cold water immersion on the post match recovery and physical performance in youth handball players. *International Journal of Sport Culture and Science*, 7(2), 1–12.

## Basketball Players' Re-injury Anxiety and Regulatory Focus: A Correlational Study

**Quentin Surbon**<sup>1</sup>, Xavier Sanchez<sup>2</sup>

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Oral presentation 37: Sports injury, prevention and rehabilitation & Consulting/  
counselling,  
Hall Tirol, Juli 19, 2024, 11:00 - 12:30

**Objectives:** The present study examined the relationship between sport injuries, regulatory focus (promotion vs prevention; Higgins 2013), and re-injury anxiety in sport. It was hypothesised that (H1) professionals will have a higher-level of re-injury anxiety than amateurs; (H2) players with higher number of injuries will have higher re-injury anxiety compared to players with lower number of injuries; (H3) promotion-fit players will report lower numbers of injuries than prevention-fit players; and (H4) high-risk playing positions will have a higher risk of injury and greater re-injury anxiety than less-risk playing positions.

**Methods:** Professional (n = 99, 24 ± 4.62 years) and amateur (n = 135, 24 ± 7.01 years) basketball players completed a survey that examined (a) injury history over the past six years; (b) re-injury anxiety levels (RIAI-F; Caumeil et al, 2022); (c) perceived game-playing style in general (i.e., offensive vs defensive) and actual gameplaying positions in particular (i.e., point guard, shooting guard, small forward, power forward, and centre); and (d) chronic regulatory focus profiles (promotion vs prevention) in sport (QORS; Debanne, 2023).

**Results:** Findings showed that (H1) professional players reported higher re-injury anxiety levels than amateur players; (H2) players who had been injured twice exhibited higher re-injury anxiety levels than players who had been injured once only; (H3) promotion-fit players (offensive players with a promotion chronic focus) experienced injuries more frequently than prevention-fit players (defensive players with a prevention chronic focus); and (H4) neither number of injuries nor re-injury anxiety levels differed based on positions.

**Conclusion:** An individualised approach that considers playing styles, injury history and regulatory focus profiles is to be encouraged to better understanding the injury, re-injury anxiety relationship in basketball. In practical terms, these variables can inform individualised, injury rehabilitation programmes that reduce the number of injuries and athletes' time-to-return to sport practice and competition.

## Cognitive behavioral therapy and virtual reality intervention protocol for athletes with anterior cruciate ligament injury: A randomized controlled trial

**Hande Turkeri Bozkurt**<sup>1</sup>, Britton W. Brewer<sup>2</sup>, Ziya Koruç<sup>3</sup>

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<sup>3</sup>Hacettepe University, Ankara, Turkey

Oral presentation 37: Sports injury, prevention and rehabilitation & Consulting/  
counselling,  
Hall Tirol, Juli 19, 2024, 11:00 - 12:30

**Objective:** The study aimed to evaluate the effects of the Cognitive-Behavioral Therapy protocol with exposure via virtual reality (CBT+VR) developed by Turkeri-Bozkurt et al. (2023) on re-injury anxiety, rehabilitation self-efficacy, and kinesiophobia after ACL (anterior cruciate ligament) surgery.

**Theoretical Background:** Athletes recovering from ACL injuries face significant challenges in returning to sport (Chmielewski & George, 2019; Clement et al., 2015). Several psychological interventions have been developed to assist athletes after ACL surgery (Coronado et al., 2018), including the CBT+VR protocol.

**Method:** A total of 7 (of an eventual 24) participants have completed this randomized controlled experimental study. Randomization Experimental group participants (n = 4) received the intervention in 1.5-hour sessions over a 7-week period beginning two to four weeks after surgery. Control group participants (n = 3) received a non-therapeutic intervention. Data were collected pre-intervention, post-intervention, and on the last day of rehabilitation using the Reinjury Anxiety Inventory (RIAI), Athletic Injury Rehabilitation Self Efficacy Questionnaire (AISEQ), and Tampa Scale for Kinesiophobia (TSK). Data analysis was conducted using Friedman and Kruskal-Wallis tests.

**Results and Discussion:** Results show that participants in the experimental group reported reduced re-injury anxiety over the course of the study ( $\chi^2 = 8$ ,  $df = 2$ ,  $p = .02$ ). There were no significant differences among the pre-test, post-test, and follow-up measurements in the control group ( $\chi^2 = 0.800$ ,  $df = 2$ ,  $p = .67$ ). There was no significant difference between the groups in terms of dependent variables ( $H = .509$ ,  $df = 1$ ,  $p = .47$ ). Post-intervention and follow-up discussions revealed more positive feedback from the experimental group than from the control group provided. Thus, the CBT+VR protocol seems to be considered valuable for improving the quality of psychological responses to ACL rehabilitation.

**Conclusion:** The CBT+VR therapy protocol appears to offer psychological support to athletes post-ACL surgery.

Chmielewski, T. L., & George, S. Z. (2019). Fear avoidance and self-efficacy at 4 weeks after ACL reconstruction are associated with early impairment resolution and readiness for advanced rehabilitation. *Knee Surgery, Sports Traumatology, Arthroscopy*, 27, 397-404.

Clement, D., Arvinen-Barrow, M., & Fetty, T. (2015). Psychosocial responses during different phases of sport-injury rehabilitation: a qualitative study. *Journal of Athletic Training*, 50(1), 95-104.

Coronado, R. A., Bird, M. L., Van Hoy, E. E., Huston, L. J., Spindler, K. P., & Archer, K. R. (2018). Do psychosocial interventions improve rehabilitation outcomes after anterior cruciate ligament reconstruction? A systematic review. *Clinical Rehabilitation*, 32(3), 287-298.

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## Understanding Rehabilitation Environments in Elite Sport

**Ross Wadey**<sup>1</sup>, Rhiannon Ellis<sup>1</sup>, Ciara Everard<sup>2</sup>

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Oral presentation 37: Sports injury, prevention and rehabilitation & Consulting/  
counselling,  
Hall Tirol, Juli 19, 2024, 11:00 - 12:30

Objectives: Sport injury rehabilitation does not occur in a vacuum (Brewer et al., 2002). Rather, it happens in an environmental context that can affect psychological aspects of rehabilitation. Yet, few researchers in the field of sport injury psychology have critically explored rehabilitation environments. The aim of this study was to explore the critical factors and processes that work for and against the functioning of rehabilitation environments in elite sport. Methods: Underpinned by interpretivism, this study sought a plurality of participants who have experiential knowledge of rehabilitation environments in elite sport. Fourteen elite athletes and practitioners across disciplines provided informed consent. Mobile and face-to-face interviews were used. Data were analysed using reflexive thematic analysis. Results: Four themes were identified. The first theme, Cultural Capital, encompasses service philosophy and psychologically (un)informed, (ex)inclusive, and (un)safe environments. Tensions in this theme include competing values, dominant narratives, and some practitioners arguing that "psychology is not my job". The second theme, Physical Capital, describes the appearance, equipment, spaces, and material-human relations. Tensions in this theme include financial constraints and whether rehabilitation should be integrated into the training environment. The third theme, Social Capital, reflects staffing, human-human relationships, multidisciplinary formulations, and rhetoric. Tensions in this theme include cliques, conflict, and staff acknowledging and respecting differences within and between disciplines. The final theme, Processes, focuses on how the staff within the rehabilitation environment operate (e.g., strategy, proactive-reactive, referrals, formal and informal pathways). Tensions in this theme include complexity, (lack of) integration, (in)flexibility, temporality, and ethics. Conclusion: The applied value of this research emphasizes the complexity of rehabilitation environments and the critical importance of developing psychologically informed rehabilitation environments to support their functioning and impact, where psychological concepts across macro-meso-micro levels are understood, discussed, and owned by all members of the multidisciplinary team.

## A qualitative exploration of sport psychology practitioners' perceptions and experiences of using Think Aloud in applied practice

**Amy Whitehead**<sup>1</sup>, Patricia Jackman<sup>2</sup>, Steven Vaughan<sup>1</sup>, Laura Swettenham<sup>1</sup>, Phil Birch<sup>3</sup>, David Tod<sup>4</sup>, Hayley McEwan<sup>5</sup>

<sup>1</sup>Liverpool John Moores University, Liverpool, United Kingdom <sup>2</sup>University of Lincoln, Lincoln, United Kingdom <sup>3</sup>University of Chichester, Chichester, United Kingdom <sup>4</sup>University of Lancaster, Lancaster, United Kingdom <sup>5</sup>University of the West of Scotland, Lanarkshire, United Kingdom

Oral presentation 37: Sports injury, prevention and rehabilitation & Consulting/counselling,  
Hall Tirol, Juli 19, 2024, 11:00 - 12:30

**Objectives:** Think aloud (TA) has been used within sport and exercise psychology research to understand participants' cognitions (e.g., Whitehead et al., 2016; Swettenham et al., 2020). Researchers have previously alluded to the potential utility of TA as a tool for applied sport and exercise psychologist's (ASEPs) to gain insight into the cognitions of clients (Birch et al., 2022), however this is yet to be investigated. To contribute to the applied sport and exercise psychology literature, we aimed to explore ASEPs' perceptions of using TA and their views on the potential utility of TA within their applied practice.

**Methods:** After attending an educational workshop on TA, 10 ASEPs (4 female, 6 male) with between 1-8 years of experience, and an average age of 29 years, took part in semi-structured interviews about their experiences of using TA with clients and views on how it could be used in practice. Data were analysed via content analysis.

**Results:** Our findings illustrated that TA was used at three stages of the consultancy process: needs analysis, intervention, and evaluation. When using TA, participants highlighted the need to consider a range of factors, which included: client factors (e.g., individual differences); consulting factors (i.e., teaching participants how to use TA); and the client-consultant relationship (i.e., strength of the working alliance). All of these themes considered the strengths and limitations of applying TA to practice.

**Conclusion:** This novel study is the first study to consider how TA, which has been traditionally used as a research tool in sport, can be used as a tool for ASEP's within their applied practice. We offer considerations to ASEP's who may be considering using TA as a tool within their service delivery and provide a platform for both future researchers and practitioners to build upon.

Birch, P. D., Yeoman, B., & Whitehead, A. E. (2022). "Think Aloud" as a Facilitator of Self-Regulation in Golfers. *The Sport Psychologist*, 1(aop), 1-10.

Swettenham, L., Eubank, M., Won, D., & Whitehead, A. E. (2020). Investigating stress and coping during practice and competition in tennis using think aloud. *International Journal of Sport and Exercise Psychology*, 18(2), 218-238.

Whitehead, A. E., Taylor, J. A., & Polman, R. C. (2016). Evidence for skill level differences in the thought processes of golfers during high and low pressure situations. *Frontiers in Psychology*, 6, 1974.

## Mental Health and Substance Use in Swiss Elite Para-Athletes

**Nikolai Kiselev**<sup>1,2</sup>, Lucas Lüdi<sup>3</sup>, Michele Lardi<sup>2</sup>, Tiffany Hartmann<sup>2</sup>, Janet Lam<sup>2</sup>, Christian Imboden<sup>4</sup>, Malte Claussen<sup>5</sup>, Olivia Stoffel<sup>1</sup>, Andreas Heiniger<sup>6</sup>, Matthias Schlüssel<sup>1</sup>, Ceren Acarturk<sup>7</sup>, Christoph Kreinbacher-Bekerle<sup>8</sup>, Michael P. Schaub<sup>2</sup>

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Oral presentation 38: E-Sports, Sports psychiatry and sports psychotherapy & Elite sports and expertise,  
Hall Brüssel, Juli 19, 2024, 11:00 - 12:30

**Background:** PluSport Disabled Sports Switzerland, in collaboration with the Swiss Research Institute for Public Health and Addiction ISGF and partly supported by Swiss Olympic, initiated a series of studies to address the under-researched area of mental health [MH] and (non-doping related) substance use [ndrSU] of the Swiss Elite Para-athletes (SEPA).

**Methods:** The first two studies were both semi-structured interviews following Thematic Analysis with SEPA to explore perceptions of MH needs (first study) and ndrSU behaviors (second study) within this population. The third study investigated in the same manner the point of view of the coaches and related accompanying persons. Finally, the fourth study expands the scope internationally, aiming to validate and broaden the findings using an online survey.

**Results:** The first study (N=15) suggests from the point of SEPA that athletic success, the athletic activity itself, and an improvement in physical health can increase mental well-being. On the contrary, athletic failure, pressure to perform, and physical problems can cause psychological stress and facilitate mental disorders. The second study (N=15) highlights that, on the one hand, an increase in athletic level and professionalization seems to leave little room for the use of substances that could be detrimental to athletic performance. On the other hand, the results suggest that stress, negative emotions, physical pain, and a background of substance use may be positively associated with substance use in elite para-athletes. The third study (N=15) confirms the results from other studies regarding SEPA and shows, however, concerning outcomes regarding MH and ndrSU by coaches. Finally, the last study (N=96) underlines the results of the qualitative studies and shows, overall, a good level of MH and mostly harmless ndrSU within SEPA (WHODAS/K10/PHQ9/GAD7/AUDIT-C/Fagerström, etc.). However, exceptions (10-20%) exist and need to be addressed by sports federations to ensure the mental health of mentally challenged SEPA.

Claussen, M. C., Imboden, C., Raas, M. I., Hemmeter, U., Seifritz, E., & Hofmann, C. G. (2022). Sports psychiatry in competitive sports. *Sports Psychiatry*.

Guest, G., MacQueen, K., & Namey, E. (2012). *Applied Thematic Analysis*. SAGE Publications, Inc. <https://doi.org/10.4135/9781483384436>

Lüdi, L., Pfarrwaller, G., Imboden, C., Stoffel, O., Schlüssel, M., Heiniger, A., Kleim, B., & Kiselev, N. (2023). Perspectives on mental health and well-being: Voices of Swiss paralympic athletes. *Sports Psychiatry: Journal of Sports and Exercise Psychiatry*.

Swartz, L., Hunt, X., Bantjes, J., Hainline, B., & Reardon, C. L. (2019). Mental health symptoms and disorders in Paralympic athletes: a narrative review. *Br J Sports Med*, 53(12), 737-740. <https://doi.org/10.1136/bjsports-2019-100731>

Lardi, M., Kiselev, N., Imboden, C., Stoffel, O., Heiniger, A., & Schaub, M. (in preparation). Unveiling the Shadows - Substance Use Among Para-Athletes: a Qualitative study with Swiss Elite Para-Athletes.

McDuff, D., Stull, T., Castaldelli-Maia, J. M., Hitchcock, M. E., Hainline, B., & Reardon, C. L. (2019). Recreational and ergogenic substance use and substance use disorders in elite athletes: a narrative review. *British journal of sports medicine*, 53(12), 754-760.

Rice, S. M., Purcell, R., De Silva, S., Mawren, D., McGorry, P. D., & Parker, A. G. (2016). The mental health of elite athletes: A narrative systematic review. *Sports medicine*, 46, 1333-1353.

Weber, K., Patterson, L. B., & Blank, C. (2022). Doping in disabled elite sport: Perceptions, knowledge and opinions from the perspective of German and UK coaches. *Psychology of Sport and Exercise*, 102233.

## Stories Behind the Screen: A Narrative Analysis of Pursuing an Esports Coaching Career

**Laura Swettenham**<sup>1</sup>, Jonathan Brain<sup>2</sup>, Matthew Watson<sup>3</sup>, Alessandro Quartiroli<sup>4</sup>

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Oral presentation 38: E-Sports, Sports psychiatry and sports psychotherapy & Elite sports and expertise, Hall Brüssel, Juli 19, 2024, 11:00 - 12:30

With the growth of esports, esports coaches (ECs) have become prominent features of the esports landscape with numerous high-profile coaches working across esports titles. However, the role of the EC is still lacking best practices, research, and education. Despite the importance of the EC, they have had to find their way without a codified development pathway or context-specific evidence base (Watson et al., 2022). With esports coaching in the infancy of its professionalisation, it is important to understand the lived experience of ECs to support the sustainable growth of esports coaching practice and research. The purpose of this research is therefore to explore the experience of working as an EC and pursuing an esports coaching career, with a view to create composite vignettes illustrating different aspects characterising the stories of active esports coaches.

11 participants (1 female) took part and ranged in age from 21–33 years of age. Participants were from seven different nationalities and four different esports titles. Participants were actively working as esports coaches at the time of the study and worked in Tier S to Tier B esports teams with a range of 10 years-2 years of experience as an esports coach. Each participant took part in one narrative interview (M = 1 hour 5 minutes). Interviews were transcribed and analysed using reflexive thematic analysis (Braun & Clarke, 2012), with six themes generated (e.g., entry into esports coaching, coaching demands, career progression and developmental experiences, coaching transitions). The researchers then took the role of storytellers to create composite vignettes to tell the coaches' stories (Shinke et al., 2017). By sharing these stories with the esports community and academic sphere, we hope to shed light on challenges and opportunities throughout an esports coaching career. These stories may help to inform future coach education and development in esports.

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Watson, M., Smith, D., Fenton, J., Pedraza-Ramirez, I., Laborde, S., & Cronin, C. (2022). Introducing esports coaching to sport coaching (not as sport coaching). *Sports Coaching Review*, 1-20. <https://doi.org/10.1080/21640629.2022.2123960>

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## Applied intervention to improve reaction time and accuracy trade-off on elite female esports' team

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Oral presentation 38: E-Sports, Sports psychiatry and sports psychotherapy & Elite sports and expertise,  
Hall Brüssel, Juli 19, 2024, 11:00 - 12:30

**Objective:** To improve cognitive task accuracy in an all-female Valorant team (N=5). There is a tradeoff between RT and accuracy under appropriate circumstances (Heitz, 2014). Cognitive tests showed that accuracy was sacrificed to achieve fast RT when compared to elite athletes (N=34). RT and accuracy on cognitive tasks is believed to influence esports performance (Pedraza-Ramirez et al., 2020).

**Methods:** Cognitive performance was tested using an executive control system (ECS) task based on the work of Neubert et al. (2010) and the Attention Network Task (ANT) to evaluate the executive attention system (EAS) (Diamond, 2013). There was a five month gap between tests.

A practical intervention using Light Pods was built to improve accuracy while retaining the good RT scores. The routine had the participant select the correct stimulus from multiple simultaneously displayed stimuli. Players were incentivized to make new high scores with motivational rewards.

**Results:** ECS median RT improved from  $\mu=0.25\text{ms}$ ,  $\sigma=0.02$  to  $\mu=0.20\text{ms}$ ,  $\sigma=0.04$  after intervention ( $p=0.056$ ). ECS accuracy was unchanged ( $\mu=0.79$ ,  $\sigma=0.06$  to  $\mu=0.81$ ,  $\sigma=0.09$ , with  $p=0.68$ ).

EAS median RT improved from  $\mu=0.37\text{ms}$ ,  $\sigma=0.03$  to  $\mu=0.34$ ,  $\sigma=0.02$  after intervention ( $p=0.064$ ). EAS accuracy was unchanged ( $\mu=0.84$ ,  $\sigma=0.07$  to  $\mu=0.81$ ,  $\sigma=0.11$ , with  $p=0.57$ ).

**Conclusion:** The intervention yielded improved RTs without sacrificing accuracy. While not intended, the intervention favorably impacted the RT - accuracy tradeoff. Despite being a small sample, it is useful to practitioners in esports to consider cognitive training. Given female participation in esports is underrepresented (Madden et al., 2021; Ruvalcaba et al., 2018) these kinds of interventions may help bring parity to the gender imbalance.

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## Ending on a High Note: The Last Exercise-Related Affective Response Predicts Subsequent Physical Activity in People With Chronic Diseases

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Oral Presentation 39: Well-being and quality of life, Pedagogical psychology, Exercise psychology & Best practice,  
Hall Freiburg, Juli 19, 2024, 11:00 - 12:30

**Objective.** Recent research suggests that positive affective responses (AR), especially when reported at the end of an exercise session, are involved in the regulation of physical activity (PA). However, most studies have been conducted in healthy adults, so we do not know if these mechanisms work in the same way in people with chronic diseases. To fill this gap, this study aimed to examine the predictive validity of the AR reported at the end of an exercise session on subsequent daily PA levels in people with chronic diseases.

**Methods.** A total of 116 participants (79% women, aged 66±14 years) diagnosed with chronic diseases participated in the study. AR were measured using the Feeling Scale four times during an exercise session: at the beginning of the warm-up, at the beginning and end of the workout, and at the end of the cool-down. Time spent in moderate-to-vigorous PA (MVPA) during the seven days following the exercise session was measured using accelerometers (MOVISEN Move4).

**Results.** Linear multiple regression analyses showed that positive AR reported at the end of the exercise session predicted higher levels of daily MVPA ( $\beta = .36$ ,  $p < .001$ ) and accounted for 12% of its variance. The other times at which AR were measured (i.e., during the warm-up and the workout) were, however, not significantly associated with MVPA. These results remain unchanged after adjustment of rating of perceived exertion during the exercise session.

**Conclusion.** These findings suggest that experiencing positive AR at the end of an exercise session, but not during the warm-up and the workout, predicts subsequent daily PA levels in people with chronic diseases. It may reflect a "spillover effect", whereby the affective experience encountered at the end of an exercise session may extend to other PA behaviours in daily life.

## Performance Recovery and Optimization for Wellness (PRO-Wellness): The Effect of an Intervention to Promote Well-Being Among Student-Athletes

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Oral Presentation 39: Well-being and quality of life, Pedagogical psychology, Exercise psychology & Best practice, Hall Freiburg, Juli 19, 2024, 11:00 - 12:30

**Objectives:** There is an urgent need for the development of evidence-based mental health and psychological skills training programs tailored to the college student-athlete population (Donohue et al., 2021; Vella et al., 2021). Given this background, we developed an intervention program titled Performance Recovery and Optimization for Wellness (PRO-Wellness). Specifically, our goal was to examine the influence of the PRO-Wellness on student-athletes' general well-being levels and core affective states.

**Methods:** The PRO-Wellness program was grounded on the theoretical notion of recovery-stress balance, which purports that athletes must balance their levels of bio-psycho-social stress with appropriate recovery (Kallus & Kellmann, 2016; Kellmann et al., 2018). The program consisted of eight workshop sessions (Mental Health Literacy; Mind-Body Connection; Dealing with Injury and Transitions; Burnout Prevention; Goal Setting; Imagery; Self-Confidence and Self-Talk; Mindfulness) and was delivered to over 100 NCAA Division I student-athletes from four different sports (18 men's soccer players, 18 women's soccer players, 18 women's field hockey players, and 50 men's lacrosse players). Participants completed the affect grid (Russell et al., 1989) and the general well-being scale of the RESTQ-Sport questionnaire (Kallus & Kellmann, 2016) at the beginning and end of the program.

**Results:** Student-athletes participating in the PRO-Wellness program reported increased levels of well-being ( $p < .01$ ;  $d = .40$ ) and increased levels of pleasantness ( $p < .01$ ;  $d = .32$ ). Moreover, student-athletes perceived the PRO-Wellness program to be highly beneficial to them (8.28 out of 10).

**Conclusion:** Our findings suggest that the PRO-Wellness program was effective in improving student-athletes' general well-being and positive affect. More research testing the effectiveness of evidence-based sport psychology intervention programs is needed. Moreover, it is important to think of ways to scale up evidence-based programs that have already been developed, implemented, and tested.

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## Regul-8: A Mindfulness Intervention for Students in School Sport Profiles to Enhance Self-Regulation and Mental Health

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Oral Presentation 39: Well-being and quality of life, Pedagogical psychology, Exercise psychology & Best practice, Hall Freiburg, Juli 19, 2024, 11:00 - 12:30

**Objectives:** In alignment with Goal 4.7 of the 2030 Agenda, education aims to foster students' development and well-being. Elite Schools of Sports face unique challenges as their students must excel both in sports and academics. Stress can have detrimental effects on physical and mental health, especially in children and adolescents who are still developing their self-regulation skills. Mindfulness-based interventions (MBIs) show promising effects in improving self-regulation and mental health. However, MBIs have rarely been implemented and evaluated within school sports. The present study therefore developed and investigated Regul-8 (spoken "regulate"), a mindfulness-based program for eighth-grade students, concerning feasibility, acceptance, and effectiveness. Rooted in the Acceptance Commitment Therapy, Regul-8 aims to enhance psychological flexibility, self-regulation and mental health.

**Methods:** The evaluation study used a mixed-method approach and a quasi-experimental design. The experimental group (EG; n = 22, M = 13.73, SD = .55) participated during physical education in the intervention, while the control group (CG; n = 16, M = 13.81, SD = .75) continued with regular physical education. The programme comprised six 90-min. modules in a group format. In a pre-test (t<sub>0</sub>) baseline-data was assessed. Post-measurement (t<sub>7</sub>) occurred seven weeks later.

**Results:** Multiple linear regression revealed that mindfulness and self-control accounted for 15% of the variance in mental health. Additionally, self-control and mindfulness explained 23% of the variance in perceived stress. However, the intervention did not yield statistically significant effects on perceived stress, mental health, mindfulness, or self-control. Moderation analyses suggested that self-control moderated decreasing trends in perceived stress within the EG from pre- to post-test. Qualitative student feedback indicated strong approval of Regul-8, highlighting improved awareness, acceptance, and self-regulation.

**Conclusion:** Regul-8's successful integration into an Elite School of Sports curriculum offers valuable insights for educators, administrators, and policymakers regarding mindfulness-based interventions in school sports.

## Effects of Acute Exercise of different time, duration and intensity on Circulating Irisin levels and Stress Profile in Pre-diabetic population

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Oral Presentation 39: Well-being and quality of life, Pedagogical psychology, Exercise psychology & Best practice, Hall Freiburg, Juli 19, 2024, 11:00 - 12:30

**Objective:** Prediabetes is a subclinical stage of transient hyperglycemia preceding development of type 2 diabetes. The recommended treatment of prediabetes requires lifestyle modifying diet and enhanced physical activity. Irisin produced during exercise has been suggested as a potential hormone that improves glucose metabolism and mental health in Prediabetics. The current study was designed to explore the effect of different exercise protocols in terms of intensities, duration and timings on Irisin and stress level in Prediabetics.

**Methods:** This triphasic prospective study recruited a total of 25 Prediabetic participants, exposed to 12 exercise sessions of different intensities, timings and duration in a crossover trial. Blood samples were collected before and after every exercise session, for Irisin levels (determined through ELISA) and cholesterol. Perceived stress questionnaire PSS-10 was used to evaluate the stress scores of the patients. Data was analyzed through SPSS-22.

**Results:** A total of 22 out of 25 participants with mean age of 34.5 ± 4.14 years and HbA1c of 5.84 ± 0.14 completed the study. Irisin hormone levels increased significantly from baseline after every exercise session. Cholesterol levels post exercises were significantly reduced, while PSS scores were improved after every protocol. Anthropometric measurements including weight decreased from (88.76 kg ± 15.21) to (87.28 kg ± 14.57) p-value 0.014, hip circumference from (105.97 ± 13.14 cm) to (103.45 ± 13.35 cm) p-value <0.001, waist circumference from (102.50 ± 12.94 cm) to (98.90 ± 12.88 cm) with p-value <0.001.

**Conclusion:** Almost all exercise sessions lead to a statistically significant increase in Irisin levels and improvement in stress scores. From the analysis it was determined that exercise session at 60 to 70% of Predicted maximum heart rate, 30 minutes after meal intake and for 45 minutes were found to be the most effective exercise strategy for enhancing the Irisin levels in prediabetics.

## Fitness as a moderator of physiological and psychological reactions during a stressful situation at school (maths exam)

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Oral presentation 40: Youth,  
Hall Aalborg, Juli 19, 2024, 13:30 - 14:30

**Objectives:** The influence of physical activity and fitness on physiological and psychological stress reactivity has long been the subject of scientific research. Under laboratory conditions, research has shown that high cardiorespiratory fitness can lead to a blunted stress reaction. In this study, we examined whether cardiorespiratory fitness moderates the physiological and psychological stress reactivity in adolescents during a real-life stress situation (maths exam relevant for the end-of-the year results).

**Methods:** The study was conducted with 79 students (M=14.19±0.79 years; 49.4 % girls) from grade 8 and 9. Physiological stress reaction was measured via heart rate variability (HRV) during a maths exam and a normal maths lesson (baseline). Low frequency (LF) was used as primary outcome. A psychological questionnaire was used to assess current mood state and anxiety. Cardiorespiratory fitness was assessed with the 20-meter Shuttle run test. Participants were categorized into two groups with low vs. high fitness via median split (separately for boys and girls). Stress reactivity was compared via rANOVAs with test-condition as a within-subject factor (baseline vs. stress) and group (low vs. high fitness) as a between-subject factor.

**Results:** Statistically significant condition by group interaction effects were found for heart rate variability (LF), mood state and anxiety. Whereas the fitness groups did not significantly differ from each other during baseline, the high fit group presented with lower LF scores, more positive mood and lower anxiety during the stress condition.

**Conclusion:** Cardiorespiratory fitness acts as a moderator of the physiological and psychological stress reactivity also under real life conditions. These findings show that students with higher cardiorespiratory fitness are better equipped to cope with everyday challenges. Improving fitness is one possible pathway how young people can be empowered to better master everyday life. Exercise programs are needed that meet young people's needs and efficiently improve their cardiorespiratory fitness.

## Applying a Gender Equity Lens to Understand Sport and Physical Activity Opportunities and Barriers in Ontario (Canada) Schools

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Oral presentation 40: Youth,  
Hall Aalborg, Juli 19, 2024, 13:30 - 14:30

**Objective:** School is often the gateway to sport and physical activity (PA) participation, yet there is little understanding of the way schools endorse, support, and leverage strategies for enhancing participation – especially for girls. This study identifies and describes PA and sport opportunities and experiences in Ontario (Canada) schools. **Methods:** This mixed methods study includes a content analysis of public facing documents (websites, policies, curriculum, reports) from the 72 Ontario school boards. Discussions with school leaders provided lived experiences specific to youth, and quantitative data were collected from 51 school leaders. Secondary data analyses of two school databases (N=814 girls aged 6-18 years and N=8737 girls and N=8604 boys aged 13-18 years) were used to explore participation rates in school sport and physical activity to identify benefits and barriers of participation for girls. **Results:** 16% of girls (aged 6-12) and 21% of adolescent girls report participation in any school-based sport, and 35% of girls report no PA at all. Further, 36% of boys and 29% of girls are involved in varsity-level sport. School leaders report systemic barriers including access to facilities and equipment), limited opportunities, and competing curriculum and priorities – only 14% of schools identify PA as a key priority. Few schools report sport and PA information on their websites. Girls also reported social belonging, safety, emotional challenges, and gender identity as key barriers. Importantly, 30% of girls identified coaches and teachers as role models yet female coaches were rarely depicted in public-facing documents. Across all documents, there was limited connection between mental health and PA in the school context. **Conclusion:** Ontario schools and school boards must establish a foundation for PA, movement, and sport including strategies that are unique to boys, girls, and gender-diverse youth. Capitalizing on the known association between PA and mental health is critical.

## Correlates of physical activity enjoyment as a theoretical framework for the activity related treatment of overweight within the STARKIDS study

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Oral presentation 40: Youth,  
Hall Aalborg, Juli 19, 2024, 13:30 - 14:30

**Objectives:** STARKIDS is a cluster-randomized controlled trial, aiming to achieve a healthy weight development for children and adolescents with overweight or obesity (Ziser et al., 2022). Main thematic contents are diet, physical activity, media consumption and family life. The purpose of this article is to present the results of a systematic literature review on correlates of physical activity enjoyment in children and adolescents (Greule et al., 2023) and how these correlates have influenced the physical activity related intervention development within the STARKIDS study.

**Methods:** For the systematic literature review an electronic database search was executed in the five databases PubMed, PsychINFO, SPORTDiscus, Web of Science and BISP-SURF, from inception to 6th of December 2021. A semi-quantitative method was used for summarising the resulted correlates. They should then serve as basic theoretical background to address the physical activity enjoyment through the STARKIDS intervention.

**Results:** Findings from the systematic literature review highlighting 19 variables as consistent positively associated to physical activity enjoyment, e.g. the basic psychological needs, task orientation or parental support. To translate this theoretical background into practical applications, six physical activity related intervention goals were formulated which will be supported by e-health online applications, developed in relation to the mentioned correlates of physical activity enjoyment. It is assumed that the physical activity behavior of the participating children and adolescents in the intervention group of STARKIDS can be significantly increased compared to the control group and that the physical activity enjoyment mediates this positive change.

**Conclusion:** There is a gap in literature focussing the perception of physical activity enjoyment in the subgroup of children and adolescents with overweight or obesity. Therefore, gradually closing this gap will increase the possibility to develop effective physical activity related interventions in the future for children and adolescents in healthcare settings.

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## Relationships Between Motives for Sports Practice and Video Game Play

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Oral presentation 40: Youth,  
Hall Aalborg, Juli 19, 2024, 13:30 - 14:30

**Objectives:** In a context where young French individuals are becoming increasingly physically inactive (Luiggi et al., 2018), with the quantity of video game leisure practices inversely correlated with that of sports participation (Kenney et al., 2017), we aim to examine the motives behind the experiences of these two seemingly opposing types of activities: sociability, exhibitionism, competition and playing to the limit (Recours et al., 2004). Given that some motives may vary depending on the level of risk involved in the sport practiced (Martha and Laurendeau, 2010), we specifically examine whether the motives for participation differ between non-risk versus risk sports participants, and between non-violent versus violent video games players. One of our hypotheses is that the motive 'playing to the limit' will be lower among risk sports practitioners, given the risk of injury, while it will be higher among players of violent video games.

**Method:** A pilot study was designed to test the validity of the 13-item motives for sport participation questionnaire (Recours et al., 2004), adapted for video game practices. It involved 100 young video game enthusiasts (27% girls) aged 12-20. Participants had to indicate on a 7-point Likert scale (ranging from 1 "Not at all" to 7 "Absolutely") to what extent each item corresponded to what they liked in their favourite video games. The confirmatory factor analysis confirmed a four-factor structure of the questionnaire (Chi2(59) = 90.93, p=0.005; CFI = 0.97; SRMR = 0.08; RMSEA = 0.07).

A questionnaire-based study will be conducted from March to May 2024 amongst 500 French adolescents. The inclusion criterion is engaging in sports for a minimum of 1 hour per week in addition to physical education classes, and being a video game player (i.e., play-ing a minimum of 3 times per week). Regression analyses and two-way ANOVA will be conducted.

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## 4 Years Ahead: E-Sportpsychological Coaching in the esports player founda-tion

**Moritz Anderten**, J. Adami, H. den Haan

Oral presentation 41: E-Sports & Perseption & Attention & Non-traditional applications,  
Hall Brüssel, Juli 19, 2024, 14:40 - 15:40

Since 2020, talented esports athletes and ecoaches have been receiving sport psychological support under the mission "Enable talents to live their dreams and to serve as role models" through the globally unique esports player foundation. The overarching purpose is to assist esports athletes in achieving their goals within and outside the realm of esports.

To ensure professional support, the underlying concept aligns with the three core sport psy-chology tasks: performance optimization, health promotion, and personality development, focusing on psychosocial and sport-related developmental tasks of youth and young adult-hood. Accordingly, the support targets three performance and age groups: talents (15-17), professionals (16-25), and world-class (19-30). In addition to individual support, talents also receive psycho-educative workshops to impart basic sport psychological competencies. Fur-ther support optimization includes the development of (sport-) psychological diagnostics.

In Germany, 249 esports athletes and in other european countries, 49 esports athletes (Mdnage = 19, range 13-34, 25% female) as well as 4 ecoaches (Mage = 23.25, SD = 2.28) have been individually supported by a total of 57 sport psychologists in over 1,700 sessions (as of March 2024). They either play League of Legends (approx. 40%), Counter Strike, FIFA or EA Sports FC, and Valorant (each approx. 17%), Fortnite, or Brawl Stars (together approx. 10%). The average placement duration is 15.54 days (SD = 18.62), with 90% of the support being conducted online. In addition to sport psychological support, esports- athletes and coaches can also be transitioned into a psychotherapeutic setting if needed.

The quality of sport psychological support is ensured, firstly, by the sport psycholo-gists listed exclusively on the ASP/BISP expert database, who regularly conduct su-pervisions under the guidance of an accredited supervisor. Secondly, support quality is evaluated after the first six support sessions using the QS-17, as well as organiza-tional feedback questions. The feedback consistently shows satisfactory results and constructive suggestions for improvement. In ad-dition, with the consent of esports athletes, the standardized documentation of individual support sessions undergoes anonymized qualitative content analysis.

## The effects of frequent suppression of priming negative instructions on rifle shooting performance without cognitive load

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Oral presentation 41: E-Sports & Perception & Attention & Non-traditional applications,  
Hall Brüssel, Juli 19, 2024, 14:40 - 15:40

Suppressing unwanted thoughts under pressure is generally characterized by the opposite outcomes of what is desired in motor task performance, resulting in ironic errors. Purpose: This study aimed to examine the impact of repetitive priming negative cues on elite biathletes' ironic performance and reaction time (RT) in Stroop-based target shooting task within the context of Wegner's ironic process theory. Method: Semi-elite biathletes (n = 10) participated in the study. The study used a within-subject design, particularly a one-way repeated measures multivariate analysis of variance (MANOVA) to determine participants hit towards three dependent variables: target, ironic error target, and non-ironic error target at the incongruent stimuli. In the study, the biathletes completed a Stroop-based target shooting performance with no repetition (Trial 1) and repetition (Trial 2) priming negative cue conditions. Results: The findings showed biathletes did not exhibit ironic shooting errors or delay towards target hits across both trial conditions. Conclusion: Suppressing unwanted priming cues repetitively did not affect ironic shooting performance or RTs towards the target hits across trial conditions. This study indicates that the induced priming negative instructions repetitively had no significant effects on ironic shooting performance, indicating priming negative instructions alone were not sufficient to tax biathletes' attentional control in Stroop-based target shooting performance in the sample of elite biathletes. However, it is crucial to exercise caution when interpreting the findings owing to the presentation of instructions visually prior each stimulus as opposed to the traditional verbal instruction.

**Keywords:** ironic error, negative instruction, priming, rifle shooting, Stroop task

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## The Effectiveness of Eye-Movement Desensitisation and Reprocessing and Imagery on Self-Efficacy, Confidence, Anxieties, and Athletic Trauma of Elite Footballers (Soccer)

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Oral presentation 41: E-Sports & Perception & Attention & Non-traditional applications,  
Hall Brüssel, Juli 19, 2024, 14:40 - 15:40

In pursuit to performance excellence, athletes encounter sport-related stressors and athletic trauma, which are associated with e.g., impaired concentration, anxiety, fear of being injured, altered reaction times, and an increased risk of injury. A limited number of studies have explored the effectiveness of Eye-Movement Desensitisation and Reprocessing (EMDR) on confidence, anxieties, and small-t-traumas in sports. The aim of this study is to evaluate the effectiveness of EMDR, and Imagery, on General Self-Efficacy (GSE), Goal-Keeper specific Self-Efficacy (GKSE), and measures of the Competitive State Anxiety Inventory (CSAI-2R) in elite academy footballers, and 1st team goal-keepers.

16 elite footballers participated a RTC, mixed-methods, multiple baseline research design, receiving six weekly EMDR, or Imagery, sessions addressing their most distressing moments in football. Psychometric measurements assessed weekly changes on GSE, GKSE, confidence, somatic and cognitive anxieties, and post-intervention interviews explored participants' experiences of the interventions.

ANOVAS demonstrated EMDR and Imagery as effective in increasing GSE and GKSE, with non-significant improvements on the CSAI-2R. Reflexive Thematic Analyses (RTA) outlined experiences of EMDR treatment, transfer-to-practice effects into football, and showcased mental images related to self-efficacy and distress, thereby supporting Bandura's self-efficacy theory (1977). RTA furthermore offered insights on navigating challenges in the delivery of EMDR in a professional, club-based setting.

Qualitative and quantitative analyses support EMDR to be as effective as Imagery, and are the first to establish feasibility, acceptance, and effectiveness of EMDR as an alternative, or add-on, to Imagery. RTA showcases EMDR's potential in alleviating long-term, persistent negative mental images, cognitive and somatic distress in response to injuries, fears, and defeat. EMDR is unique in its approach, as it works via bilateral stimulation, whereby not all distressing details need to be disclosed, which can offer advantages. EMDR is postulated as a versatile technique for athletes, with few sessions enabling betterment to long-term athletic trauma.

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## Differential Effect of Cognitive Ability among Esports Gamers of Varying Expertise

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Oral presentation 41: E-Sports & Perception & Attention & Non-traditional applications,  
Hall Brüssel, Juli 19, 2024, 14:40 - 15:40

Esports have grown substantially in the last decade (Newzoo, 2022) and may be an effective way of engaging and exposing the youth. For example, one of the most popular esports, League of Legends, has 180 million active players (Samanta, 2023). Beyond the popularity of esports research, the current study set out for the first time to identify whether skill level in a prominent esports game, League of Legends, demonstrated increasingly superior performance on a test of specific cognitive skills. Here, we tested non-gamers, novices, and expert gamers and compared their performance on a colour-word Stroop Task, Eriksen Flanker Task, Monsell Task Switching Skill Task, and Domain-Specific Task Switching Skill Task by using the OpenSesame software.

We recruited 18 male participants (Mage=20.77, SD=1.55) via university social media advertisement. The sample comprised three groups: experts with an average of 7.5, novices with 3.3 years of experience, and non-gamers, respectively. Results highlight a statistically significant distinction in cognitive skills across different levels of e-sports expertise. As hypothesized, expert players demonstrated faster completion time in the Stroop test (Mean = 804.58, SD = 71.02), task-switching (Mean = 1012.46, SD = 134.34), Eriksen Flanker (Mean = 330.86, SD = 20.64), and Domain-Specific Task-Switching Skills Test compared to novices (Stroop Mean = 993.63, SD = 96.43; Eriksen Flanker Mean = 386.45, SD = 34.43; Domain-Specific Task-Switching Mean = 1052.09, SD = 47.74) respectively. Similar differences were found between expert players and non-gamers accordingly.

This study tested whether the cognitive ability to disregard stimuli irrelevant to the task and a known attribute of successful action in esports could differentiate expertise among players. We encourage future research to continue identifying the underlying mechanism of outstanding cognitive skills and determine esports players of varying expertise concerning other factors that might be associated with the optimal level of performance.

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## Evaluating the Impact of Fatigue on Go-Kart Drivers: An Analysis Based on Pupillometric Indicators and Eye-Tracking Technology

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<sup>1</sup>University of Cassino and Southern Lazio, Cassino, Italy

Oral presentation 42: Elite sports and expertise & Exercise and COVID-19 Pandemics & Well-being and quality of life & Clinical sport psychology, clinical issues in sport and physical activity,  
Hall Freiburg, Juli 19, 2024, 14:40 - 15:40

**Study Objective.** This research aims to investigate how fatigue affects the performance of go-kart drivers, with a particular focus on pupillometric indicators detected through eye-tracking technology to assess their attention, reaction times, and decision-making capabilities. **Methodology.** A group of go-kart drivers of various ages and experience levels was recruited. Eye-tracking glasses were used to collect baseline data on eye movements and pupillometric metrics under resting conditions and initial driving. Subjects participated in prolonged driving sessions or tasks designed to induce fatigue, simulating race conditions. Changes in pupillometric metrics, such as pupil dilation and variations in blinking, as well as eye movements during phases of fatigue, were monitored. **Data Analysis.** Data collected under fatigue conditions were compared to baseline data to identify correlations between fatigue and driving performance, utilizing specific software for eye-tracking data analysis. **Results.** The analysis revealed a correlation between indicators of fatigue, such as increases in pupil dilation and variations in blinking behavior, and a decrease in driving performance, highlighting fatigue as a critical factor affecting safety and effectiveness on the track. **Discussion.** This study could provide significant insights into the dynamics of fatigue in go-kart drivers, offering a clearer understanding of how fatigue impacts performance. Moreover, it could suggest strategies to mitigate the negative effects of fatigue, such as scheduled breaks, eye relaxation exercises, or specific training to improve resistance to visual fatigue. The combination of eye-tracking and pupillometric analysis in this sporting context not only enriches the scientific literature but also offers practical applications for the training and preparation of drivers, potentially enhancing safety and efficiency in high-intensity competitions.

**Keywords**

Fatigue, Go-Kart Drivers, Eye-Tracking Technology, Pupillometric Indicators, Driver Performance

## Comparison of the Stress Coping Styles Of University Students Who Are Sedentary, Athletes and Exercise Participants

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Oral presentation 42: Elite sports and expertise & Exercise and COVID-19 Pandemics & Well-being and quality of life & Clinical sport psychology, clinical issues in sport and physical activity, Hall Freiburg, Juli 19, 2024, 14:40 - 15:40

Psychological stress is a major concern in college students and can lead to negative mental and physical health outcomes. The COVID-19 pandemic has increased psychological stress. Using sport, physical activity and exercise as a stress management technique has been shown to have a large effect in preventing and treating psychological stress. The primary aim of this research is to reveal the differences in the ways university students coped with stress during the COVID-19 pandemic, depending on whether they are athletes or not, whether they exercise or not. Another purpose of the study is to examine the differences in university students' levels of coping with stress according to their physical activity level, exercise behavior change stage and sport type. In this research, 450 university students between the ages of 18-25 who were sedentary or athletes, who did or did not exercise, were included in the study. The personal information form, the Stress Coping Methods Scale, the International Physical Activity Questionnaire and Exercise Stages of Change Questionnaire were used as data collection tools. Data was collected via an online survey in March-May 2021, when classes were held both online and face-to-face according to the student's preference. Descriptive statistical analysis, MANOVA and t-test for Independent Groups were used to analyze the data. The results of this research indicated that there were significant differences in stress coping styles with regard to doing sports or exercise and physical activity level. According to the type of sport, there was no difference in the types of coping with stress. Problem solving and logical analysis coping style were higher among athletes. In addition, positive reappraisal, problem solving and logical analysis were higher in those who exercised. Those with high levels of physical activity obtained high scores in all types of coping with stress, except logical analysis.

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## The role of social support in adolescent athletes' mental health: A longitudinal approach

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Oral presentation 42: Elite sports and expertise & Exercise and COVID-19 Pandemics & Well-being and quality of life & Clinical sport psychology, clinical issues in sport and physical activity, Hall Freiburg, Juli 19, 2024, 14:40 - 15:40

Adolescence is a critical period in the lifelong mental health of athletes, and participating in organized sports seems to play a beneficial role (Doré et al., 2019). Yet, a closer look reveals that the sports environment encompasses protective but also risk factors for mental health (Kuettel & Larsen, 2020), highlighting the protective role of social support (Sullivan et al., 2020). Despite this, little is known about how social support, mental health and their relationship evolve as athletes advance through the developmental stages in organized sports. Thus, this study aims to (a) describe the variations in mental health levels during adolescence; and (b) investigate how social support influences these changes over time.

We assessed 819 athletes aged 12 to 18 over three consecutive seasons (2020-2022). We used the General Health Questionnaire-12 to measure their mental health levels and the Perceived Available Support in Sport Questionnaire to measure the perceived social support from the sports context. Means and standard deviations were calculated to analyze changes in mental health, while a cross-lagged model explored the impact of social support on such changes.

The evolution of mental health levels shows a decrease as the developmental stage is finalized. Our cross-lagged model showed a good model fit (CFI = .997; TLI = .989, and RMSEA = .020). The results suggested a moderate stability of the perception of mental health and social support over time, a low impact of social support on mental health, and the absence of cross-lagged effects across time.

The evolution of mental health over time suggests a critical moment when young athletes approach the end of development categories, which might be related to the diverse life transitions that occur during this moment (Wylleman, 2019). This study shows the importance of social support on mental health as athletes navigate across the developmental categories.

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## Bouldering and Climbing as a Treatment for Depression – An Ongoing Systematic Review and Meta-Analysis

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<sup>3</sup>Universität Leipzig, Leipzig, Germany

Oral presentation 42: Elite sports and expertise & Exercise and COVID-19 Pandemics & Well-being and quality of life & Clinical sport psychology, clinical issues in sport and physical activity,  
Hall Freiburg, Juli 19, 2024, 14:40 - 15:40

Depression is one of the most common public health problems worldwide with increasing incidents since the COVID-19 pandemic (Yoch & Sirull, 2021). In response, alternative treatment strategies gained attention, with physical activity emerging as a prominent adjunct to conventional psychotherapy such as cognitive-behavioral therapy (e.g., DGPPN et al., 2015). In recent years, types of physical activity including bouldering and climbing interventions have emerged as a component within treatment plans (e.g., Kleinstäuber et al., 2017). Although systematic reviews and meta-analyses have investigated the therapeutic effects of climbing and bouldering interventions, the specific effects of these interventions on depression remain unclear (e.g., Buechter & Fechtelpeter, 2009; Gassner et al., 2022). Therefore, this study aims to address this gap by (1) scrutinizing the effects of bouldering or climbing interventions on depressive outcomes and (2) comparing the antidepressant effects of interventions combining climbing with psychotherapy versus interventions exclusively centered on climbing. Adhering to PRISMA guidelines (Page et al., 2021), the literature search was conducted through PubMed, Scopus, EBSCOhost, and Web of Science with the following eligibility criteria: controlled trials, adults older than 18 years, bouldering or climbing intervention, depression as an outcome, and German or English language. Keywords included climbing, bouldering, depression, intervention, effect, treatment, and therapy. Methodological quality of included studies will be assessed with the PEDro scale and meta-analysis will be performed using a random-effects model and subgroup analysis with the Comprehensive Meta-Analysis (CMA) software. Heterogeneity and publication bias will be examined. The systematic search revealed 2,946 records, resulting in eleven eligible studies. Due to missing and overlapping data, only eight studies will be included in the risk of bias analysis and in the meta-analyses. Findings will be discussed with respect to future considerations, practical implications, and strengths/limitations and will be presented at the congress.

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## Everyone is Figuring it out Along the Way: Diving Headfirst into the World of Esports

**Ismael Pedraza-Ramirez**<sup>1</sup> Bernadette Ramaker<sup>2</sup>

<sup>1</sup>German Sport University Cologne, Cologne, Germany, <sup>2</sup>Independent Practice, Alkmaar, The Netherlands

FEPSAC Young Practitioner Presentation, BÖP-Award & Slam Session,  
Juli 16, 2024, 18:30 - 21:00

The novel and high-performing field of competitive gaming better known as electronic sports (esports), in which the concept of simply playing video games is transferred to esports as a professional competitive environment (Pedraza-Ramirez et al., 2020) has facilitated the implementation of high-performance structures comprised by specialized support staff (e.g., coaches, managers, psychologist) (Smith et al., 2019). Thus, professional teams in esports are recruiting specialists such as sports psychologists to gain a performance edge over the competition and help to understand and manage the influence of the competitive demands on performance such as dealing with high stress and competitive anxiety (Poulus et al., 2022), wellbeing, and mental health (Kegelaers et al., 2024).

In this presentation, we will address important questions arising from our already over seven years of work in performance coaching in esports while highlighting the role of sports psychology (Watson et al., 2021) in this novel field of performance. We will primarily focus on our applied experiences, where we will shed light on the initial challenges, unique elements, demands, and needs that sport psychologists could experience when transitioning from traditional sports into the field of esports. Consequently, we will describe how sport psychologists can find the balance in creating a strong and sustainable team culture without losing sight of the will to win or the individual player's needs. Additionally, we will answer important questions encountered, such as how does a practitioner build a sustainable team culture in high-performance while prioritizing the wellbeing? How can one facilitate the creation of meaningful relationships between players, coaches, and staff members?

We will highlight our theoretical foundations and the research integration that informs our applied practice to address these questions. Such foundations are based on scientific knowledge from traditional sports in psychological resilience (Fletcher & Sarkar, 2016), holistic ecological approaches to talent development (Henriksen et al., 2010), acceptance and commitment approaches (Hayes & Hofmann, 2017), and performance habits (Laborde et al., 2020). This theoretical and scientific link has led us to inform our applied practice at various levels while wearing different hats to influence teams' culture and individual players' development. Such methods have been aided to clarifying and explore processes such as buy-in strategies, psychoeducation approaches, and interventions. To conclude, it is still very important to promote the current work to understand better the role of sport psychology in esports and the development of high-performance (Leis et al., 2023).

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## A Multi-Study Examination of the Physical and Mental Health Consequences of Burnout in Athletes

**Hanna L. Glandorf**<sup>1</sup>, Daniel J. Madigan<sup>1</sup>, Owen Kavanagh<sup>1</sup>, Sarah H. Mallinson-Howard<sup>1</sup>

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FEPSAC Young Researcher Award Oral,  
Hall Grenoble, Juli 18, 2024, 11:00 - 12:30

Athletes in competitive sport regularly perform under pressure. Increased stress exposure from intense training and competition, however, can lead to mental and physical health difficulties. Burnout is an increasingly prevalent mental health problem in athletes that may also increase the risk for further adverse mental and physical health consequences. In a previous systematic review and meta-analysis, we highlighted the mental and physical health outcomes that may be affected. Building on the findings of our review, here we present the findings of two follow-up studies. In the first study, we have examined whether burnout can predict changes in depressive symptoms, sleep disruptions, life dissatisfaction, physical symptoms, and illness over time. To do so, we recruited a sample of 267 competitive athletes who completed measures at three timepoints over six months. Random-intercept cross-lagged panel models showed that burnout predicted increased depressive symptoms. Sleep disruptions and life dissatisfaction, however, showed reciprocal effects predicting increased burnout. We found no relationships between burnout and physical symptoms and illness. In the second study, we examined links between burnout and biomarkers of hormonal and immune function dysregulation. To do so, we adopted an N-of-1 design where four athletes were recruited and saliva and intravenous blood were sampled over six-to-twelve months. We found that burnout predicted decreases in testosterone, dehydroepiandrosterone-sulphate, and immunoglobulin A. Together, our findings suggest that burnout can increase the risk for some health consequences, such as depressive symptoms, and it is possible that concomitant changes in biomarkers may provide the biological basis for such changes.

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## “We are on the outside but it’s okay”: A grounded theory of cooperation between parents, coaches, and administrators

**Valeria Eckardt**<sup>1,2</sup>, Travis E. Dorsch<sup>3</sup>

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FEPSAC Young Researcher Award Oral, Hall Grenoble, Juli 18, 2024, 11:00 - 12:30

**Objectives:** Across youth sport trajectories, parents need to cooperate with coaches and organizations to facilitate their children’s development and sport-related outcomes (Jowett & Timson-Katchis, 2005; Knight & Holt, 2013). Despite this knowledge, evidence-based principles on how parents, coaches, and organizations can effectively coordinate and align their behaviors towards a shared goal are lacking. As such, this study was designed to develop a theoretical model of cooperation as a social, interdependent process.

**Methods:** Intensive interviews were conducted with parents (n = 9), coaches (n = 11), and administrators (n = 14) across 14 youth soccer academies in Germany. Data were analyzed and interpreted following constructivist grounded theory methodology (i.e., initial, focused, theoretical coding; Charmaz, 2014).

**Results:** The grounded theory conceptualizes cooperation as a dynamic, responsive, and iterative process. Overall, cooperation can be distinguished in behaviors aimed at building and at maintaining effective cooperation. Viewing parents as a valuable resource, providing an onboarding for (new) parents, and defining parental roles within the academy were all crucial processes for cooperation to evolve. Further, cooperation was affected by person (e.g., coaching experience, cultural background) and context factors (e.g., academy resources, academy management), acting as facilitators or barriers.

**Conclusion:** Adopting a systems lens allows researchers to examine social, interdependent processes in youth sport through targeting the intersection of persons and contexts (Dorsch et al., 2022). Future research should examine how distinct cognitive, emotional, and behavioral patterns of cooperation relate to parents’, coaches’, and athletes’ individual, relational, and athletic outcomes.

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## The undoing-hypothesis in athletes – Testing and implementing interventions to up-regulate positive emotions to improve cognitive and motor performance

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FEPSAC Young Researcher Award Oral,  
Hall Grenoble, Juli 18, 2024, 11:00 - 12:30

According to the undoing-hypothesis (Fredrickson & Levensons, 1998) positive emotions (PEs) improve psychophysiological recovery after a stressor, which is important for athletes to ensure consistent performance throughout several competitions (Hanin, 2002). In my PhD-project, I first evaluated five interventions to up-regulate PEs in athletes (study 1). Secondly, I used the most effective interventions to investigate the undoing-hypothesis and its subsequent effects on athletes' cognitive (study 2a), motor (study 2b), and sport-specific performance (study 3). In the within-subject study 1 with 22 youth elite athletes (M = 16.27, SD = 1.49; 50 % female), I showed that five minutes of imagination a happy moment and self-chosen happy music effectively up-regulate PEs in comparison to a control condition (CC; sitting five minutes). Consequently, 60 (study 2a) and 30 (study 2b) athletes from different sports were randomized to imagination, music, or the CC. After a baseline, they completed a combined psychosocial (Trier Social Stress Test; Kirschbaum et al., 1993) and physiological stressor (Wingate-Test, Bar-On, 1987), followed by the intervention/CC, recovery, and the performance test. In study 2a, inhibition (flanker task) and cognitive flexibility (number-letter task) were measured once at the end of the experiment. In study 2b hand grip and jumping force were measured with pre- and posttest. Results of study 2a could not confirm the undoing-hypothesis, nor effects on cognitive performance. The data analysis for study 2b is currently ongoing. To draw recommendations for competition, in study 3 I will investigate the undoing-hypothesis in a Taekwondo specific task and a simulated competition.

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## The impact of acute exercise combined with virtual reality on inhibitory control in younger individuals: An ERP study of RCT

**Yi-Ting Cheng**<sup>1</sup> Tzu-Yu Huang<sup>1</sup> Chen-Sin Hung<sup>1</sup> Yu-Kai Chang<sup>1,2,3</sup>

<sup>1</sup>National Taiwan Normal University, Department of Physical Education and Sport Sciences, Taipei, Taiwan, <sup>2</sup>National Taiwan Normal University, Institute for Research Excellence in Learning Science, Taipei, Taiwan, <sup>3</sup>National Taiwan Normal University, Social Emotional Education and Development Center, Taipei, Taiwan

FEPSAC Young Researcher Award Oral,  
Hall Grenoble, Juli 18, 2024, 11:00 - 12:30

**Objectives:** This study aimed to investigate the effect of combining virtual reality (VR) with acute exercise on inhibitory control, event-related potentials (ERP), and emotions.

**Methods:** This study utilized a 3 (groups) x 2 (times) randomized controlled trial design involving 78 young individuals who were randomly assigned to the acute exercise combined with VR (AVE), acute exercise (AE), or control (CON) group. Assessments were conducted before and after the intervention, including an evaluation of inhibitory control using the Stroop task, measurement of the amplitude of the P3 component of ERP, and completion of the Positive and Negative Affect Schedule (PANAS) questionnaire to assess positive and negative emotions.

**Results:** The results revealed that both the AVE and AE demonstrated superior performance ( $p = .01$ ) in response time for inhibitory control compared to the CON. Additionally, the AE exhibited a larger P3 amplitude ( $p = .01$ ) in the incongruent condition compared to the CON. Lastly, in terms of PANAS, the AVE scored higher ( $p = .03$ ) than the CON in positive emotions.

**Conclusion:** The AVE is suggested as a promising strategy for enhancing inhibitory control performance (i.e., response time) and improving positive emotions in young individuals. Furthermore, this study recommends that future research explore the combination of VR content and exercise prescriptions to provide more specific acute exercise recommendations for young individuals.

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## The effects of optic flow on cycling effort: How gazing on the road makes cyclists go faster

**Sem Otten**<sup>1,2</sup>, Ruud Den Hartigh<sup>2</sup>, Frank Zaal<sup>3</sup>, Benoît Bardy<sup>1</sup>, Christophe Gernigon<sup>1</sup>

<sup>1</sup>*EuroMov Digital Health in Motion, University of Montpellier and IMT Mines Alès, Montpellier, Netherlands*, <sup>2</sup>*Department of Psychology, University of Groningen, Groningen, Netherlands*, <sup>3</sup>*Department of Human Movement Sciences, University Medical Center Groningen, Groningen, Netherlands*

FEPSAC Young Researcher Award Oral,  
Hall Grenoble, Juli 18, 2024, 11:00 - 12:30

**Objectives:** Cyclists use optic flow velocity to determine their current and required effort exertion. Accordingly, research has shown that manipulating optic flow velocity in virtual reality (VR) environments leads to changes in perceived and exerted effort (Parry et al., 2012). Interestingly, flow velocity also differs depending on where people look: when gazing nearby (proximal), the elements of the road flow faster than when gazing further away (distal, Gibson et al., 1959). This study tested for the first time whether cycling effort is influenced by exposure to proximal versus distal regions. We hypothesized that proximal optic flow exposure would lead to higher perceived and exerted effort, which might be explained by a stronger experience of psychological momentum.

**Methods:** Thirty-one cyclists completed two 20-minute trials on their bicycle in a virtual reality environment, in which they aimed to surpass the power they exerted during a baseline trial. They viewed the environment through a proximal or distal window, in counterbalanced order. We measured exerted effort with a Tacx bicycle trainer, and recorded responses regarding perceived effort (Borg CR10; Borg, 1998) and psychological momentum every two minutes.

**Results:** Consistent with our hypothesis, a one-way repeated measures ANCOVA, with average baseline effort as a covariate, revealed that exerted effort was higher in the proximal condition compared to the distal condition, with a high effect size,  $F(1,29) = 7.273$ ,  $p = .012$ ,  $\eta^2 = .201$ . We found no significant differences in perceived effort and psychological momentum and no significant relation between exerted effort and psychological momentum.

**Conclusion:** Our findings suggest a beneficial effect of proximal exposure on effort exertion in cycling trials. This can be a first step in identifying and training innovative visual strategies for cyclists and other endurance athletes. For example, proximal gazing could be stimulated to enhance effort exertion during training and specifically during cycling time trials.

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## Athletic identity influences normalisation and reporting of emotional abuse in Finnish athletes.

**Jatta Muhonen**, Ashley Stirling, Marja Kokkonen

<sup>1</sup>University Of Helsinki, Helsinki, Finland

FEPSAC Young Researcher Award Oral,  
Hall Grenoble, Juli 18, 2024, 11:00 - 12:30

**Objective:** This study aims to explore factors that affect athletes' responses to emotional abuse by coaches. The following research question was asked: Does athletic identity affect athletes' ability to recognise and react to emotional abuse by coaches? This expands on Stirling and Kerr's (2008) argument that athletes with salient athletic identities may normalise emotionally abusive coaching practices to a degree, where they no longer recognise emotionally abusive behaviours, or they accept the behaviours as a normal part of sport. This process could expose athletes to further emotional abuse by coaches and hinder recognition and reporting of abuse.

**Methods:** A mixed-methods survey was applied. Quantitative data was analysed through correlational analyses in SPSS, and qualitative data with NVivo 11 software using content analysis. Athletes of all levels (leisure to elite levels) living in Finland were invited to participate in a survey (n = 3687). The participant's age ranged from 12 to 80 (M= 27.91, SD=1.18), and 61% of them were female, 37.7% male and 0.8% were of other genders. The participants represented 80 different sports. The survey consisted of demographic questions, validated measures of emotional abuse and athletic identity, and open-ended items.

**Results:** The study is the first to demonstrate relationships and effects between emotional abuse, athletic identity, and reporting. The main results indicate that a strong athletic identity could expose athletes to further emotional abuse and prevent athletes from reporting emotionally abusive coaching practices. The implication is that athletic identity enhances the normalisation of emotionally abusive coaching practices, which impacts athletes' abilities to report abuse.

**Conclusion:** The results offer new insights into athletes' experiences and observations of emotional abuse by coaches. As a result, holistic identity development is recommended for athletes. Recommendations are also suggested for future research.

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# PODIUM DISCUSSIONS

## Fepsac Editor-in-Chief podium „Ask the Editor“

**Markus Raab<sup>1</sup>**

<sup>1</sup>German Sport University Cologne, Cologne, Germany

Podium discussion (invited) 01: Best practice,  
Hall Strassburg Nord, Juli 16, 2024, 11:00 - 12:00

This “Ask the Editor” podium discussion includes four Editors of sport psychology journals and is chaired by Markus Raab. The goal of the podium is to present aims, scope, policies and an update in alphabetical order of the journals International Journal of Sport and Exercise Psychology (IJSEP) represented by Yu-Kai Chang (Taiwan); Journal of Clinical Sport Psychology (JCSP) represented by Justine Reel (USA); Psychology of Sport and Exercise (PSE) represented by Katherine Tamminen (Canada); Sport, Exercise, and Performance Psychology (SEPP) represented by Alex Benson (Canada). Further, the podium will discuss current topics such as journals openness (e.g., in terms of topics and scientific approaches), reviewer engagement and quality (e.g., in terms of current information of the editorial board, durations and quality of reviews and how we incentivize reviewers to ensure diverse perspectives in the reviewing process, furthering openness within subject areas and scientific approaches and training of reviewers), pay-to-publish/predatory journals (e.g., in terms of scientific credibility of journals and personal rigorous scholarship), reducing duplicate and piece-meal publishing (e.g., in terms of information concerning how duplicates and similarity checks are considered), new special issues (e.g., in terms of current and upcoming plans of the journals), best-practices for submissions (e.g., in terms of best papers, best reviewer role-models) and ethical issues (e.g., in terms of plagiarism, retractions, ChatGPT 4.0). Finally, all editors are prepared to answer questions from the audience relating to publishing practices in sport and exercise psychology.

## Athletes' Dual Careers in the European Context

**Natalia Stambulova<sup>1</sup>**, Yago Ramis<sup>2</sup>, Miquel Torregrossa<sup>3</sup>, Saša Cecić Erpič<sup>4</sup>, Francesca Vitali<sup>5</sup>, Koen De Brandt<sup>6</sup>, Anastasiya Khomutova<sup>7</sup>

<sup>1</sup>Halmstad University, Halmstad, Sweden <sup>2</sup>Universitat Autònoma de Barcelona, Barcelona, Spain <sup>3</sup>Universitat Autònoma de Barcelona, Barcelona, Spain <sup>4</sup>University of Ljubljana, Ljubljana, Slovenia <sup>5</sup>University of Verona, Verona, Italy <sup>6</sup>Vrije Universiteit Brussel, Brussels, Belgium <sup>7</sup>University of Brighton, Brighton, United Kingdom

Podium discussion (invited) 02: Transitions in and out of sport/dual career,  
Hall Brüssel, Juli 16, 2024, 11:00 - 12:00

This podium session is aimed to promote the FEPSAC Position Statement (PS) on athletes' dual careers (DCs) in the European context (Stambulova et al., 2024) and engage the author team into discussion on how to proceed with further development of the European DC discourse. The authors of the PS summarized current knowledge about European athletes' DCs, and, on behalf of FEPSAC, proposed recommendations for DC research, practice, and policy. Central idea of the PS is supporting athletes' striving for DC excellence (i.e., sustaining a healthy, successful, and long-lasting career in sport in combination with education and/or work). Based on four recent DC review papers (e.g., Kegelaers et al., 2022) and four European ERASMUS + Sport projects (e.g., Gold in Education and Elite Sport, Be a Winner In elite Sport and Employment before and after athletic Retirement, Ecology of DC, and DCs for Mental Health) seven postulates were created on DC: (1) context, (2) pathways and transitions, (3) challenges, (4) resources and coping, (5) support and empowerment, (6) mental health of student-athletes, and (7) DC development environments. Further, a set of recommendations for development of the European DC discourse in terms of research, practice, and policy was provided to stimulate cooperation between DC stakeholders on the European and national levels. The session organizers will facilitate a presentation of the PS findings, and moderate discussions among panelists on research, practice, and policy recommendations. For instance, they will explore which recommendations resonate the most with their research/ practice experiences? how can we proceed with a legal status of DC support providers? what are the barriers to create national DC Guidelines? how do we see the role of FEPSAC in the update of the European DC Guidelines? Contributions from the audience will be welcomed, and the podium's conclusions delivered to the FEPSAC Managing Council.

Kegelaers, J., Wylleman, P., Defruyt, S., Praet, L., Stambulova, N., Torregrossa, M., Kenttä, G., & De Brandt, K. (2022). The mental health of student-athletes: A systematic scoping review. *International Review of Sport and Exercise Psychology*, <https://doi.org/10.1080/1750984X.2022.2095657>

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## Invited ISSP panel: Cultural Praxis of sport psychology

**Tatiana V. Ryba<sup>1</sup>**, Robert J. Schinke<sup>2</sup>, Alessandro Quartiroli<sup>3</sup>, Stilian "Ani" Chroni<sup>4</sup>, Antoinette Minniti<sup>5</sup>, Chris Harwood<sup>6</sup>

<sup>1</sup>University of Jyväskylä, Jyväskylä, Finland <sup>2</sup>Laurentian University, Sudbury, Ontario, Canada <sup>3</sup>University of Wisconsin – La Crosse, La Crosse, WI, United States <sup>4</sup>Inland Norway University of Applied Sciences, Elverum, Norway <sup>5</sup>High Performance Sport New Zealand, Auckland, New Zealand <sup>6</sup>Nottingham Trent University, Nottingham, United Kingdom

Podium discussion (invited) 03: Cultural sport psychology,  
Hall Freiburg, Juli 16, 2024, 11:00 - 12:00

Objectives. The aim of this panel discussion is to provide a platform for the FEPSAC Congress participants to reflexively engage with the conference themes through contentious issues of cultural difference and intersectional inclusion necessary for the ethical practice of sport psychology. The starting point of the conversation will revolve around the recent ISSP position paper on cultural praxis (Ryba et al., 2024) and will unfold fluidly to connect the lived experiences of the panelists and the audience. Method. The panel will feature four speakers and a moderator, each offering a unique perspective on navigating the application of a cultural praxis heuristic in their academic and/or applied work. Specifically, Dr Chroni will explore what is (or is not) gender-based violence (GBV), noting the influence of historical and cultural elements that lead to a lack of uniformity in how GBV is understood, represented and consequently redressed. Dr Harwood will draw on his experience of working with youth athletes, considering intergenerational power dynamics and how age as a social identity intersects with other social and cultural identities. Dr Minniti will introduce the High Performance Sport New Zealand (HPSNZ) Wellbeing Framework, designed to link both mātauranga Māori narrative and evidence-based content in articulating HPSNZ's wellbeing practices and services through the Te Whare Tapa Whā worldview. Dr Quartiroli will reflect on a journey towards cultural safety from cultural competence through cultural humility to greater inclusivity, equity and respect for diverse cultural identities. Dr Ryba will present a cultural praxis trajectory in sport psychology and act as moderator for the panel discussion. Conclusion. This panel offers a nuanced exploration of a Cultural Praxis heuristic as both a concept and an applied method that has transformative, forward-looking potential for creating an inclusive, equitable future in sport and sport psychology.

Ryba, T. V., Schinke, R. J., Quartiroli, A., Wong, R., & Gill, D. L. (2024). ISSP Position Stand on cultural praxis in sport psychology: Reaffirming our commitments to the ethics of difference, cultural inclusion, and social justice. *International Journal of Sport and Exercise Psychology*. DOI: 10.1080/1612197X.2024.2310988

## Diverse Roles and Tasks, Rules and Dilemmas, Successes and Failures: Sport Psychology Consultancy and Interpersonal Violence in Sport

**Stiliani “Ani” Chroni**<sup>1</sup>, Göran Kenttä, Anastasiya Khomutova, Rob Owens, Emma Kavanagh, Natalie Durand-Busch, John Heil

<sup>1</sup>*Inland Norway University of Applied Sciences, Elverum, Norway*

Podium discussion (invited) 04: Sexual violence, sexual harassment and sexual abuse,  
Hall Brüssel, Juli 17, 2024, 11:00 - 12:00

This invited podium discussion session brings together six panelists from different countries who share their work with different roles and tasks illuminating the complex and still rather uncharted functions of sport psychology consultancy towards remedying interpersonal violence (psychological, physical, sexual, neglect). Kenttä (SWE) shares on the role of investigating cases of sexual abuse within sport organizations. Khomutova (UK) elaborates on setting up safeguarding provisions in a nation where the word ‘safeguard’ does not exist in their language. Owens (USA) presents on working with same-sex cases of physical, emotional, and sexual misconduct. Kavanagh (UK) expands on the complexity of keeping athletes and their entourage safe in online environments. Durand-Busch talks about the role, benefits, and challenges of mental health and mental performance practitioners supporting athletes experiencing maltreatment in Canada. Lastly, Heil (USA) shares about a situation where all the psychologist’s expertise was unable to bring a wholesome resolution. Their presentations are based on real situations however, to protect the individuals, sports, and organizations pseudonyms are used while some details are omitted and/or altered (i.e., mixing information from different cases to make people and settings unrecognizable). The objective of this invited podium is to bring attention to some of the diverse roles practitioners are invited to undertake, and the complexity we may face in cases of interpersonal violence, both highlighting a necessity to move away from the simplistic and singular belief that having policies and measures in place will make sport safer. Chroni (NOR) will facilitate a discussion around the challenges, controversies, and dilemmas consultants face as could-be advocates in sport, in light of unmet training needs for them, the often-misapplied rules and institutional betrayal along with the role of cultures in defining and applying safeguards for training and competition.

Chroni, S., & Kavoura, A. (2022). From silence to speaking up about sexual violence in Greece: Olympic journeys in a culture that neglects safety. *Frontiers in Psychology*, 13, 862450.

Chroni, S., & Papaefstathiou, M. (2014). Safeguarding and child protection in sport in two southern European countries: Greece and the Republic of Cyprus. In *Safeguarding, Child Protection and Abuse in Sport* (pp. 58-67). Routledge.

Chroni, S., & Fasting, K. (2009). Prevalence of male sexual harassment among female sports participants in Greece. *Inquiries in Sport and Physical Education*, 7, 288-96.

Mountjoy, M., Brackenridge, C., Arrington, M., Blauwet, C., Carska-Sheppard, A., Fasting, K., ... & Budgett, R. (2016). The IOC consensus statement: Harassment and abuse (non-accidental violence) in sport. *British Journal of Sports Medicine*.

Kavanagh, E., Litchfield, C., & Osborne, J. (2022). Social media, digital technology and athlete abuse. In *Sport, Social Media, and Digital Technology* (Vol. 15, pp. 185-204). Emerald Publishing Limited.

Kavanagh, E., Litchfield, C., & Osborne, J. (2019). Sporting women and social media: Sexualization, misogyny, and gender-based violence in online spaces. *International Journal of Sport Communication*, 12(4), 552-572.



## Easy does it-- the simple path to expertise

**Theodore Kroeten<sup>1</sup>**

<sup>1</sup>*Joy Of The People, Saint Paul, United States*

[Podium Discussion \(open\) 05: Talent identification/development, Hall New Orleans, Juli 17, 2024, 13:30 - 14:30](#)

What do the best in the world do every day that you could do too but probably don't? They practice against players to whom they are superior. Where less skilled participants are overloading, pushing themselves against better and more skilled opponents, the very best are doing something different—they underload. They don't work harder; they work less—completing tasks with increasing ease.

Leslie Orgel was a British chemist known for his theories on the origins of life, including Orgel's First Rule: "Whenever a spontaneous process is too slow or too inefficient, a protein will evolve to speed it up or make it more efficient." Therefore, according to Orgel, there are two ways to improve an action: 1) make it faster, taking less time (overloading, pushing beyond the comfort zone), and 2) make it easier, expending less energy (underloading, achieving the action with less effort).

We will illustrate how experts employ what we call 'underloading' to complete actions with greater adaptive evolutionary efficiency, completing tasks easier and easier--so easy it looks like you or I could do it.

My name is Ted Kroeten, and I have been part of a unique experiment. Fifteen years ago, I partnered with the City of St. Paul, Minnesota, to transform a recreation center into a free-play soccer program for children. As we observed the children's growth without direct coaching and structure, we were intrigued by how play was cultivating their skills. This is the account of what we discovered—the good, the bad, and the thrilling.

I will show how underloading is inherent in unstructured play, how it capitalizes on communication, and how experts develop fluency in this form of language before harnessing it to achieve enhanced performance. We will demonstrate how embracing this concept can unveil exciting opportunities for fostering talent in children and communities worldwide.

1. Dennett, D. C. (1995). *Darwin's dangerous idea*. New York: Simon & Schuster.
2. Pinker, S. (2008). *The stuff of thought: Language as a window into human nature*. New York: Penguin Books.
3. Dawkins, R. (1989). *The selfish gene*. Oxford: Oxford University Press.
4. Chomsky, N. (1957). *Syntactic structures*. The Hague: Mouton & Co.
5. Dawkins, R. (1999). *The Extended Phenotype: The Long Reach of the Gene*. Oxford University Press.
6. Orgel, L. E., & Crick, F. H. (1980). Selfish DNA: the ultimate parasite. *Nature*, 284(5757), 604-607.
7. Verheijen, R. (2019). *Periodization in Football: The Theory and Methodology of Preparing Teams for the Peak Performance*. 4FourTwo Publishing.

## Sports Injuries: Pressure on the Athlete and the Medical Team - Healing Under Pressure to Come Back Stronger

**Jürgen Beckmann<sup>4</sup>**, Christian Fink<sup>1</sup>, Stefan Mair<sup>2</sup>, Elias Elhardt<sup>3</sup>

<sup>1</sup>*Praxis Gelenkpunkt, , Austria*, <sup>2</sup>*Sporttherapie Huber und Mair GmbH, , Austria*, <sup>3</sup>*Snowboard Professional, , Germany*, <sup>4</sup>*Technical University of Munich, Munich, Germany*

[Podium discussion 10: Best practice, Hall Brüssel, Juli 17, 2024, 13:30 - 14:30](#)

The management of sports injuries places significant pressure on the athlete and the medical teams, requiring them to navigate high expectations and deliver optimal care under intense scrutiny. Surgeon Fink, physiotherapist Maier, and snowboarder Smith emphasize the pivotal role of psychology in the healing process. In the first part, they underscore the importance of psychological factors in recovery. In the second part, the focus shifts to the immense pressure faced by surgeons, physiotherapists, and athletes alike, highlighting the complex interplay of expectations and resilience in sports injury rehabilitation.

Heil, J. (2022, September 23). Integrating sport performance psychology into critical incident stress management. Conference of the Society for Police and Criminal Psychology, Quebec City, Canada.

Heil, J., Owens, R., & McDaniel, T. (2023). Sport psychology applied to tactical training of law enforcement officers. In M. S. Staller, s. Koerner, & B. Zaiser (eds.). Police Conflict Management: Vol. II: Training and Education. Palgrave Macmillan.

Mitchell, Jeffrey & Everly, George. (2000). Critical incident stress debriefing: evolution, effects and outcomes. *Stress Debriefing: Theory, Practice and Challenge*. 71-90.10.1017/CBO9780511570148.006.

Stephens, D.W. (2019). Officer involved shootings: Incident executive summary. Washington, D.C.: National Policing Institute. Retrieved <https://www.policinginstitute.org/publication/officer-involved-shootings-incident-executive-summary/>

## Interdisciplinary Research Hurdles & Successes -- Bringing Research Lines, Labs, and Students together to Investigate Psychophysiological Influences on Tactical Performance

**Whitney Moore**<sup>1</sup>, Christine Habeeb<sup>1</sup>, Nicholas Murray<sup>1</sup>

<sup>1</sup>East Carolina University, Greenville, United States

Podium discussion (open) 07: Military, police and tactical populations, Hall Freiburg, Juli 17, 2024, 16:10 - 17:10

Investigation on the psychophysiological influences on rifle target shooting performance has been conducted by researchers independently from different disciplines. These independently conducted studies have shown elite shooters' self-efficacy (Saxena, 2022), heart/respiratory rates (European Olympic Committee, 2019), and attentional focus measured with eye tracking (Ihalainen et al., 2016) each uniquely relate to performance. Qualitatively, Saxena (2022) also found the importance of coaches to prepare shooters to handle the effects of anxiety on their performance. Furthermore, Achievement Goal Perspective Theory researchers have shown through experimental manipulations that participants experiencing an ego-involving climate (e.g., mistakes punished, comparison to peers and norms) have an increased stress response (self-reported and physiological) compared to participants experiencing a task-involving climate (e.g., supportive and effort/improvement-focused; Hogue et al, 2013; Hogue, 2019; 2020). To date researchers had yet to include the motivational climate, psychophysiological responses (e.g., anxiety, efficacy, heart and respiratory rate), and visual attention in a single study involving tactical populations and rifle shooting performance. In collaboration with our University's Army ROTC (an officer training program), we conducted an interdisciplinary, experimental study to examine how the ego-involving and task-involving motivational climate experiences differentially influenced cadets' psychophysiological responses (e.g., efficacy, heart/respiratory rates), attentional focus (i.e., quiet eye with eye-tracking), and shooting performance during three shooting tasks. To conduct this interdisciplinary study, we brought together the research specialties of three faculty and their research personnel, methods, and technologies. All three researchers will be present to discuss how they collaborated to develop the study design, prepare their labs for the data collection, and coordinate the data collection itself. We will discuss the benefits from this collaboration, as well as the challenges, organization, and communication necessary for such interdisciplinary research.

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Hogue, C. M. (2019). The protective impact of a mental skills training session and motivational priming on participants' psychophysiological responses to performance stress. *Psychology of Sport and Exercise*, 45, 101574.

Hogue, C. M. (2020). Achievement goal theory-based psychological skills training session buffers youth athletes' psychophysiological responses to performance stress. *Psychology of Sport and*

Exercise, 51, 101792.

Hogue, C. M., Fry, M. D., Fry, A. C., & Pressman, S. D. (2013). The influence of a motivational climate intervention on participants' salivary cortisol and psychological responses. *Journal of Sport and Exercise Psychology*, 35(1), 85-97.

Ihalainen, S., Kuitunen, S., Mononen, K., & Linnamo, V. (2016). Determinants of elite-level air rifle shooting performance. *Scandinavian journal of medicine & science in sports*, 26(3), 266-274.

Saxena, V. (2022). Analytical study on factors affecting psychology of hooters. *NeuroQuantology*, 20(16), 42-51. DOI: 10.14704/NQ.2022.20.16.NQ88005

## The Intersection of Mass Casualty and Critical Incidents with Sport and Performance Psychology

**John Heil<sup>1</sup>**, Grainne Scott<sup>2</sup>

<sup>1</sup>*Psychological Health Roanoke, Roanoke, United States* <sup>2</sup>*New Zealand Police, Wellington, New Zealand*

Podium discussion (open) 08: Sports psychology and world events (e.g. Zika, COVID-19),  
Hall Grenoble, Juli 18, 2024, 14:40 - 15:40

Mass casualty events are a problem of the times with 12 mass casualty shootings in the USA alone in 2022 and in 2023, including a bowling alley and a dance studio (US Mass Shootings, 2023). Mass casualty events exert an extraordinary impact on victims, first responders, organizations, and those whose identities intersect with the victims, creating a cascade of collective traumas (Abrams, 2022). The enduring impact of the 1972 Munich Olympics terrorist attacks has recently prompted a review by the German Federal Ministry of the Interior and Community (2023). Sports events are among the largest community gatherings and a potential target due to extensive media presence, the emotionally charged nature of events, and the inherent challenge of managing crowds. It is increasingly likely that sport psychologists will be called on to respond to the trauma of casualty in a sport setting, or identify a role for sports events in the recovery process. Mass casualty and critical incidents require prompt response and sensitivity to the setting in which they occur. This presentation is a first step in understanding how to respond to mass casualty events, drawing on the existing literature and practices in public safety and sport critical incident response (Athey & Heil, 2011; Heil, Bennett, Brolinson & Goforth, 2010; Mitchell & Everly, 2000). In addition, the role of sport and performance psychology in preparing first responders to intervene in events is discussed. The program presents a lessons learned model as a guide to understanding the challenges and conceptualizing the response to mass casualty events with specific reference to the Virginia Tech shootings in the USA (Heil, et al., 2009) and the Christchurch Mosque shootings in New Zealand. The two presenters are sport psychologists, one who has served as a police officer, with extensive experience in critical incidents and mass casualty.

Abrams, Z. (2023, October 27). Stress of mass casualty shootings causing a cascade of collective traumas. American Psychological Association. <https://www.apa.org/monitor/2022/09/news-mass-shootings-collective-traumas>

Athey, A. B. & Heil, J. (2011). Responding to critical incidents in sport: A guide for coaches, parents and administrators. *The Journal of Performance Psychology*, Issue#1, pp. 1-8.

Commission of historians to reappraise the attack at the Olympic Games in 1972 begins work. (2023, May 30). Federal Ministry of the Interior and Community. [https://www.bmi.bund.de/SharedDocs/pressemitteilungen/EN/2023/05/commission\\_begins\\_work.html](https://www.bmi.bund.de/SharedDocs/pressemitteilungen/EN/2023/05/commission_begins_work.html)

Heil, J., Johnson, L., Gilbert, D., Inge-Messerschmidt, J., Salzbach, R., Smith, M. & Strosnider, S. (2009). Psychological Intervention with the Virginia Tech Shootings: lessons learned and recommendations. *The Journal of Excellence*, 13, 97-129. <http://www.zoneofexcellence.ca/Journal/Issue13/index.html>

Heil, J., Bennett, G., Brolinson, P. G. & Goforth, M. (2010, October). Implementing lessons learned in response to the Virginia Tech Shootings: Sports Medicine Team perspectives [Workshop]. Association for Applied Sport Psychology Conference, Providence, RI. <http://www.zoneofexcellence.ca/Journal/Issue13/index.html>

Mitchell, J & Everly, G. (2000). Critical incident stress debriefing: evolution, effects and outcomes. *Stress Debriefing: Theory, Practice and Challenge*. 71-90. 10.1017/CBO9780511570148.006

US mass shootings,1982–2023. (2023, December 26). Mother Jones. <https://www.motherjones.com/politics/2012/12/mass-shootings-mother-jones-full-data/>

## Bridging Research and Practice: Systemic Implementation of Well-being Frameworks in High-Performance Sport

**Sam Giles**<sup>1</sup>, Antoinette Minniti<sup>2</sup>

<sup>1</sup>Nottingham Trent University, Nottingham, United Kingdom <sup>2</sup>High Performance Sport New Zealand, Auckland, New Zealand

[Podium discussion \(open\) 09: Elite sports and expertise, Hall New Orleans, Juli 19, 2024, 13:30 - 14:30](#)

### Abstract

Athlete well-being is vital for performance, success, and quality of life (Giles et al., 2020; Rice et al., 2016). Research on well-being in sport has advanced our knowledge, but there is a need to further understand and examine evidence-based practice and policy (Currie et al., 2021; Purcell et al., 2022; Reardon et al., 2019). Objectives. This session will examine the development and implementation of well-being policy and frameworks at a system level within High Performance Sport New Zealand (HPSNZ), while highlighting the importance of collaborative partnerships between industry and research institutions to pioneer impactful research-driven well-being interventions. The presentation will showcase our journey thus far, provide shared challenges and successes from scholarly and applied perspectives, and identify future collaborative opportunities to optimise resources. Methods. A comprehensive examination of HPSNZ's systematic formulation and implementation of well-being policies will be shared, delineating the process from conceptualization through to evaluative outcomes, exemplified by pertinent case studies and sporting examples. Employing interactive methodologies, including live polling and multimedia, alongside focused breakout discussions and a question-and-answer segment, the session aims to stimulate scholarly dialogue and engage participants in a collaborative examination of effective strategies for both advancing well-being initiatives and their evaluation in high performance sporting systems. Results. Participants will gain insights into applying culturally competent, evidence-based well-being policy, frameworks and tools within diverse high performance sport contexts. Furthermore, knowledge exchange will be promoted among stakeholders and practitioners, encouraging networking and collective innovation to address shared challenges and logistical complexities. More broadly, future cross-cultural collaborative efforts will be encouraged for the wider objective of enhancing well-being in high performance sport. Conclusions. This session will converge research and practice, charting a course for well-being in high performance sport and emphasizing collaborative innovation as a cornerstone for global athlete development initiatives.

Currie, A., Blauwet, C., Bindra, A., Budgett, R., Campriani, N., Hainline, B., ... & Gouttebauge, V. (2021). Athlete mental health: Future directions. *British Journal of Sports Medicine*, 55, 1243-1244.

Giles, S., Fletcher, D., Arnold, R., Ashfield, A., & Harrison, J. (2020). Measuring well-being in sport performers: Where are we now and how do we progress? *Sports Medicine*, 50, 1255-1270.

Purcell, R., Pilkington, V., Carberry, S., Reid, D., Gwyther, K., Hall, K., ... & Rice, S. (2022). An evidence-informed framework to promote mental wellbeing in elite sport. *Frontiers in Psychology*, 13, 1-13.

Rice, S. M., Purcell, R., De Silva, S., Mawren, D., McGorry, P. D., & Parker, A. C. (2016). The mental health of elite athletes: A narrative systematic review. *Sports Medicine*, 46, 1333-1353.

## Sport Psychology Applied to Tactical Training and Use of Force in Law Enforcement Officers (LEOs).

**John Heil<sup>1</sup>**, Robert Owens<sup>1</sup>, Grainne Scott<sup>3</sup>, Roy Bedard<sup>2</sup>

<sup>1</sup>Psychological Health Roanoke, Roanoke, United States <sup>2</sup>RRB Systems International, Sanford, United States <sup>3</sup>New Zealand Police, Wellington, New Zealand

Podium discussion (open) 06: Sports psychology and world events (e.g. Zika: COVID-19),  
Hall Freiburg, Juli 17, 2024, 14:40 - 15:40

The program presents applications of sport psychology to training and performance of law enforcement officers (LEOs) including: patrol officer role and function; use of force decision making; simulation training; and, critical incident review. The four presenting sport psychologists, two of whom have served as police officers, have nearly 100 years work in law enforcement.

The role of the patrol officer as “guardian” blends the skill sets of the tactical athlete and the psychological coach, characterized by use of force and use of rapport. Also critical to performance is the ability to shift rapidly between these roles, given the dynamic environment of policing, thus identifying a role for self-regulation skills (Heil, Owens & McDaniel, 2024).

Use of force, especially deadly force, is a significant event in the life of the LEO, the agency and the community, with far-reaching consequences. Deadly force decision making unfolds in a high stress environment. It requires critical decision making, and use of complex skills in a rapidly unfolding, dynamic situation, and thus lends itself to use of mental training (Anderson et al, 2018).

Training in use of deadly force is challenged by the relative infrequency and unpredictability of occurrence (80% of officer-involved shootings are first time events; Stephens, 2019), and thus the limited opportunity to learn from experience. Well designed scenario simulation maximizes cognitive load and psychophysiological challenge facilitating the transfer of training to the performance environment (Giessing et al, 2019).

Psychological review following deadly encounters is traditionally managed by critical incident stress debriefing (CISD) (Mitchell & Everly, 2000), which mitigates the stress associated with post-incident response. However, the performance dimension of the encounter and the opportunity to learn from experience is not integrated into this process. Sport psychology themed post-performance assessment blended with CISD consolidates lessons learned and facilitates future performance (Heil, 2022).

Andersen, J.P., Di Nota, P.M., Beston, B., Boychuk, E.C., Gustafsberg, H., Poplawski, S., & Arapaia, J. (2018). Reducing lethal force errors by modulating police physiology. *Journal of Occupational and Environmental Medicine*, 60 (10), 867-874.

Giessing, L., Frenkel, M. O., Zinner, C., Rummel, J., Nieuwenhuys, A., Kasperk, C., Brune, M., Engel, F. A., & Plessner, H. (2019). Effects of coping-related traits and psychophysiological stress responses on police recruits' shooting behavior in reality-based scenarios. *Frontiers in Psychology*, 10, 1523.

PERFORMANCE UNDER PRESSURE IN SPORTS,  
MILITARY/POLICE, PERFORMING ARTS, MEDICINE,  
BUSINESS AND DAILY LIFE

**POSTER  
PRESENTATIONS**



## P001

### Assessing the impact of psychophysiological variables on performance in recreational cyclists: a 30-day intervention study

**Carla Alfonso**<sup>1</sup>, Lluís Capdevila<sup>1</sup>

<sup>1</sup>Universitat Autònoma Barcelona, Barcelona, Spain

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** To improve performance, assessing it before and after a 30-day intervention, in three groups of cyclists that followed three different training plans guided by a combination of cognitive and physiological variables, including heart rate variability (HRV), heart rate (HR), and well-being scores (WB). WB scores included subjective self-reported sleep quality, stress, fatigue, and muscle soreness variables.

**Methods:** A psychophysiological intervention study was carried out. Thirty-four recreational road cyclists were randomized into three groups: one group trained based on HRV-only, one group trained based on a combination of HRV and WB scores, and one group trained based on HRV, WB scores and HR. For 30 days, every morning participants recorded HRV, HR and WB scores. Based on their data and assigned group, they received and followed a recommendation to train “High intensity”, “Low intensity” or “Rest”. Before and after the 30 days, all participants underwent a set of performance tests on their bike, to record maximal power (Pmax), 1min power, 5min power, 20min power, and functional threshold power (mFTP).

**Results:** Preliminary results from a MANOVA 3x2 show a significant improvement in 1min power, with a tendency in Pmax across groups. Particularly, the HRV-WB and HRV-WB-RHR groups displayed greater improvement compared to HRV-only ( $p < .05$ ). There was also the same tendency, but no significance, for 20min and mFTP efforts.

**Conclusion:** This study suggests that integrating self-reported subjective variables (WB scores) with physiological variables (HR and HRV) into training programs may enhance the development of more effective training strategies, ultimately leading to improved athlete performance and well-being. The findings also underscore the potential benefits of personalized training strategies for cyclists.

## P002

### Developing a Stress and Mental Ill/Well-Being Coach Education Intervention: Supporting Elite Football Coaches with an Evidence-Based and Contextually Informed Intervention

**Lee Baldock**<sup>1</sup>, Brendan Cropley<sup>1</sup>, Stephen Mellalieu<sup>2</sup>, Rich Neil<sup>2</sup>

<sup>1</sup>University Of South Wales, Barry, United Kingdom <sup>2</sup>Cardiff Metropolitan University, Cardiff, United Kingdom

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Theoretical/Applied Background:** The stress and mental ill/well-being experiences of elite football coaches had been recently explored (e.g., Baldock et al., 2021; 2022), with coaches reporting to ineffectively cope with many role-related demands and it leading to implications for their lives and mental ill/well-being. However, while a need to better support elite football coaches with the demanding nature of their roles was identified, stress management interventions for other populations had been previously developed and were criticised for often being theoretically sound but contextually redundant (Rumbold et al., 2018).

**Objectives:** We sought to: (a) obtain the perspectives of elite football coaches on how they may be better supported to cope with role-related demands; (b) use these findings and from previous research studies to develop an elite football coach stress and mental ill/well-being intervention; and, (c) evaluate the proposed intervention prior to implementation to ensure its theoretical, contextual, and practical suitability.

**Design:** We adopted a multipart, sequential mixed-methods research design. First, we utilised a semi-structured interview approach with elite football coaches ( $n = 16$ ) to understand how they might be better prepared for/supported to cope with, role-related demands. After using these findings to develop a stress and mental ill/well-being coach education intervention for a national governing body in football, in Part Two we adopted a Delphi approach. This involved a panel of experts ( $n = 10$ ) in stress and mental ill/well-being (e.g., sport psychologists), coach development (e.g., external coach developers), and coach education (e.g., internal coach educators) iteratively evaluating the intervention prior to implementation.

**Results and Discussion:** Elite football coaches reported that coach education programmes, clubs, national governing bodies, and coaches themselves could all do more to help coaches better cope. Following iterative evaluation by the expert panel and subsequent amendments, our proposed intervention was deemed theoretically, contextually, and practically suitable for implementation.

Baldock, L., Cropley, B., Neil, R., & Mellalieu, S. D. (2021). The stress and mental well-being of professional football coaches. *The Sport Psychologist*, 35, 108-122. <https://doi.org/10.1123/tsp.2020-0087>

Baldock, L., Cropley, B., Mellalieu, S. D., & Neil, R. (2022). A longitudinal examination of stress and MIB/MWB in elite football coaches. *The Sport Psychologist*. Advance online publication.

Rumbold, J., Fletcher, D., & Daniels, K. (2018). Using a mixed method audit to inform organisational stress management interventions in sport. *Psychology of Sport & Exercise*, 35, 27-38. <https://doi.org/10.1016/j.psychsport.2017.10.010>

## P003

### Leveraging social relations modelling and social network analysis to understand the structure and nature of interpersonal processes in groups

**Alex Benson**<sup>1</sup>, M. Blair Evans<sup>1</sup>

<sup>1</sup>Western University, London, Canada

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Social relations and social network approaches can address the challenges of studying interpersonal phenomena and the patterns of relationships within groups, yet they continue to be under-utilized in sport and exercise domains. These modelling approaches can suit the constraints of typical sport and exercise contexts, such as addressing the dynamic nature of interpersonal perceptions (Nestler et al., 2017), dissensus and dissimilarity in evaluations (Kenny et al., 2023), or the examination of comparatively 'small' group networks (Yon et al., 2021). The current paper aims to ignite scholars' interest by providing an integrative perspective on why and how these conceptual and statistical approaches can be used to generate complementary insights about interpersonal dynamics of sport and exercise groups.

**Methods:** The present paper is a narrative review, focused on methodologies for studying interpersonal relationships in sport and exercise. We draw attention to how group dynamics researchers may revisit relational constructs in small groups through the lens of either social relations modelling (SRM) or inferential social network analysis (SNA).

**Results:** As the optimal analysis tool for one's approach to study relationships in groups depends on several factors, there is a need to seek congruence between theory, strategies to gather and manage data, and analyses. We describe the core assumptions underpinning each analytical approach and discuss key issues to consider when designing studies, selecting measures, choosing an analytical approach, and best practices for reporting.

**Conclusion:** Through this presentation, we provide a roadmap for how specific conceptual considerations can guide decisions to select a suitable modelling approach. Whereas SRM offers a high-resolution lens of interpersonal perceptions (e.g., statistically differentiate perceiver, target, relationship, and group variance components), SNA is a powerful tool to account for the social structure that underpins and shapes relational dynamics.

Kenny, D. A., Goldring, M. R., & Jung, T. (2023). The extended Social Relations Model: Understanding dissimulation and dissensus in the judgment of others. *European Journal of Personality*, 37(1), 57-71.

Nestler, S., Geukes, K., Hutteman, R., & Back, M. D. (2017). Tackling longitudinal round-robin data: A social relations growth model. *Psychometrika*, 82, 1162-1181.

Yon, G. G. V., Slaughter, A., & de la Haye, K. (2021). Exponential random graph models for little networks. *Social Networks*, 64, 225-238.

## P004

### The Impact of Football Coaches' Behavior on Team Performance: A Meta-Analysis Using the Leadership Sport Scale

**Ionut Buda**<sup>1</sup>, Alexandru Boncu<sup>1</sup>, Simona Petracovschi<sup>1</sup>

<sup>1</sup>West University Of Timisoara, Timisoara, Romania

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Background:** Athletes' happiness, team chemistry, and overall performance are all profoundly affected by the quality of their leadership, particularly in football. In 1978, Chelladurai created the Leadership Sport Scale (LSS), which provides a comprehensive framework for evaluating coaching behaviors along five dimensions: authoritarian behavior, social support, positive feedback, training and teaching, and democratic behavior.

**Objective:** This meta-analysis will compile previous studies on football coaches' behavior (as defined by the LSS) and assess its effects on team performance, athlete happiness, and interpersonal relationships.

**Methods:** In order to find research that used the LSS for football teaching, a systematic search was performed across databases like PubMed, SPORTDiscus, and PsycINFO. Articles published in English between 1978 and 2023 that were peer-reviewed were eligible for inclusion. With the goal of calculating effect sizes to ascertain the strength of links between LSS dimensions and outcome variables, the study centered on experimental and correlational investigations.

**Results:** The analysis is currently underway, with an anticipated inclusion of approximately 15 studies. Expected findings are anticipated to provide valuable insights into the correlations between coaches' leadership behaviors and various team and individual athlete outcomes.

**Conclusions:** Results are still being analyzed in depth, but this study does show that adaptive leadership styles are important for football coaches. We anticipate that the results will demonstrate the LSS's usefulness as a tool for assessing and improving football coaching practices. Discussed will be the necessity for longitudinal studies to investigate the causal linkages between coaching behaviors and team outcomes, as well as the implications for coaching education programs and future research approaches.

1. Alfermann, D., Geisler, G., & Okade, Y. (2013). Goal orientation, evaluative fear, and perceived coach behavior among competitive youth swimmers in Germany and Japan. *Psychology of sport and exercise*, 14(3), 307-315.

2. Price, M. S. (2010). Relationships among peer leadership, coach leadership, and individual and team outcomes (Doctoral dissertation, University of Virginia).

3. Andrew, D. P. (2009). The impact of leadership behavior on satisfaction of college tennis players: a test of the leadership behavior congruency hypothesis of the Multidimensional Model of Leadership. *Journal of sport behavior*, 32(3).

4. Giddings, A. (2009). Coaching leadership behaviors in successful women's collegiate rowing programs. Temple University.
5. Cumming, S. P., Smith, R. E., & Smoll, F. L. (2006). Athlete-perceived coaching behaviors: Relating two measurement traditions. *Journal of Sport and Exercise Psychology*, 28(2), 205-213.
6. Amorose, A. J., & Horn, T. S. (2001). Pre-to post-season changes in the intrinsic motivation of first year college athletes: Relationships with coaching behavior and scholarship status. *Journal of Applied Sport Psychology*, 13(4), 355-373.
7. Horne, T., & Carron, A. V. (1985). Compatibility in coach-athlete relationships. *Journal of Sport and Exercise Psychology*, 7(2), 137-149.
8. Harris, H. L. (1996). Exploring the relationship between perceived coaching styles and sport-confidence among college student-athletes. University of Virginia.
9. Jambor, E. A., & Zhang, J. J. (1997). Investigating leadership, gender, and coaching level using the revised leadership for sport scale. *Journal of Sport Behavior*, 20(3), 313-322.
10. Teques, P., Silva, C., Rosado, A., Calmeiro, L., & Serpa, S. (2021). Refining the short version of the Leadership Scale for Sports: factorial validation and measurement invariance. *Psychological Reports*, 124(5), 2302-2326.
11. Fletcher, R. B., & Roberts, M. H. (2013). Longitudinal stability of the leadership scale for sports. *Measurement in Physical Education and Exercise Science*, 17(2), 89-104.

## P005

### “What is this thing called performance adaptability?”: an applied framework for developing adaptability in sport

**Liam Burnell**<sup>1,2</sup>, Chin Wei Ong<sup>1</sup>, Joanne Butt<sup>2</sup>, Martin Eubank<sup>2</sup>

<sup>1</sup>Mindflick, Hathersage, United Kingdom <sup>2</sup>Liverpool John Moores University, Liverpool, United Kingdom

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** It has become widely recognised that adaptability is a skill that, if developed, can benefit performance (Brassey et al., 2020). However, whilst many definitions of adaptability exist, no one model or theory fully encapsulates the “performance-domain” of adaptability, whereby adapting is seen as a performance enabler rather than a mechanism to survive (Bartone et al., 2022). The aim of this study was to (a) define what is meant by the term adaptability in performance domains, and (b) develop an applied framework which highlights the underpinning skills needed for individual's to adapt.

**Methods:** Participants comprised 22 international-level coaches, performers, and practitioners. Using methods previously implemented by Jones et al., (2002), 10 participants took part in a series of focus groups to generate an initial framework and definition for performance adaptability. One-to-one interviews with the remaining 12 participants were then used to socially validate these findings and generate further data. Any additional data was incorporated into the proposed framework before using an Exploratory Factor Analysis to validate the themes generated.

**Results:** Consistent with definitions of adaptability (e.g., Kaiser & Overfield, 2010), performance adaptability was defined as “a goal-directed behaviour that requires performers to (a) recognise the need to change their approach, before (b) changing their approach or actions to help them obtain a performance goal more effectively.” Furthermore, the focus groups and interviews elicited 12 skills associated with performance adaptability. These skills were grouped into four main themes: self-awareness, contextual sensitivity, emotional regulation, and interpersonal skills. An Exploratory Factor Analysis (n = 476) supported the presence of these four themes, whereby the skills also grouped around a single factor of performance adaptability (a = 0.77).

**Conclusion:** Findings highlight the importance of developing performance adaptability across performance domains, with four underpinning skills offering practitioners a pathway to intervention when enhancing performance adaptability.

Bartone, P. T., Roland, R. R., Bartone, J. V., Krueger, G. P., Sciarretta, A. A., & Johnsen, B. H. (2019). Human adaptability for deep space missions: An exploratory study. *Journal of Human Performance in Extreme Environments*, 15, 5. doi: 10.7771/2327-2937.1124

Brassey, J., Witteloostuijn, A. V., Huszka, C., Silberzahn, T., & Dam, N. V. (2020). Emotional flexibility and general self-efficacy: A pilot training intervention study with knowledge workers. *PloS One*, 15, e0237821. doi: 10.1371/journal.pone.0237821

Jones, G., Hanton, S., & Connaughton, D. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of applied sport psychology*, 14(3), 205-218.

Kaiser, R. B., & Overfield, D. V. (2010). Assessing flexible leadership as a mastery of opposites. *Consulting Psychology Journal: Practice and Research*, 62, 105-118. doi: 10.1037/a0019987

## P006

### Monitoring the effort and recovery perception as an indicator of mental load in women professional football players

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<sup>2</sup>Laboratory of Sport Psychology, Department of Basic Psychology, Universitat Autònoma de

Barcelona, Bellaterra (Barcelona), Spain <sup>3</sup>Barça Innovation Hub of Futbol Club Barcelona,

Barcelona, Spain <sup>4</sup>Medical Services of the Futbol Club Barcelona (FIFA Medical Center of

Excellence), Barcelona, Spain

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**INTRODUCTION:** The study is based on the models of recovery-stress (Kellman & Kallus, 2001) and overtraining-recovery (Kenntä & Hassmén, 2002), and on the concept of Mental load (Fuster et al., 2021), applied to team sports training.

**OBJECTIVE:** To monitor the daily perceived effort and recovery behaviours as an indicator of mental load during five seasons, comparing women with men football players in a professional club. Mental load differences according to the role/position of women football players is also compared.

**METHODS:** Participants came from the professional football sections of Futbol Club Barcelona: women Football-A (29women), men Football-A (20men). The age ranged between 17 and 35 years. An own mHealth App was used for recording effort/recovery scales (1-10) during the daily trainings: RPE, TQR, fatigue, sleep quality, muscular pain and stress/mood. The external load (distance/time) was also recorded with GPS. A total of 19734 individual recordings were made during five seasons.

**RESULTS:** For the average of daily football trainings, women perceived a similar level of effort as men (5 points), less physical demand (5.6 vs. 6.8;  $p < .001$ ), and worse recovery behaviours (5.1 vs. 7.8;  $p < .001$ ). The external load was the same for forwards, midfielders and defenders, but lower for goalkeepers ( $p < .001$ ). Midfielders and defenders have a higher mental load than forwards and goalkeepers (RPE;  $p > .001$ ).

**CONCLUSIONS:** It is useful to assess the mental load (CM) throughout the season: there are individual differences between players, between roles and between sexes. In women's football, CM monitoring provides complementary information to the assessment of external load, when it is also included as a training routine. RPE and recovery scales allow CM to be monitored in team sports in an ecological and momentary way. Monitoring CM could allow training to be dosed to prevent injuries, providing information on the appropriate recovery behavior protocol.

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Kellman, M., & Kallus, K. W. (2001). Recovery-Stress Questionnaire for Athletes; User manual. Champaign, IL: Human Kinetics.

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## P007

### The Correlation Between Attention And Boxing Performance: A Literature Review

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Earlier studies have highlighted that boxers, besides physical training and technical skills, must consistently attend to cues from their opponent's body movements and posture during matches. These cues dictate the most appropriate response strategy, demanding continual attention (Kärlander, 2010; Abernethy, Gill, Parks, & Packer, 2001; Ericsson & Lehmann, 1996). The Cognitive Function Test (CFT) and Psychological Skills Training (PST) are assessment tools aimed at evaluating cognitive abilities such as attention. This literature review investigates whether attention tests can enhance boxer performance and deepen our understanding of boxing-related cognition.

**Methods:** Six articles, involving 90 participants aged 18-45 with 1-15 years of competitive experience, were selected from SCOPUS and PUBMED databases based on specific criteria.

**Results:** PST primarily focusing on performance outcomes, while CFT primarily targets cognitive functions. The outcomes of both are correlated with boxing performance. Research shows that both PST and CFT can enhance boxing performance. However, a limited field of vision may cause anxiety and decreased attention, leading to poorer performance. Moreover, in visual-spatial cognitive tasks used as interventions, expert boxers exhibited longer reaction times compared to novices. This is because expert boxers' responses closely mirror real scenarios in the ring, involving defense followed by counterattack, while novices tend to react defensively only.

**Conclusion:** Previous research has shown that experienced boxers often respond to stimuli with head movements during cognitive tests (Pfister et al., 2023). Future studies could utilize dynamic devices such as virtual reality to design courses that combine dynamic and static elements. This approach could not only enhance cognitive function and dynamic performance simultaneously but also explore the correlation between body movements and accuracy in stimulus reception.

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2.Ottoboni, G., Russo, G., & Tessari, A. (2014). What boxing-related stimuli reveal about response behaviour. *Journal of Sports Sciences*, 33(10), 1019-1027. <https://doi.org/10.1080/02640414.2014.977939>

3.Halperin, I., Chapman, D. W., Martin, D. T., & Abbiss, C. R. (2016). The effects of attentional focus instructions on punching velocity and impact forces among trained combat athletes. *Journal of*

Sports Sciences, 35(5), 500–507. <https://doi.org/10.1080/02640414.2016.1175651>

4.Cid-Calfucura, I., Herrera-Valenzuela, T., Franchini, E., Falcó, C., Alvial-Moscoso, J., Pardo-Tamayo, C., Zapata-Huenullán, C., Ojeda-Aravena, A., & Valdés-Badilla, P. (2023). Effects of strength training on Physical fitness of Olympic Combat Sports Athletes: A Systematic review. *International Journal of Environmental Research and Public Health*, 20(4), 3516. <https://doi.org/10.3390/ijerph20043516>

5.Andreato, L. V., Santos, M. G. D., & Andrade, A. (2022). What do we know about the effects of mental training applied to combat sports? A systematic review. *Psychology of Sport and Exercise*, 63, 102267. <https://doi.org/10.1016/j.psychsport.2022.102267>

## P008

### Cross-Sectional Impact of Physical Activity and Sedentary Behavior on Executive Function in Older Adults

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Recent studies have tentatively established a connection between physical activity (PA) and executive function (EF), highlighting the positive impact of PA on EF. However, the strength of this association appears to be subject to moderators, prompting investigations into the potential influences of these moderators. While prior research for older adults has primarily focused on PA as a physical indicator, it remains impractical and limited. Current guidelines suggest a robust association between sedentary behavior (SB) and EF. However, only a few studies focused on PA and SB as moderators to explore the effect on EF. Therefore, this cross-sectional study aimed to explore the relationship between the combined effects of PA and SB on EF in older adults. A total of 116 healthy older adults were recruited and categorized into four groups: high PA and high SB (HPHS), low PA and high SB (LPHS), low PA and low SB (LPLB), and high PA and low SB (HPLS). EF was assessed using tasks such as the Tower of London (TOL), which is associated with the planning aspect of EF. The results indicated that participants in HPLS exhibited fewer total move scores and shorter problem-solving times on TOL than those in the LPHS group. Additionally, participants in LPLS showed fewer total move scores than those in LPHS, and participants in HPHS displayed shorter total problem-solving times than those in LPHS. In conclusion, this study suggests that PA and SB play crucial roles as moderators influencing EF in older adults. It emphasizes the need to consider these factors when examining the relationship between exercise and EF.



## P010

### The impact of wind and internal attentional focus in shooting performance of skilled archers

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

In archery, the influence of wind on archers' performance in situ remains under-explored (1). According to constrained action hypothesis, skill/internal, rather than environment/external, attentional focus can interfere player's movement automaticity and thus deteriorate their performance outcomes (2-4). However, evidence in highly skilled players is limited. Therefore, we recruited 4 skilled male archers (participant A, B, C, and D; 18-20 years, 7-8 years of archery experience) to participate in a simulated competition spanning 10 or 12 sessions within 3 months. Each session involved shooting 12 ends of 6 arrows, resulting in 864 or 720 arrows shot per archer. Immediately after each shot, archers were asked to evaluate the quality of their shooting movement as index of internal attentional focus using a 10-point Likert scale. The wind speed and shooting performance were recorded. The average score of the 4 archers were 9.22, 9.25, 9.37, and 9.29, respectively, with participant C achieving higher score than A. Interestingly, their self-evaluations of shooting performance were 8.48, 6.34, 6.80, and 8.01, respectively, with all pairwise comparisons being significant. Moreover, all archers exhibited positive correlations between their self-evaluations and shooting scores (correlation coefficients of 0.36, 0.23, 0.33 and 0.39 for the 4 archers, respectively), with participant B showing weaker correlation than others. While this sensitivity of internal attention towards one's own movement execution quality was lower, the performance score was not necessarily poorer. Furthermore, all archers demonstrated a tendency of poorer performance as wind speed increased (correlation coefficients of -0.71, -0.65, -0.91 and -0.56 for the 4 archers, respectively, with  $p < .05$  except for participant D), and this was associated with longer and shorter aiming duration for participant A and C, respectively (5-8). To summarize, these findings showed the negative impact of wind and/or internal attentional focus in archers.

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2. Wulf, G., & Lewthwaite, R. (2016). Optimizing performance through intrinsic motivation and attention for learning: The OPTIMAL theory of motor learning. Psychonomic bulletin & review, 23, 1382-1414.

3. Castaneda, B., & Gray, R. (2007). Effects of focus of attention on baseball batting performance in players of differing skill levels. Journal of Sport and Exercise Psychology, 29(1), 60-77.

4. Gray, R. (2004). Attending to the execution of a complex sensorimotor skill: Expertise differences, choking and slumps. Journal of Experimental Psychology: Applied, 10, 42-54.

5. Callaway, A. J., Wiedlack, J., & Heller, M. (2017). Identification of temporal factors related to shot

performance for indoor recurve archery. Journal of Sports Science, 35(12), 1142-1147. <https://doi.org/10.1080/02640414.2016.1211730>

6. Sarro, K. J., Viana, T. D. C., & De Barros, R. M. L. (2020). Relationship between bow stability and postural control in recurve archery. European Journal of Sport Science, 1-13. <https://doi.org/10.1080/17461391.2020.1754471>

7. Taha, Z., Mat-Jizat, J. A., Omar, S. F. S., & Suwarganda, E. (2016). Correlation between archer's hands movement while shooting and its score. Procedia Engineering, 147, 145-150. <https://doi.org/10.1016/j.proeng.2016.06.204>

8. Takai, H., Kubo, Y., & Araki, M. (2012). Characteristics of shooting time of the world's top level male archery athletes. NSSU Journal of Sport Sciences, 1(1990), 8-12.

## P011

### Exploring the Potentials of Co-creation for Coach Learning: An Action Design Research Study.

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Coaches play a crucial role in shaping children's sporting experiences, making it problematic that coaches working with individuals with disabilities often have lower levels of resources and training. Despite the increase in research on coach education, its impact for coach learning remains low. Some scholars attribute this to limitations of the prevailing formal model of coach education, which fails to address the complexities of the specific context, thereby posing challenges for coaches in implementing new approaches. Consequently, they advocate for informal coach educational activities, prompting learning through exploration of various strategies for coping with encountered challenges in one's practice. Using Action Design Research (ADR), the project aimed to explore the potentials of combining formal and informal approaches for coach learning. This was done through co-creation of coaching materials over one and a half years within Happy League, a Danish handball community consisting of 80 clubs with approximately 1500 players with different disabilities and 400 coaches with heterogeneous coaching backgrounds. A ten-week developmental phase, comprising weekly design meetings with the founders of Happy League, was followed by two workshops that introduced the materials to around 100 Happy League coaches. Subsequently, all 400 Happy League coaches were provided with the materials, and we sought to evaluate their experiences with implementation through online opinion polls, written reflections, and a national workshop. This evaluation informed the creation of the final materials, including a booklet featuring playful drills, on-court artifacts, and five instructional videos. A reflective thematic analysis was employed based on data from coaches' written reflections and field notes from workshops and design meetings. Our findings demonstrate the workshops to be pivotal in facilitating coaches learning of material usage, while the collaborative nature of ADR ensured that the designed materials were tailored to the specific context and readily implementable within the coaches' practice.

Cushion, C. (2013). Applying Game Centered Approaches in coaching: a critical analysis of the 'dilemmas of practice' impacting change, *Sports Coaching. Review*, 2(1), 61-76, DOI: 10.1080/21640629.2013.861312.

Nelson, L., Cushion, C., & Potrac, P. (2006). Formal, Nonformal and Informal Coach Learning: A Holistic Conceptualisation. *International Journal of Sports Science & Coaching*, 1, 247-259. <https://doi.org/10.1260/174795406778604627>.

Sein, M., Henfridsson, O., Purao, S., & Rossi, M. (2011). Action Design Research. *MIS Quarterly* Vol. 35 No. 1 pp. 37-56/March.

Tanggard, L., & Brinkmann, S. (2015). *Kvalitative metoder: En grundbog* (2nd ed.). Hans Reitzels Forlag.

Townsend, R., Huntley, T., Cushion, C., & Culver, D. (2021) Infusing disability into coach education and development: a critical review and agenda for change, *Physical Education and Sport Pedagogy*, 27(3), 247-260, DOI: 10.1080/17408989.2021.1873932.

## P012

### An Integrative Literature Synthesis and Proposed Model Depicting Supervision in Sport Psychology Research

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Supervision is an essential component of training for novice sport psychology practitioners and continued supervision is an important practice for professionals. Despite supervision being recognized as a distinct professional competency (Falender & Shafranske, 2007) and playing a critical role in practitioners' development, supervision in sport psychology is not a well-researched area. The purpose of this study was to critically examine the empirical peer-reviewed, published research on supervision in sport psychology to identify gaps in the literature, develop a model of the current state of supervision, and facilitate future research on the topic. In order to generate new knowledge and perspectives, the qualitative, quantitative, and mixed-methods empirical data was reviewed, critiqued, and synthesized using an integrative literature synthesis methodology (Torraco, 2005). We hypothesized that supervision research in sport psychology has been limited, sporadic, and has remained descriptive rather than inferential. Upon completion of a comprehensive literature search, 39 articles (24 qualitative, 11 quantitative, and 4 mixed-methods) were included in the review. The analysis of the 327 data-units (n) resulted in 12 first-order themes including: purpose of supervision (n = 117), prevalence of utilization of supervision (n = 47), supervisee-supervisor relationships (n = 32), characteristics of supervision (n = 31), and complex issues requiring supervision (n = 31). The number of data-units varied across articles and themes (articles: range = 1-43, M = 8.38; themes: range = 4-117, M = 26.83). While our findings confirm that supervision is under-researched and descriptive, a broader range of supervision topics were discovered than originally anticipated. Our comprehensive model of the current state of supervision in sport psychology will connect various constructs in order to provide future directions for inferential and qualitative research.

Falender, C. A., & Shafranske, E. P. (2007). Competence in competency-based supervision practice: Construct and Application. *Professional Psychology: Research and Practice*, 38(3), 232-240.

Torraco, R. J. (2005). Writing integrative literature review: Guidelines and examples. *Human Resource Development Review*, 4(3), 356-367

## P013

### Mental Performance Consultants as Social Learning Leaders for Communities of Practice

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Short Introduction:** Communities of Practice (CoPs) have been used in sport leadership, coach development, and applied sport psychology to support knowledge creation, mobilization, and change (e.g., Culver et al., 2020; Seguin et al., 2022). CoPs are a tool for members to connect through organic but structured processes to learn, grow, and advance their practices. This poster positions Mental Performance Consultants (MPCs) as uniquely positioned to act as Social Learning Leaders (SLLs) for CoPs. **Setting/intervention:** A 4-month CoP, facilitated by two MPCs, was initiated in partnership with the Coaching Association of Canada (CAC) for fifteen high performance coaches and sport personnel to ensure safe sport concepts were well understood and applied in their practice.

**Theoretical background:** Wenger's (1998) social learning theory (SLT) underlies the concept of CoPs. SLT assumes we humans are fundamentally social beings with learning at the core of our existence, and that as we learn, we become. Wenger (1998) proposed we consider revising our approach to education, to more closely respect these assumptions. In part, this means linking learning opportunities with the practices where the learning will be applied. This puts learners' needs at the centre of the 'curriculum'. Social learning leaders (SLLs) are necessary to guide this process.

**Applied Implications:** With a thorough understanding of SLT, MPCs possess the skills and competencies of a SLL, making them well-suited to the role. We present numerous considerations for MPCs interested in acting as SLLs as they have a role to play in supporting CoP participants' development of applicable strategies to positively impact safe sport.

**Discussion:** The use of social learning has a solid place in Canadian coach development, and the training and development of future SLLs for the sport system has been initiated in Canada and elsewhere. MPCs can help fill the gap in qualified SLLs in sport.

Culver, D.M., Kraft, E. & Duarte, T. (2020). Social learning in communities and networks as a strategy for on-going coach development. In B. Callary, & B. Gearity, (Eds.) *Coach Education and Development in Sport: Instructional Strategies* (pp. 115-128). London: Routledge. <https://www.routledge.com/Coach-Education-and-Development-in-Sport-Instructional-Strategies/Callary-Gearity/p/book/9780367367343>

Seguin, C. M., Culver, D. M., & Kraft, E. (2023). Knowledge translation and the untapped resource: Exploring the value of a community of practice for mental performance consultants. *Professional Psychology: Research and Practice*, 54(5), 342-351. <https://doi.org/10.1037/pro0000514>

Wenger, E. (1998). *Communities of practice: Learning meaning and identity*. New York, NY: Cambridge.

## P014

### Regulatory Focus in Elite Handball: Players Profiles and Penalty-Taking

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** This study examined elite handball players' penalty shooting choices based on their chronic regulatory focus profiles in two distinct (low vs high) perceived pressure penalty-taking scenarios. It was hypothesized that players profiled as promotion-focused would prefer riskier options, whereas those profiled as prevention-focused would prefer safer options (Debanne et al., 2014). Furthermore, participants' motivational profiles related to their perceived playing styles (offensive vs defensive) were explored. It was hypothesized that "offensive" players would possess rather promotion-focus profiles, whereas "defensive" players would possess rather prevention-focus profiles (Plessner et al., 2009).

**Methods:** Elite handball players completed an online survey covering demographics, handball playing and shooting styles, and penalty ball placing options (safer vs riskier). Players were asked to provide ball placing options for two distinct (high vs low) pressure-related penalty-taking scenarios and each time rate its perceived pressure, perceived task difficulty, and related emotional states (PANAS; Thompson, 2007). Lastly, participants completed the Regulatory Focus Questionnaire (Semin et al., 2005).

**Results:** Significant differences emerged in penalty-taking ball-placing between high- and low-pressure situations amongst promotion players; they made riskier choices under high pressure. No such differences were observed amongst prevention players. Furthermore, promotion profiles were more common amongst players who considered themselves rather "offensive players", whereas the opposite was not found; prevention players also considered themselves as "offensive players".

**Conclusion:** Knowing one's self-regulatory focus profile and understanding associated regulatory strategies may help players and coaches to better prepare how to best perform when under pressure in different handball situations. Coaching players to develop self-regulatory focus strategies that fit to given situations may result in better performances; however, this needs experimental testing. One must recognize the specificity of different sporting disciplines; in this study, players perceived themselves as "offensive" regardless of whether they played in "defending" or "attacking" positions.

Debanne, T., Angel, V., & Fontayne, P. (2014).

Plessner, H., Unkelbach, C., Memmert, D., Baltes, A., & Kolb, A. (2009).

Thompson, E. R. (2007).

Semin, S. R., Higgins, T., De Montes, L. G., & Estourget, Y. (2005).

## P015

### Youth Sport Environment Questionnaire: Polish Adaptation and Invariance Validation of a Short 10-Item Scale Across Gender and Age

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

The aim of this study was to adapt the original Youth Sport Environment Questionnaire (YSEQ; Eys et al., 2009) into Polish and analyze its psychometric properties. A team of experts in linguistics (two translators) and sport science (three academics) engaged in translation, back-translation and content validation. Participants were youth athletes (N=505), of which 310 boys and 195 girls, aged between 10 and 20 years (M=14.7, SD=1.9), representing three team sports: soccer, basketball and volleyball. Exploratory factor analysis (EFA) of the original scale confirmed the two-factor structure of social and task cohesion. Subsequent multigroup confirmatory factor analysis (CFA) showed a less than satisfactory fit of the data (measurement model: CFI=.910, TLI=.896, SRMR=.096), invariant for gender at the scalar level (CFI=.898, TLI=.898, SRMR=.068) but variant for age at the configural level (CFI=.896, TLI=.940, SRMR=.067). Therefore, modification indices were examined to flag areas of strain, resulting in the elimination of six out of 16 items. The shortened, 10-item scale with two factors (five items per factor), demonstrated good overall fit: CFI=.960, TLI=.945, SRMR=.045. Also, the scale was found to be invariant for men and women (scalar model: CFI=.950, TLI=.946, SRMR=.058) as well as across ages (scalar model: CFI=.947, TLI=.946, SRMR=.064) in all three age groups (i.e., 10-13, 14-16 and over 17). The scale showed good internal consistency reliability for both factors using McDonald's omega: social ( $\omega$ =.873) and task ( $\omega$ =.888). Convergent validity was supported by analysis of average variance extracted (AVE  $\geq$  .50). Similarly, discriminant validity was confirmed based on composite reliability (CR  $\geq$  .70). Overall, the study revealed that the short Polish 10-item version of the YSEQ produces valid and reliable scores for Polish-speaking youth athletes across genders and age groups. It can be used confidently by researchers and practitioners interested in assessing team cohesion within youth populations.

Eys, M. et al. (2009). Development of a Cohesion Questionnaire for Youth: The Youth Sport Environment Questionnaire. *Journal of Sport and Exercise Psychology*, 31, 390-408.

## P016

### Mediators and Age as a Moderator of Satisfaction with Performance: An Examination of Polish Youth in Team Sports

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Group dynamics literature has consistently shown that motivational climate is associated with perceptions of team cohesion and satisfaction. Relatedly, sport research has identified leadership as a fundamental contributing factor to team and individual performance. Whereas studies have predominantly focused on Western adult athletic populations, there is a scarcity of investigations that center on youth team sports in other contexts, including Central and Eastern Europe. We aim to fill this gap by using a Polish youth sample to examine the associations between motivational climate (i.e., coach- and peer-created), leadership (i.e., of the coach and team captain) and intrinsic motivation on perceived team cohesion (i.e., social- and task-related) and player satisfaction with sports performance. The sample included 505 youth athletes, of which 310 boys and 195 girls, aged between 10 and 20 years ( $M=14.7$ ,  $SD=1.9$ ) playing three team sports: football, basketball and volleyball. In line with goal achievement theory (Nicholls, 1984), we found that the predictive role of coach-created empowerment climates on player satisfaction and perceptions of team cohesion was fully mediated by individual intrinsic motivation, perceived peer motivational climate and leadership. The hypothesized model was tested using structural equation modeling and produced acceptable results ( $\chi^2=74.630$ ;  $RMSEA=0.078$ ;  $CFI=0.901$ ). Moreover, the effect of coach leadership and social cohesion on players' satisfaction with their own performance was strongest ( $p>.05$ ) in the youngest group. Conversely, satisfaction with team performance did not differ significantly between groups. In the oldest athlete group, the association between captaincy leadership and performance satisfaction was positive and statistically significant ( $p>.01$ ), whereas in the youngest group it was negative and insignificant. The study seeks to provide cultural insights on group dynamics of youth teams with implications for applied practice such as advancing strategies of coach-driven empowerment climates, accounting for intrinsic, peer motivation and leadership factors as mediators of performance satisfaction.

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, 91(3), 328–346. <https://doi.org/10.1037/0033-295X.91.3.328>

## P017

### Exploring women's perception of urban environments and physical activity levels through walking interviews and eye-tracking

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Much research has sought to identify barriers to physical activity (1,2) particularly at the intrapersonal level. In this experimental study we investigate how women perceive their urban environments in relation to their physical activity (3,4,5). Specifically, we sought to understand how visual attention and environmental features impact women's engagement in physical activity within urban settings.

**Methods:** Participants were five adult women recruited from an urban neighbourhood in London and engaged in 20-30 min pre-defined walking interviews while wearing a mobile Tobii Pro 3 eye-tracking device. The walking interviews allowed for real-time exploration of participants' perceptions and experiences within their urban environments. Qualitative thematic analysis of interviews and visual data were conducted.

**Results:** Preliminary thematic analysis revealed specific environmental features related to physical activity opportunities, namely safety, aesthetics, and accessibility. Both familiarity and connectedness within the neighbourhood modulated how the environmental features were perceived and how the neighbourhood was used for physical activity. However, some features were barriers to physical activity despite familiarity.

**Conclusion:** Our findings suggest that women's lived experiences of their urban environments significantly influence their perceptions and engagement with their environment and influence their physical activity (6). Designing urban spaces with features that promote safety, aesthetics and accessibility may encourage more active lifestyles among women. Furthermore, the integration of walking interviews with eye-tracking technology offers a novel approach to understanding the complex interplay between environmental perceptions and physical activity behaviour within urban contexts.

1. Koshedo SA, et al. (2015). Understanding the complex interplay of barriers to physical activity amongst black and minority ethnic groups in the United Kingdom: a qualitative synthesis using meta-ethnography. *BMC Public Health*. <https://doi.org/10.1186/s12889-015-1893-0>

2. Ige-Elegbede J, et al. (2019). Barriers and facilitators of physical activity among adults and older adults from Black and Minority Ethnic groups in the UK: A systematic review of qualitative studies. <https://doi.org/10.1016/j.pmedr.2019.100952>

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## P018

### Arousal-Congruent Reappraisal in the Performance Context: Get Excited or Stay Calm?

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

The reappraisal process involves a cognitive adjustment to the personal significance of one's current circumstances, albeit without changing the person-environment conditions. Reappraisal use can facilitate an adaptive emotional response to aid performance. Brooks (2014) identified that congruent arousal reappraisal proved to be effective in facilitating an opportunity mindset. Brooks (2014) contested prior research on arousal-incongruent emotions reappraisal use, such as an athlete trying to remain calm during an anxious or excited state. Brooks' (2014) findings involved "deliberately misrepresenting" anxious arousal as "excitement" rather than "calm" which led to increased feelings of excitement and improved math performance. Moore et al. (2015) found similar results when a reappraisal intervention resulted in perceiving one's arousal as more facilitative compared to the control group. This resulted in the experimental group performing better on a golf performance task. While Moore et al. (2015) utilized the physical performance setting, examining arousal-incongruent versus arousal-congruent was not included in their research.

We recruited 102 club and intramural level athletes at a university in the United States. Following consent, demographics, and a trait anxiety measure (SAS-2), participants familiarized themselves with the Dynavision board. Participants received pressurizing instructions then recorded a baseline reaction time and state anxiety measure. Using a between-subjects, pretest-posttest design, participants then received either arousal reappraisal congruent psychoeducation (excited), incongruent psychoeducation (calm), or control instructions before a posttest measure of state anxiety and reaction time.

An analysis of covariance (ANCOVA) indicated no significant difference between arousal-incongruent versus arousal-congruent reappraisal use in improving reaction time. In comparison to the control group, there was a statistically significant decrease in reaction time for both experimental groups. Our findings support reappraisal use for decreasing reaction time in a motor skill task. Contrary to Brooks' (2014) research, arousal-congruency is not significant to the effectiveness of the reappraisal use to aid reaction time.

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**P019**

**The mediating role of mental fatigue in the relationship between recovery and performance satisfaction among high level ice hockey players.**

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Recovery is pivotal for professional athletes to maintain a high levels of performance. During a regular season, elite athletes have an intensiveschedule including training and competitions. For example, in the best ice hockey league in France, players must participate in approximately 80 games and up to 200 trainings sessions. In this specific context, athletes can experience both cognitive and emotional fatigue (Balk et al., 2020), which can be combined and referred to as the mental dimension. This fatigue can have a negative impact on performance (Van Cutsem et al., 2017 ; Diaz-Garcia et al., 2021). Thus, the prevention and management of mental fatigue is particularly important. Various strategies are commonly used by athletes, among which psychological detachment (Balk, de Jonge et al., 2019). and optimal sleep, which is a fundamental recovery strategy (Balk, de Jonge, et al., 2019 ; Dickinson & Hanrahan, 2009

The objective of this study was to examine the relationship between sleep, mental detachment, and performance satisfaction in high level ice hockey players. In addition, this study investigated the mediating effect of mental fatigue on these relationships.

During seven days, thirty-eight French ice hockey players completed daily questionnaires on their sleep quality, mental fatigue, psychological detachment, and performance satisfaction. Multilevel Structural Equation Modeling revealed that psychological detachment was significantly and negatively related to performance satisfaction (b= -.200, p=.002). Results also revealed a significant moderating effect on the relationship between sleep quality and performance satisfaction (total effect: b=-.238, p=.001; indirect effect: b=.085, p=.038).

These results highlight the complex dynamics of recovery and performance satisfaction among professional athletes by demonstrating the mediating effect of mental fatigue. These findings have practical implications for athlete training and recovery strategies and emphasize the importance of managing mental fatigue through adequate sleep and psychological detachment.

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## P020

### Embrace the CHAOS: The co-creation and implementation of evidence-informed representative training designs in elite water polo to optimize competition preparation

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Competitions can present unique physical, cognitive, and emotional challenges. Using a mixed-methods approach, this project first strove to investigate perceived demands of water polo practices and matches, as well as perspectives on barriers to optimal competition preparedness. Combining these findings within a framework of representative design (Pinder et al., 2011), we then aimed to co-create CHAOS (Constraints-led, Holistic Approach to Overcoming Stress) training and thereby enhance readiness for competition.

**Methods:** This two-phase project was conducted collaboratively with members of the Canadian Water Polo National Team program. Twenty-six female water polo players, seven staff members, and two sport scientists participated. In the first phase, athletes' self-reported ratings of mental and physical demand, exertion, and fatigue were collected after practices during two weeks of regular training and after matches at four international competitions. Focus groups were also held with athletes and staff separately to gain insight into what the team perceived as obstacles to achieving optimal competition performance. Informed by phase one results, phase two included a brainstorming session with staff and researchers, as well as the manipulation of activities in the pool.

**Results:** Linear mixed models confirmed that competitive matches against high-caliber opponents (i.e., top 8 world ranking) evoked greater ratings of exertion and demand than practices ( $p < 0.001$ ). Focus groups revealed both short-term and long-term priorities to enhance the team's preparation, including specific opportunities within the daily training environment for increased representativeness. In the second phase, the brainstorming and exploration in the pool resulted in constraints-led strategies to maintain functionality of perception-action relationships, induce pressure, and tailor sport-specific physical and cognitive demand.

**Conclusion:** Using a collaborative, multi-dimensional approach to increasing the representativeness of regular training, this project demonstrated how sport science can be embedded in practice to co-create performance-enhancing strategies that are both empirically and theoretically supported.

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## P021

### Match play decision making and fatigue: A case study in women's water polo at the 2022 FINA World Championships

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Match play induces fatigue (Russell et al., 2020), and while negative effects of fatigue on match-play decision making have been anecdotally described by coaches (Morgan et al., 2020), this phenomenon has yet to be quantified at competition. This study applied a novel approach based on survival analyses to evaluate offensive match-play decision making over time during water polo matches.

**Methods:** Fourteen elite Canadian female water polo players rated their mental and physical fatigue before and after six matches. Two experts judged offensive actions of both teams as a good or poor decision. A linear mixed model examined the immediate and accumulated effects of tournament match play on perceived fatigue. Decision making was analyzed within matches and within the tournament (Canada only). Recurrent events analyses assessed the risk of a poor decision throughout a match and compared risk in later matches to the first match. In parallel, Poisson regression models compared the number of poor decisions between quarters and between matches.

**Results:** Perceived fatigue was greater post-match compared to pre-match ( $p < 0.05$ ), and fatigue was higher for the last two matches compared to the second match ( $p < 0.05$ ). There were game-specific patterns of risk: the risk of a poor decision did not consistently increase throughout matches, nor throughout the tournament. Additionally, the number of poor decisions did not differ between later quarters and the first, nor between subsequent games and the first.

**Conclusions:** Though match play induced fatigue, poor decisions were no more frequent at the end compared to the start of a match or tournament, and risk did not categorically increase over time. This case study highlights the complexity of fatigue and decision making – especially outside of the laboratory. Their relationship is far from straightforward, and many other contextual factors are important to consider.

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**P023**

**A scoping review of machine learning algorithms applied to lifestyle data: a physical activity and health approach**

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

At present, lifestyle significantly influences overall health. The study of the different behaviors which integrate a healthy lifestyle can generate extensive data from diverse sources. While advances in artificial intelligence tools, particularly machine learning (ML), contribute significantly to the analysis of this data, a review of their application is needed. This scoping review aims to identify and characterize machine learning algorithms used in data analysis of healthy lifestyle. Following the PRISMA extension for Scoping reviews (PRISMA-ScR) recommendations, the search was conducted in three health databases, PubMed, PsychINFO, and Web of Science. A total of thirty-six studies met the inclusion criteria and were reviewed.

The topic of this scoping review experienced an increase in scientific publication number in 2019, illustrating the growing interest in the investigation of lifestyle and health outcomes through ML algorithms. Most papers integrated different lifestyle components being physical activity the most studied. The combination of physical activity with diet, sleep, and stress emerged as a pivotal component for studying their influence on health. Questionnaires and sensors were the data acquisition methods most employed resulting in different data structure. Tree-based algorithms, support vector machines, and deep learning were the models' family more used with a particular choose of random forest. Notably, four studies incorporated SHAP values to interpretate the solution. Our findings highlight the acquisition of multimodal data for a more descriptive information of healthy behaviors for avoiding possible biases. Furthermore, this review provides the current state of use of machine learning process to lifestyle data, with a special emphasis on physical activity behaviour, incorporating a complete decomposition of all stages involved.

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## P024

### Prediction of athleticism and sports characteristics throughout machine learning applied to heart rate variability

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Heart rate variability (HRV) has been considered as an objective and noninvasive health and fitness indicator. Higher HRV has been associated with a flexible and adaptative response to the environmental demands and improved fitness. Athletes typically exhibit better cardiac autonomic function, characterized by greater variability, compared to non-athletes. The growing of machine learning algorithms now enables the analysis of HRV for the early identification of risk factors. Therefore, the aim of this study was to explore the possibility of identifying athletes with an athleticism index and other sports characteristics based on a simple HRV 5min-test at rest using machine learning algorithms.

The dataset contains 1350 recordings of HRV 5min-tests performed under controlled conditions in our Lab to 331 voluntary participants (141 athletes and 190 non-athletes). First, the dataset was divided into train and test (80% and 20% respectively) considering the number of unique observations. In addition, k-fold cross-validation was applied to the training set to tune the hyperparameters for a random forest (RF) algorithm. The RF model achieved an accuracy of 0.81, and an area under the curve ROC of 0.89. The top five HRV predictor parameters were mRR, HFnu, pNN50, VLFnu, and HF.

The model makes it possible to predict the athleticism index (in %) of a person and other sports characteristics like the type of sport practiced or the level of fatigue or effort, from a simple and non-invasive HRV test at rest. This approach can be generalized to diverse populations with hypothesized differences in HRV. For example, within the same sample of athletes it can serve as an informative tool for assessing the state of readiness as an indicator of fatigue. In addition, it can be a useful tool to help diagnose fibromyalgia or chronic fatigue.

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## P025

### Influences of achievement goals and motivational climate towards the Hungarian athletes' performance at the 2023 World Championships

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** According to the Achievement Goal Theory (AGT) (Elliot et al., 2011), athletes' performances are mostly influenced by their goal orientation (Lochbaum et al., 2016, 2022). Goal orientation and athletes' motivation (Ames, 1992, Harwood et al., 2008, 2015, Reinboth, 2004) can be largely determined and influenced by social and environmental factors (Harwood et al., 2015, Keegan et al., 2011). The aim of this study is to gain insight into the goal orientation and motivational climate of Hungarian runner athletes participating in the 2023 World Athletics Championships.

**Methods:** The research was conducted using semi-structured interviews (n=28, Mage=24,54, SD=5,19; male: n=13, female: n=15, individual: n=20, relay: n=8) and analyzed by theory-driven reflective thematic analysis (Braun & Clarke, 2019) based on the 3x2 AGT (Elliot et al., 2011, Sommet & Elliot, 2016).

**Results:** The content analysis of the interviews revealed the athletes' goal orientation types, main goals and effects of motivational climate for the athletes. The determined goal orientation types (athletes: n=28) were: task-approach: n=6, task-avoidance: n=1, self-approach: n=8, self-avoidance: n=4, other-approach: n=4, other-avoidance: n=5). Focusing on the athletes's climate, athletes' main goals and goal orientation were influenced by the National Assosiation (n=14), the athlete's club (n=5), the athletes' staff (coaches, managers etc.) (n=15) and the media (n=8). Family and friends influenced 7 athletes, while the impact of the uncertainty of participating in the World Championships (receiving a wild card) influenced 11 athletes. Out of the 28 athletes, 22 athletes had 'quantified goals' (personal best: n=22, semi-final and final: n=13) and 6 athletes had 'unquantified goals' (e.g. to enjoy the race or to collect experience on the international stage).

**Discussion:** Strategies are proposed for improve athletes' goal orientation and motivation, and to help coaches and athletes' environments to provide effective support to individual athletes.

**Keywords:** thematic analysis, achievement goals, motivational climate, athletics

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## P026

### Promoting leadership efficacy: Results from the Pro\*Leader intervention program

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** According to the Leadership Efficacy Model (Gomes, 2020; Resende & Gomes, 2020), leadership efficacy is influenced by three factors: leadership cycles, styles, and antecedent factors. According to the model, leadership efficacy depends on the congruence between the conceptual and the practical cycles of leadership; the use of positive leadership styles, and the control of antecedent factors of leadership. Using this model as a theoretical background, Pro\*Leader is a intervention program designed to develop leadership skills in individuals in different settings in order to increase performance. Therefore, it is anchored in the three areas outlined by the model. Our objective was to test the efficacy of this program.

**Methods:** Using repeated measures, data were collected in three moments (M1: pre-intervention; M2: middle of the intervention; M3: post-intervention) from 12 participants, aged between 29 and 60 ( $M = 40.5$ ;  $SD = 8.91$ ), of which 10 were female (83.3%) and 2 male (16.7%). To evaluate the program's efficacy, the participants answered a Sociodemographic Questionnaire, the Leadership Readiness Questionnaire, and the Performance Perception Questionnaire.

**Results:** Results indicated that Pro\*Leader changed the participants' perception of their ability to implement different leadership styles, particularly the transactional where significant differences were found between M1 and M2, ( $\chi^2(2) = 6.100$ ,  $p < .05$ ), suggesting an increasing tendency to use transactional leadership. Additionally, we found an increase in the participants' readiness to implement leadership skills (M1 to M3). Moreover, results showed significant differences in participants' performance perception between M1 and M3, suggesting that participants believe they can perform their jobs better after the program.

**Conclusion:** Future studies should continue to test Pro\*Leader's efficacy to determine how much it contributes to improve the participants' leadership skills and its impact on their work performance. It would also be relevant to implement this intervention with more participants, to achieve robust conclusions.

## P027

### Integrating Strength and Conditioning Coaches' Emotions within a Reflective Practice Cycle

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives.** Schön's (1983) work is ubiquitous throughout sport psychology and coaching science as a leading theoretical framework for explaining the reflective practice (RP) of sport and strength and conditioning (S&C) coaches (SCCs). The literature is sparse, but evidence shows SCCs experience mixed and intense emotions while reflecting on and resolving perceived interpersonal problems (Szedlak et al., 2021). While Schön included only the integration of fear within the RP cycle, and only within one stage of the RP cycle, we aimed to advance the work of Schön to include SCCs' emotions within each stage of the RP cycle. Also, we drew upon Hochschild's (1983) theorizing on emotional labor to show how SCCs managed their emotions during RP and their perceived effects on SCCs. The purpose of this study was to gain a critical understanding of SCCs' RP and emotions during interpersonal problems with their athletes during training sessions. **Methods.** After obtaining ethics approval, we used snowball sampling to recruit five US-based, nationally accredited SCC. Participants ranged from 24-45 years of age, with an average 10 years of coaching experience. We collected qualitative data in three phases: (a) semi-structured individual interviews, (b) participants completed an emotions and reflective practice worksheet, and (c) a semi-structured follow-up interview with each participant. **Results.** We organized our theoretically guided interpretations across Schön's five-stage RP problem-solving cycle. SCCs identified numerous and primarily negative emotional responses; annoyance, anger, anxiety, and compassion were identified the most often and throughout most of the RP cycles. SCCs engaged in surface and deep acting to resolve problems, which also resulted in cognitive and emotional exhaustion and developing empathy and understanding. **Conclusion.** Our findings advance theorizing in emotions and RP, which has important implications for the growing body of psychosocial research in S&C and coach education (Gearity et al., 2021).

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## P028

### Relationship between Rumination and Perceived Athletic Performance among Elite Athletes: The Moderating Effect of Sport Psychological Skills

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

The current study aimed to investigate the relationship between various dimensions of rumination (emotion-focused, meaning-searching, and instrumental ruminations) and perceived athletic performance, as well as to explore the moderating effect of sport psychological skills on the association between rumination and perceived athletic performance among elite athletes. A total of 118 elite athletes (60 males and 58 females, mean age = 18.81 ± 5.47 years) from 12 sports at the Hong Kong Sports Institute participated in this study. Participants completed self-reported measures of rumination, sport psychological skills, and perceived athletic performance. Regression analysis revealed that negative rumination (emotion-focused, meaning-searching) was negatively associated with perceived athletic performance, while positive rumination (functional rumination) showed a positive association with perceived athletic performance. Furthermore, moderation analysis indicated a significant negative correlation between emotion-focused rumination and perceived athletic performance among athletes with lower total scores of sport psychological skills. Specifically, domains related to peaking under pressure, coping with adversity, and self-confidence in sport psychological skills played a more prominent role in moderating this effect. These findings underscore the impact of emotion-focused rumination on perceived athletic performance and provide preliminary evidence of sport psychological skills mitigating the adverse effects of emotion-focused rumination on athletic performance. The implications suggest the integration of psychological skill training into regular athletic training programs to alleviate the influence of emotion-focused rumination on athletic performance.

## P029

### Mental Imagery and Self-Handicapping in Sport

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Self-handicapping is a strategy that involves claiming impediments before entering a competitive situation for the purpose of protecting one's image in the event of failure (self-protective motives) or to enhance one's image when successful (self-enhancement motives). Athletes who engage in self-handicapping behaviours tend to have low self-esteem, low self-efficacy, and poorer sport performance. In contrast, athletes who are more successful in sport typically use mental imagery more frequently than less successful athletes. The purpose of the present study was to test if athletes who use more mental imagery, particularly motivational general-mastery imagery (e.g., imagine successfully coping in a challenging situation), engage in fewer self-handicapping behaviours and are more successful in sport. Participants included 199 athletes from 24 sports. Their mean age was 20.17 (5.43) years and the majority were male (68.8%). The level of athlete participation included competitive sports at club (n = 62), university/provincial (n = 69), or national/international (n = 65) levels. Athletes completed two measures: the Sport Imagery Questionnaire (Hall et al., 1998), a 30-item self-sport measure of characteristics associated with the five key functions for imagery use; and the 6-item Behavioral Self-handicapping Scale (Ommundsen, 2001) to measure self-handicapping behaviours. Using Pillai's trace, there was a significant effect of competitive level on imagery use and self-handicapping,  $V = .24$ ,  $F(20, 368) = 2.46$ ,  $p = .001$ . Athletes from the highest competitive levels used significantly more imagery for motivational general-mastery purposes  $F(2, 193) = 4.30$ ,  $p = .02$ ; and more imagery of specific sport skills  $F(2, 193) = 3.83$ ,  $p = .02$ . Athletes from the lowest competitive levels in the sample were more likely to engage in self-handicapping  $F(2, 193) = 3.58$ ,  $p = .03$ . Athletes from lower competitive levels should be taught and encouraged to use imagery of specific sport skills to decrease self-handicapping behaviours.

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## P030

### Eye-tracking technology indicates lower team confidence is associated with longer gaze behaviors in women's soccer

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives.** The objective of this study was to understand the relationship between collective efficacy and eye-gazing behavior. Visual attention towards teammates is a mechanism that may explain how team confidence translates to on-field performance. Unfortunately, very little work has been done to bridge efficacy and attention theories for a more unified theory of team performance. **Methods.** Members (n = 21) of a collegiate club soccer team reported their collective efficacy prior to watching a video-recording of their team performing a good, bad, and neutral play while being monitored by a GP3 eye-tracker. Fixation duration and frequency were analyzed in reference to three areas of interest: the ball, Option 1 (i.e., the teammate receiving the ball), and Option 2 (i.e., another teammate that could receive the ball). **Results.** For all participants, the ball (M = 3985ms) was the primary focus of visual attention compared to Option 1 (M = 1940ms; t = 2.88, p = .02) and Option 2 (M = 885ms; t = 4.26, p < .01), but there was no difference between Option 1 and Option 2. Based on survey responses, field players were categorized as either higher collective efficacy (M = 9.0) or lower collective efficacy (M = 4.6) for comparison. Athletes with lower collective efficacy spent significantly more time (M = 2366ms) fixating on all areas of interest compared to athletes with higher collective efficacy (M = 1050ms; t = -2.67, p = 0.02). **Conclusion.** Athletes spent more time looking at the ball and their passing options when they had less confidence in their team. Based on efficacy and attention theories, this finding can be interpreted to mean that athletes with low team confidence may visually attend longer to the environment to make passing decisions. This potentially explains how lower team confidence can lead to poor performance.

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## P031

### Self-Reported Elite Players' Discrete Emotions and Performance Strategies at the 2022 Hockey African Cup of Nations

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Introduction:** Previous research has shown that discrete emotions are integral part of sport competitive experience and performance in any achievement setting. Hence, a successful adaptation for these demands requires effective cognitive-behavioural coping strategies. This study investigated the relationship between players' emotions and specific performance strategies employed within competitive events.

**Methods:** Through a cross-sectional survey design, a purposive sample of 266 field hockey players completed the Sport Emotion Questionnaire (SEQ) and Test of Performance Strategies (TOPS-competition sub-scale).

**Results:** A multivariate analysis of variance (MANOVA) showed significant main effects for gender on only anger and dejection, with male athletes exhibiting higher levels of anger and dejection than their female counterparts. However, there was no significant effect of gender on performance strategies. A multiple regression analysis revealed that only anger and dejection significantly predicted goal setting whereas anger, dejection, excitement, and happiness significantly predicted imagery.

**Conclusions:** The findings underscore the need to increase awareness of negative emotional experiences such as anger and dejection in team contact sports like field hockey and perhaps develop emotion-specific regulation strategies.

**Keywords:** Basic emotions, anger, dejection, goal-setting, happiness, hockey, imagery

## P032

### The Relationship between Autonomy Support, Achievement Goals, and State Anxiety in Athletes

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

This study concerns the predictive value of athletes' perceived autonomy support from coaches on cognitive state anxiety based on the self-determination theory by Ryan and Deci (2000). Furthermore, it explores the moderation of achievement goal involvement in that relationship, arguing that task and ego goal involvement (Jagacinski & Strickland, 2000) could affect how perceptive athletes are to the coach's influence. Participants were 93 competitive athletes trained by a coach at least once a week. This cross-sectional online questionnaire study used convenience sampling. The final sample showed high diversity, encompassing athletes between 18 and 85 years of age, spread across eight nationalities and 31 different kinds of sports. The Autonomy Support Climate Questionnaire (ASCQ), the Perceived Organizational Support for Goals Questionnaire (POSQ), and the Competitive State Anxiety Inventory-2 (CSAI-R2) scales were used to measure autonomy support, goal involvement, and cognitive state anxiety, respectively. It was hypothesized that autonomy support relates negatively to cognitive state anxiety and that this relationship becomes weaker with increasing task goal involvement and stronger with increasing ego goal involvement. The results of the hierarchical regression analysis showed a non-significant main effect of autonomy support on cognitive state anxiety and non-significant interaction of task or ego goal involvement. Therefore, the hypotheses were rejected. The study's results indicate that athletes' reactions to autonomy-supportive coaching may depend on individual and situational factors. This supports the literature stating that people differ in implicit dispositions toward autonomy needs and benefit differently from autonomy need satisfaction (Schüler et al., 2016). Thus, the need for individualization, reflection, and flexibility in coaching, as well as the relevance of the athlete-coach fit, is highlighted.

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## P033

### Psychological Determinants of Sporting Success: An Analysis of Grit, Mental Toughness, and Passion among Youth Tennis and Basketball Players

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Harmonious passion fosters engagement in sports and supports self-development and pursuit of mastery. Conversely, mental toughness influences the experience of stress and athletes' regeneration process, while a high level of grit enhances self-efficacy and life satisfaction. The aim of this study was to examine whether grit, mental toughness, and passion can determine sporting success, as well as to explore the relationships between these variables.

**Methods:** The study was conducted on a group of 122 athletes aged 15 to 24 (M=19.16; SD=2.45), practicing tennis and basketball. The selected psychological variables were assessed using the Short Grit Scale, Sport Mental Toughness Questionnaire (SMTQ), and the Passion Scale.

**Results:** Significant differences were found in self-confidence and emotional control (SMTQ) between females and males (Mann-Whitney U test). The study revealed significant statistical differences (independent samples t-test) in grit levels among athletes representing different sports levels. Moreover, higher harmonious passion characterized participants who collaborated with sports psychologists. The study also demonstrated several significant correlations between the examined psychological variables and age, sports experience, and training volume.

**Conclusion:** Examining mental toughness, passion, and grit among athletes can provide valuable insights for coaches and sports psychologists in developing individual interventions supporting the holistic development of young athletes and aiding in achieving long-term goals.

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## P034

### Promoting coach mental health in elite sport through a Community of Practice

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Although high-performance coaching can be rewarding (Lundqvist et al., 2018), it can also cause considerable stress (Kegelaers et al., 2021), subsequently placing coaches' mental health at risk. Various factors including pressure to perform and lack of professional development opportunities have negatively impacted coaches' mental health (Kegelaers et al., 2021). A Community of Practice (CoP) may be a viable strategy to promote coach mental health. A CoP involves a group of "people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al., 2004, p. 4). The purpose of this study explored whether a CoP helped to promote the mental health of University sport coaches. **Methods:** A total of 11 Canadian University full-time coaches engaged in six CoP online sessions over the course of a season. Each coach engaged in a pre-season and a post-season individual semi-structured interview, which allowed us to determine the topics of interest for the CoP and coaches' experiences with this CoP as a way to promote their mental health. **Results:** This presentation will outline the benefits and challenges associated with designing and moderating a CoP for elite coaches, in addition to outlining how coaches integrated the knowledge acquired into their coaching practices throughout the season. Specifically, the CoP provided coaches with an opportunity to discuss challenges faced both personally and professionally about their mental health. Additionally, coaches developed a network of support with some of their peers who also participated in the CoP. Having access to peer support is a key determinant of coach mental health (Hill et al., 2021). **Conclusion:** Together, this study provides a better understanding of coaches' perceptions of the impact of the CoP on their mental health.

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## P035

### Does the Coach's Hand Gesture and Gaze Affect Expert Players' Memorization of Complex Basketball Tactics? An Eye-Tracking Analysis.

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** The aim of this study was to investigate how coaches' pointing gestures and guided gaze could affect players' visual attention and memorization of basketball tactical scenes when learning from static diagrams. It also aims to explore whether effect of these cues could be influenced by the content complexity of the basketball scenes.

**Methods:** Eighty expert basketball players participated in the experiment based on predetermined criteria such as the number of years practicing and the frequency of practices per week. They were instructed to watch one of four experimental videos in which the coach either described the evolution of an offensive play system (simple or more complex) without making any cues or making pointing gestures and guided gaze. After watching the video, players were instructed to rate their mental effort and reconstruct the game elements on a sheet of paper (recall task). Eye tracking was used while participants watched the experimental video to calculate the total fixation duration on the diagrams of the play.

**Results:** The results showed that when the content was simple, no significant differences were observed between the conditions. Participants showed the similar recall score, mental effort and total fixation duration. However, when the content was more complex, participants demonstrated a greater benefit from the coach's pointing gestures and guided gaze. They showed higher recall score, lower mental effort and increased fixation duration on the game system.

**Conclusion:** This study underscored the fundamental importance of pointing gestures and guided gaze as effective attentional cues for improving memorization of game patterns in team sports. Nevertheless, it also emphasized the need to consider the complexity of the tactical scene before employing these cues. In certain situations, such cues might introduce redundant information, potentially interfering with the cognitive processes of expert players by imposing a cognitive overload.

## P036

### Relationship Between Sport Anxiety and Performance for Athletes in Taiwan with Rasch Analysis

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** This study aims to explore the differences in sports anxiety between elite athletes and general athletes in the Taiwanese version of the SAS-2. It supplements the understanding of specific sources of sports anxiety among elite athletes in comparison to general athletes on the SAS-2, achieved through the use of Rasch measurement models. **Methods:** 843 athletes aged  $M = 18.92$  ( $SD = 3.63$ ) completed SAS-2 questionnaires, including 261 females and 582 males. There were 503 elite athletes (59.7% of the total) competing at the municipal level or above in Taiwan and 340 general athletes (40.3% of the total) competing at the county level. To evaluate sport anxiety, the SAS-2 was employed. The multidimensional random coefficients multinomial logit model (MRCMLM) were utilized to assess the psychometric properties of the SAS-2. Multi-groups analysis was used to determine whether the same sports anxiety pattern holds across general and elite athletes.

**Results:** CFA showed a good fit of the model to the data for the Taiwanese version of the SAS-2 ( $CFI = 0.95$ ,  $NNFI = 0.95$ ,  $RMSEA = 0.092$ ), which was further confirmed by using MRCMLM. The study demonstrated configural, metric, scalar and strict measurement invariances for general and elite athletes. The items 3 and 5 show slight differential item functioning (DIF), favoring elite athletes. However, the findings from the standardized score difference revealed the absence of significant DIF, suggesting that individuals of both levels of competition with equivalent levels of sports anxiety would respond similarly to each item.

**Conclusion:** Elite athletes exhibited a higher level of concern about their performance and the fear of letting others down compared to general athletes. It is necessary to develop sports psychology strategies aimed at mitigating elite athletes' anxieties regarding underperformance.

**Keywords:** Sport Anxiety Scale-2; Rasch measurement model; multidimensional random coefficients multinomial logit model; differential item functioning

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## P037

### Stress factors and preferred coping strategies of participants in XXXI bulgarian antarctic expedition

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

The interest in behavior, psychological changes, stress coping strategies, (Gunder-son, Mihra, 2006; Suedfeld, 2001; Khandelwal et al., 2015, 2017; Zimmer et al., 2013; Domuschieva-Rogleva, Iancheva, 2017, Iancheva et al., 2023), Self-concept, anxiety, interpersonal relationships, and personal characteristics (Pálinkás, 2003; Rosnet, Le Scanff & Sagal, 2000; Domuschieva-Rogleva, et al., 2017; Mustapic, Zeger, 2021), functional states (Simonova et al., 2023) and polar expedition members' functioning has been growing in recent years.

The aim of this study was to examine the sensation-seeking need, major stress factors, and preferred stress coping strategies of the participants in XXXI Bulgarian Antarctic expedition in Livingston Island. The research was done among 28 participants from XXXI Bulgarian Antarctic expedition, aged between 30 and 71 years. To fulfill the aim of the research, we used: Methodology for researching psychic instability and sensation seeking, adapted by Velichkov & Radoslavova, 2005; Methods for researching stress sources among participants in Antarctic expeditions, Iancheva, 2023; Coping Orientations to Problems Experienced scale – COPE – 1, Carver et al., 1989, adapted for Bulgarian conditions (Georgiev et al., 2003). The data processing from the conducted research was done with the statistical package SPSS 21. We applied descriptive, correlation, and regression analyses.

The results showed that the sub scale functional impulsivity had the highest values. It was followed by the sub scales of sensation seeking and dysfunctional impulsivity. The factor Interpersonal relationships and an abrupt change in the amiliar environment had the highest values as a stress source. The emotional coping strategies were domineering, followed by the active coping strategy. The strategy of Cognitive and Emotional disengagement had the lowest values. There were significant differences from the results obtained from previous expeditions. The results can help adaptation and adequate prevention to decrease participants' psychological stress.

**Keywords:** stress, coping strategies, sensation seeking, functional and dysfunctional impulsivity

**P038**

**Consensus Statement on Eating Disorders in Climbing**

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Eating disorders (ED) have the highest mortality rate and long-term impact of any mental health difficulty (Reardon et al., 2019). Difficulties with maintaining healthy attitudes to eating, weight and body image, including eating disorders are a risk factor for climbers, particularly female at an elite level can develop obsession with thinness, body dissatisfaction and personal alienation (Joubert et al., 2020; Strand, 2022). How to ameliorate these risks will be crucial to coaches, teams, and federations wanting to promote athlete wellbeing. Protective factors include positive, person-centred (rather than performance centred) coaching practices, positive attitudes to food and weight from team members and other social influences and coaching and parenting practices which emphasise non-weight related contributions to performance (NEDA, 2023). For a highly motivated athlete, controlled eating behaviour can be part of a carefully regulated lifestyle for optimal performance (Smith et al., 2015). To minimise the threat to health and performance, many sports have adopted codes of practice for making weight. This is strongly encouraged as one of the most important prevention strategies for minimising the prevalence and risks associated with ED (Smith et al., 2015; Wells et al., 2020). In summary, education is needed at all levels, and we suggest that climbing federations and governing bodies should have position statements with guidelines related to optimising nutrition and body composition. To reduce the risk of extreme dieting and EDs, mandatory educational programmes for healthcare providers, athletes, coaches, and other athletics staff members should be implemented (Smith et al., 2015).

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**P039**

**‘But having someone, kind of, walk you through what to do...’:  
Exploring Women Athletes’ Preferences for Learning and  
Practicing Self-Compassion**

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Self-compassion is a positive way of relating to oneself (Neff, 2003) and is related to both athlete well-being and athletic performance (Adam et al., 2021; Killham et al., 2018). Therefore, self-compassion may support women athletes’ thriving in sport (i.e., high overall well-being and athletic performance; Brown et al., 2017). Previous researchers have tailored self-compassion programs to the competitive sport experience. However, these programs have not considered women athletes’ preferences for learning and practicing self-compassion. Therefore, their feasibility may be limited. With a hope of improving feasibility of future self-compassion programs to support women athletes’ thriving in sport, the purpose of this study was to explore competitive women athletes’ preferences for learning and practicing self-compassion.

**Methods:** Guided by a qualitative descriptive (Sandelowski, 2000) strategy of inquiry, data were generated through two phases of focus groups. A total of 19 women athletes (16-34 years of age) from various sports participated in Phase 1 focus groups, discussing preferences for learning and practicing self-compassion. Phase 1 findings were presented as an infographic to participants in Phase 2 focus groups, where 11 women athletes returned to reflect on the findings. Both phases were analyzed using reflexive thematic analysis (Braun & Clarke, 2019).

**Results:** The women athletes identified two preferences for learning self-compassion, namely through (1) multiple interactive professional-led group sessions and (2) sport-integrated progressive pre-season programming. Women athletes’ four preferences for practicing self-compassion included (1) setting self-compassion goals before sport, (2) managing self-talk during sport, (3) compassionately reflecting on performance after sport, and (4) having access to support people. Lastly, women athletes expressed a need for a variety of accessible self-compassion-based resources throughout the process of learning and practicing self-compassion.

**Conclusion:** Future research may implement these findings when developing self-compassion programs for women athletes, to determine if self-compassion can support their thriving in sport.

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## P040

### An explorative study into the experiences of female tennis coaches returning to or entering the profession after having children.

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Organisational culture needs to change for inclusive sport coaching norms to become more available and validated for women (Jones et al., 2022). Research has shown how female coaches' career experiences are connected to the organisational and sociocultural context, however, there is limited insight into motherhood and coaching. To interrogate this further, this study offers insight into the ways in which narratives steer women who are mothers towards particular stories of their coaching identities and how they respond to cultural norms.

**Methods:** Following an interpretivist paradigm, relativist ontology, and subjectivist epistemology, semi-structured interviews were conducted with British female tennis coaches (n=14). The participants had a wealth of professional experience within and beyond the coaching industry. Interviews lasted between 99 and 124 minutes. The data was analysed using inductive within-case thematic analysis producing summaries of the women's experiences (Miles et al., 2014), and narrative analysis of structure and form to develop an understanding of the women's stories (Sparkes, 2005).

**Results:** The dominant performance narrative led to a narrow view of who and what has value within tennis coaching. Female coaches who are mothers find the dominant narrow image of a tennis coach often results in periods of chaos and trauma in their working lives. Whilst previous research has shown women can align with less dominant narratives, these women's distance from the rigid identify-framework of a coach made it difficult to resist cultural norms, and align themselves to other, less dominant narratives.

**Conclusion:** Female coaches who are mothers often find themselves marginalised or not seen within the tennis coaching landscape. Importantly, organisational culture needs to change for a wider view of who and what is valued within tennis coaching. This may result in a wider range of valued and needed resources, and enhanced well-being of female coaches who are mothers.

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## P041

### Transformational Leadership and Mental Toughness: A Dual Mediation Model of Task-Involving Climate and Coach-Athlete Relationship

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objective:** Although research has highlighted the significance of coach transformational leadership and athlete mental toughness, the underlying mechanisms linking coach these two have not yet been fully explored. In response, we identified and investigated two mediating pathways, considering the multifaceted nature of coach transformational leadership. First, drawing from self-determination theory, we propose that a task-involving climate mediates coach transformational leadership and mental toughness. It is because coach transformational leadership promotes a task-involving climate by creating a psychologically empowering environment supporting autonomy, which positively impacts mental toughness. Second, leveraging conservation of resource theory, we identify coach-athlete relationship quality as another mediator in the proposed mediation model, as transformational leadership offers trust, respect, and obligations embedded in leader-follower relationships as resources for athletes to pursue the attainment of psychological strength. **Method:** We conducted a survey on 301 volleyball players and utilized path analyses with bootstrapping methods to examine our hypotheses. **Results:** Our findings suggest that athlete task-involving climate and coach-athlete exchange relationship play pivotal roles in determining the indirect impacts of coach transformational leadership on athlete mental toughness. **Conclusion:** We have offered two distinct theoretical mechanisms to elucidate the connection between coach transformational leadership and athlete mental toughness. As such, the intricate nature of coach transformational leadership encourages the development of athlete self-determination and cultivates high-quality coach-athlete relationships, consequently bolstering athlete mental toughness.

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## P042

### The Human of an Athlete: An Autoethnographic exploration of the Coach-Athlete Relationship from the Person-Centred lens

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** This paper explores the applicability of the person-centred approach within the sports context, focusing specifically on the coach-athlete relationship. Past research has shown that coach-athlete relationship holds potential for growth and wellbeing (Mageau & Vallerand, 2003). The primary aim is to assess whether adopting a person-centred approach in this relationship is beneficial and necessary for the wellbeing and growth of athletes.

**Methods:** Data collection involved the use of autoethnography as a methodology, utilizing reflective writing to capture the phenomenological experiences of a young athlete. The focus was on understanding the dynamics of the coach-athlete relationship and its potential impact on the athlete's wellbeing and growth.

**Results:** The coach-athlete relationship holds the potential to either be helpful, supporting the autonomy of the athlete, or controlling, thwarting the potential for growth. When the relationship becomes controlling, athletes may internalize conditions of worth (Rogers, 1959), leading to a reduction in Unconditional Positive Self-Regard (UPSR). UPSR, considered crucial for wellbeing (Murphy, Joseph, et al 2020), may be fostered through perceived autonomy within the coach-athlete relationship.

**Conclusion:** Perceived autonomy experienced by athletes within the coach-athlete relationship may serve as an indication of the growth of their UPSR, thereby contributing to their overall wellbeing and personal development. Adopting a person-centred approach in this relationship can promote a supportive environment conducive to athlete growth and flourishing.

**Keywords:** UPSR, Coach-athlete relationship, growth, wellbeing.

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## P043

### Transitions between mental states: Expanding the Multi-Action Plan model

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** In contrast to dichotomous peak (e.g., flow state) or non-peak (e.g., 'choking') performance concepts, the Multi-Action Plan (MAP) model offers sport-specific guidance on both dimensions, affording a realistic and applied perspective of human performance (Bortoli et al., 2012). Two optimal (Type 1&2) and suboptimal (Type 3&4) Performance Types (PTs) were characterised across multiple studies utilising mostly self-paced, closed-skill sports. Our objectives were to A) investigate how athletes transition between T1-4 during a performance event; B) examine to what extent MAP can be applied in hyperdynamic activities, e.g., judo; C) apply A) and B) with high-level and elite athletes to develop actionable coaching outcomes.

**Method:** First, we conducted retrospective interviews with high-level judoka (n=6) to gain insight into their current performance experiences and understand to what extent they recognise MAP in their performance experiences. Second, we videoed competition-simulating training fights and, subsequently, conducted semi-structured video-stimulated recall interviews (n=6), asking participants to pinpoint transitions between T1-4 and elaborate why the transitions occurred. Lastly, and applying the same interview focus, we conducted semi-structured video-stimulated recall interviews with elite judoka (n=5) referring to three high-stakes competition fights per participant.

**Results:** Key results included that all judoka experienced effortful (T2&3) PTs more frequently compared to automatic ones (T1&4). All judoka experienced multiple transitions between PTs during a fight, both improving and impairing their performance. Overall, transitions occurred after perceiving tactical-technical, fatigue-related, or cognitive-emotional cues. Notably, elite judoka reported more effective recovery strategies from suboptimal performance episodes compared to their high-level counterparts.

**Conclusion:** Within one fight, judoka experience multiple micro-episodes of optimal and suboptimal performance - the anticipation and navigation of which present a valuable, trainable opportunity to (re)gain control or stabilise performance. Overall, for researchers, coaches, and sport psychology practitioners, the MAP model presents a nuanced framework for understanding and individually conceptualising human performance.

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## P044

### Attribution-Specific Analysis of Perceived Psychological Safety and Burnout among University Sports Team Members in the Forming Stages of the Team

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

This study investigates the psychological safety and burnout among university athletic team members, focusing on different attributes such as grade, role, and position, which previous research has not fully explored. In this study, 321 members in the forming stage of their teams (Tackman, 1965) were surveyed using Edmondson's (1999) team psychological safety scale and Rice et al.'s (2022) sport psychological safety scale and Kishi's (1988) athlete burnout scale. The questionnaire was obtained from November to December 2023, when all the target teams were in the 1~2-month stage of starting a new team which have not experienced official games ahead; therefore, we judged the period as the team's forming stage and proceeded with the analysis. The attributes of the participants were 138 freshman, 87 sophomore, and 96 juniors as a grade, 253 players and 68 staff as a role, and 84 leaders and 237 non-leaders as a position. Then, t-tests were conducted for each attributes. The results showed that there were no significant differences between grades. However, By role wise, players had a lower score compared to staff (5% significance) for sport psychological safety. As by position, leaders had a higher score than non-leaders (1% significance) for sport psychological safety, but had a lower burnout score from non-leaders(5% significance). Further analysis showed that junior players had a lower score compared to staff members on the sport psychological safety (1% significance). As the team heads into the storming stage which requires more stresses, if the junior have a difficulty of sharing their mental health and continued having low psychological safety, it could bad affect the team. Since junior players are considered as the most influential group in new team, the result reflects the need improvement of psychological safety score of them before moving into the next stage.

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## P045

### Applying Self-Compassion to Perfectionism in Sport

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Athletes can experience a range of difficult experiences in sport—such as personally demanding standards, concern over mistakes, and unrealistic expectations from others—that are associated with sport-specific perfectionism and can impact performance and well-being. The objective of this presentation is to show how self-compassion can help athletes more effectively manage challenges that can result from perfectionism in sport. Through a fictitious case study of Chleo, a varsity ice hockey player, we will present a difficult and realistic sport experience that highlights elements of perfectionistic concerns, such as unrealistic performance expectations, need for approval, and responding to failure with self-criticism. We will introduce self-compassion as an understanding, connected, and kind way of relating to oneself during times of difficulty (Neff, 2003), and present a brief overview of relevant self-compassion literature (e.g., Cormier et al., 2023). We will consider links between self-compassion and perfectionism from both the general psychology literature (e.g., Pereira et al., 2022; Stoeber et al., 2020) and from the sport domain (e.g., Alipour Ataabadi et al., 2022; Lizmore et al., 2017). We will then discuss athletes' development of self-compassion (e.g., Frentz et al., 2019) and interventions in sport (e.g., Kuchar et al., 2023), and apply these findings to our case study to demonstrate how self-compassion might be helpful when supporting athletes with common problems associated with sport-specific perfectionism. Specific evidence-based self-compassion exercises will be presented to demonstrate how self-compassion can help athletes navigate perfectionistic concerns in sport.

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## P046

### “This is a different café” – Beliefs and bias about fatigue in a professional basketball team

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** In competitive sports, athletes and support staff invest significant physical and mental effort in order to achieve continuous performance improvement, which may lead to fatigue (Balk & DeJonge, 2020; Eccles et al, 2023; Pageaux & Lepers, 2018; Russel et al, 2023). This study aims to gain an in-depth insight into the individual experiences of the members of a professional basketball team, also including staff members, about the fatigue they encounter and about how team members form their understanding of fatigue. **Methods:** Semi-structured interviews were conducted with 13 participants, including eight basketball players (Mage=24.5; SD=2.27) and five staff members (a head coach, an assistant coach, a conditioning coach, a performance analyst, and a physiotherapist; Mage=31.40; SD=7.77). A reflexive thematic analysis (Braun & Clarke, 2006, 2019, 2020) was performed to analyse the data. **Results:** The analysis revealed two main themes in relation to the perception of fatigue: 1) The effects of expectations and 2) Dualities associated with fatigue. Findings indicate that both internal and external expectations had a negative impact on the athletes' and the staff's workload as well as on their response to signs of fatigue. The results underline the dual nature of playtime, training routines and the athletes' efforts, as well as the dynamics of the interactions between the fatigue of coaches and athletes and between that of training sessions and games. **Conclusions:** The present study provides an insight into the dynamics and the subjective perception of fatigue, and highlights the difficulties of distinguishing between the various types of fatigue in the context of competitive sport.

**Keywords:** fatigue, expectancies, basketball, thematic analysis

## P047

### Role Of The Coach Developer in the Process Of Psychological Training For The Alpine Skiing Instructors – A Polish Experience

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Fitting up the Alpine skiing instructors with psychological competencies is one of the essential elements during the training of instructors (Erickson, Camire & Gilbert, 2021; Gilbert, 2017). One of the key challenges of modern education is to provide people with the tools to be flexible and open to constant changes and to prepare themselves to be creative and critical towards reality. In the presentation, the author describes the process of learning with the Theory of Experiential Learning - the so-called D.A. Kolb Cycle (Kolbe & Kolbe, 2022). It also indicates the need to move from the teaching (academic) style to the workshop style in teaching skiing. It presents the main differences between the instructor (trainer) and the educator of other instructors (trainers) – coach developer. Instructor educators (coach developers) have the skills to develop, support and challenge other instructors (trainers) for long-term learning and development (Gould & Mallett, 2021). Of course, the educator's activities should be an integral part of the training system of the training staff of each sports organization and result from the adopted development strategy of the organization. The presentation illustrates the issues discussed with the selected content of the Polish coach developer training for the Association of Ski Instructors and Trainers of Polish Ski Association (SITN PZN) involving skills in line with the recommendation of the International Sport Coaching Framework (ISCF) (2013) coaching competence and coach development based on six primary tasks undertaken by sport coaches: 1) Setting vision and strategy; 2) Shaping the environment; 3) Building relationships; 4) Conducting practices and preparing for competitions; 5) Reading and reacting to the field; 6) Learning and reflecting.

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P048

## Demands-Resources Theory in Sports: A Coaching Perspective

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Youth competitive sports, including gymnastics, often occur in highly demanding environments that may support elite performance but also hinder athletes' well-being. Coaches may be a key factor in athlete development. Yet, existing theoretical frameworks often narrow their focus, overlooking important aspects such as expectancies of success, limited time perspectives (i.e., either long-term motivation or immediate performance), and single relationships with motivational and emotional outcomes rather than global underlying processes.

This theoretical study aims to present a novel conceptualisation of the coach-created psychosocial environment in sports, providing a broader interpretation, focusing on multiple time perspectives, and explaining the effects of individual variables through global processes related to the sense of agency of youth athletes.

Therefore, we integrated several streams of literature, complementary focused on different motivational processes, outcomes, time perspectives, and methodologies, including empowering coaching (Appleton & Duda, 2016; Duda, 2013), OPTIMAL theory (Wulf & Lewthwaite, 2016), and organisational-psychological theory of job demands-resources (Bakker et al., 2023). Employing conceptual analysis (i.e., identifying key concepts, analysing proposed relationships, and evaluating their assumptions), we established a complex framework labelled "Coaching for Agency" (CfA).

CfA conceptualises the coach-created psychosocial environment through two broad categories, going beyond the limited approach of current conceptualisations: psychosocial demands (requiring sustained effort, associated with physiological and psychological costs) and resources (functional in achieving goals, regulating demand impact, and stimulating learning and personal growth) (cf. Bakker et al., 2023). We suppose that psychosocial demands and resources affect the athletes' outcomes through different paths ("health impairment" and "motivational" paths) that affect athletes' sense of agency and, in this way, other outcomes such as engagement, burnout, and performance.

We apply CfA in two ongoing research projects on Czech youth gymnasts: a large-scale questionnaire study exploring complex relationships between variables related to long-term motivation and an experimental study assessing immediate performance.

Appleton, P. R., & Duda, J. L. (2016). Examining the interactive effects of coach-created empowering and disempowering climate dimensions on athletes' health and functioning. *Psychology of*

*Sport and Exercise*, 26, 61–70. <https://doi.org/10.1016/j.psychsport.2016.06.007>

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## P049

### What do we know about coaching at the Olympic and Paralympic Games? A scoping review.

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** The Olympic and Paralympic games, characterized by heightened media scrutiny, pressure, and fragile job security, are often considered to be the pinnacle of sporting events in coaching (Fletcher & Sarkar, 2012; Gould & Maynard, 2009; Mallett & Lara-Berial, 2016). Although there is widespread acknowledgement for the challenging and unique nature of coaching at this level, there has been no endeavour to consolidate the existing literature pertaining to coaching at the Olympic and Paralympic games. Accordingly, the purpose of this study was synthesize the existing literature to uncover the “scope” of what is known about Olympic and Paralympic coaches. **Methods:** To do so, we conducted a scoping review with a systematic search protocol to identify relevant peer-reviewed articles across four major databases (e.g., Web of Science). To be included in the scoping review, articles were required to examine coaching in the Olympic and/or Paralympic context as a major focus of the article. **Results:** Following the review of 6462 records, 82 peer-reviewed articles were included. 55 articles focused on Olympic coaches, 17 articles on Paralympic coaches, and 10 articles contained both. There were 56 qualitative studies, 13 quantitative studies, seven review/position papers and six mixed methods studies. A number of knowledge themes relating to Olympic and Paralympic coaches were ascertained across the collection of articles, including: (a) their attributes and characteristics (e.g., psychological capabilities, personality traits), (b) how they learn and develop, (c) effective and ineffective behaviours, (d) navigating challenges, stressors, and unique circumstances (e.g., financial barriers, global pandemic), and (e) building and fostering relationships with athletes and staff. **Conclusions:** To conclude, this presentation will identify gaps in the literature, provides avenues for future research endeavors in this area, and offer practical implications for the purpose of informing national sport organisations and supporting prospective Olympic and Paralympic coaches.

Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of Sport and Exercise*, 13(5), 669–678.

Gould, D., & Maynard, I. (2009). Psychological preparation for the Olympic Games. *Journal of Sports Sciences*, 27(13), 1393–1408.

Mallett, C. J., & Lara-Bercial, S. (2016). Serial winning coaches: People, vision, and environment. In M. Raab, P. Wylleman, R. Seiler, A.-M. Elbe, & A. Hatzigeorgiadis (Eds.), *Sport and exercise psychology research: From theory to practice* (pp. 289–322). Academic Press.

## P050

### Shared Stressors, Team Appraisals, and Communal Coping: An Interview Study

**Oliver Leis**<sup>1</sup>

<sup>1</sup>Leipzig University, Leipzig, Germany

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Given the importance of social relationships in the coping process for performance, well-being, and thriving in team and individual performance contexts, understanding how athletes experience shared stressors, appraisals, and communal coping can inform evidence-based interventions at an interpersonal level. Therefore, this study aims to provide insights into shared stressors, team appraisals, and communal coping strategies in a performance context. In extension to previous research (see review by Eckhardt & Tamminen, 2023), this study will focus on the perspective of the team, greater diversity (e.g., countries), and a broader social context (e.g., coach-athlete, teammates) using focus group interviews. Male and female athletes from different nationalities will be recruited purposefully. The interview guide is based on the Theoretical Model of Communal Coping (Afifi et al., 2020) and focuses on players' experiences related to shared stressors (e.g., “Can you describe situations that led to a shared sense of stress among you and your teammates?”), team appraisals (e.g., “When your team faces challenges or stressful situations, how do you and your team usually evaluate them?”), and communal coping strategies (e.g., “What are common ways you and your team deals with stress or difficult situations?”). Interviews will be performed between January and March 2024 with preliminary data (n = 10) being reported at the conference.

Afifi, T. D., Basinger, E. D., & Kam, J. A. (2020). The extended theoretical model of communal coping: Understanding the properties and functionality of communal coping. *Journal of Communication*, 70(3), 424–446.

Eckardt, V. C., & Tamminen, K. A. (2023). A scoping review on interpersonal coping in sports. *International Review of Sport and Exercise Psychology*, 1-27.

**P051**

**Coach Support, Motivation and Mental Health in Paralympic Athletes**

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objective:** Due to mental health disorders, the deaths by suicide in Spain reached its maximum in 2020. There were 300 cases in young people (15 to 29 years old, INE, 2020). Among elite athletes, mental health has been threatened by highly competitive pressure and high training loads (Henriksen et al., 2019). Paralympic athletes are likely to manifest a variety of stressors specific to the sport career and the disability they live with (Swartz et al., 2019). According to the Self-Determination Theory (Deci & Ryan, 1985), perceived support from the coach would be positively related to the intrinsic motivation and the athlete's well-being. This study aims to analyze the relationships between the sports identity, sports motivation, coach support, and sources of stress of Spanish Paralympic athletes.

**Methods:** Fifty-eight elite paralympic athletes (31±11 years; 62.1% men) answered an online questionnaire assessing sport identity (Brewer & Cornelius, 2001), perceived support from their coach (Freeman et al., 2011), sport motivation (SMS-II; Pelletier et al., 2013), anxiety (Spitzer et al., 2006), and sources of stress (Küettel et al., 2021).

**Results:** Sport identity was directly related with coach support ( $r=.278$ ), as well as with integrated ( $r=.401$ ), and introjected motivation ( $r=3.24$ ;  $p<.05$  for all). Coach support was directly related to the intrinsic motivation dimensions ( $r=.381$ ;  $r=.459$ ;  $r=.450$ ) and inversely with amotivation ( $r=-.268$ ;  $p<.05$  for all). The stress from the different spheres of life (sport  $r=.381$ ; work  $r=.371$ , and private life  $r=.636$ ) were directly related to anxiety ( $p<.05$  for all). Perceived stress in the sphere of private life was directly related to lack of motivation in sport ( $r= 2.75$ ;  $p<.05$ ).

**Conclusion:** The supporting work of the coach influences the sport motivation and sport identity of Spanish Paralympic athletes. In order to buffer the level of anxiety the sources of stress should be deeper analyzed.

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Kuettel, A., Pedersen, A. K., & Larsen, C. H.. (2021). To Flourish or Languish, that is the question: Exploring the mental health profiles of Danish elite athletes. *Psychology of Sport and Exercise*, 52, 101837. <https://doi.org/10.1016/j.psychsport.2020.101837>

Pelletier, L. G., Rocchi, M. A., Vallerand, R. J., Deci, E. L., & Ryan, R. M. (2013). Validation of the revised sport motivation scale (SMS-II). *Psychology of Sport and Exercise*, 14(3), 329-341. <https://doi.org/10.1016/j.psychsport.2012.12.002>

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine*, 166(10), 1092-1097. <https://doi.org/10.1001/archinte.166.10.1092>

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## P052

### Exploring Communal Coping in Team Sports: Key Variables Influencing Collective Stress Response

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Throughout the journey to success, team members often unite efforts to navigate stressful situations they encounter together. Communal coping, an under-researched process in sport, involves appraising stressors within close relationships and leveraging the synergistic efforts in managing stress collaboratively. Currently, in sport psychology, there is limited understanding of the variables that promote or hinder the two continuous dimensions of communal coping: shared appraisal and joint actions. Drawing from insights across diverse fields, this study aimed to investigate key variables that promote communal coping in team sports, aiming to deepen our understanding of how sports teams collectively manage stressors.

**Methods:** Forty-nine athletes (Mage = 19.59 years, SDage = 4.41; 26 women and 23 men) from four national-level sports teams, spanning football, ice hockey, and basketball, participated in this qualitative study. Data were collected through focus groups, focusing on athletes' experiences with communal coping in stressful situations. Thematic analysis identified environmental and social variables influencing the communal coping process.

**Results:** Results highlighted that shared appraisal is shaped by the social functions of communication and emotions. They highlighted the influence of environmental variables, such as opponent qualities, competitive context, and experiences on the communal coping process. The results also underscored the importance of teams' social resources, including leadership roles, communication, non-verbal behaviours, and social identity. Additionally, the concept of 'transactional space' emerged as necessary for effective collective adaptation to stress. This term refers to spatial or temporal settings facilitates team interaction, enabling collective interpretation and understanding of faced stressors.

**Conclusion:** This research highlights the complexity of collective stress management in team sports. By revealing nuanced variables these findings suggest pathways for enhancing team performance and resilience under stress, emphasizing the need for strategic emotional, communicative, and relational approaches, offering insights for coaches and sports psychologists to train teams in collective coping.

Afifi, T. D., Basinger, E. D., & Kam, J. A. (2020). The Extended Theoretical Model of Communal Coping: Understanding the Properties and Functionality of Communal Coping. *Journal of Communication*, 70(3), 424446. <https://doi.org/10.1093/joc/jqaa006>

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Doron, J., & Bourbousson, J. (2017). How stressors are dynamically appraised within a team during a game: An exploratory study in basketball. *Scandinavian Journal of Medicine & Science in Sports*. <https://doi.org/10.1111/SMS.12796>

Leprince, C., d'Arripe-Longueville, F., Chanal, J., & Doron, J. (2019). Development and preliminary validation of the Communal Coping Strategies Inventory for Competitive Team Sports. *Psychology of Sport and Exercise*. <https://doi.org/10.1016/j.psychsport.2019.101569>

Tamminen, K. A., & Gaudreau, P. (2014). Coping, social support, and emotion regulation in teams. *Group dynamics in exercise and sport psychology*, 2, 222e39-222e39.

## P053

### Sport Policy and Practice Recommendations for Pregnant and Parenting High-Performance Athletes

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<sup>1</sup>University Of Alberta, Edmonton, Canada

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Objective: The athletic careers of high-performance women athletes have extended such that their window of fertility often overlaps with their window of peak performance. Athlete-mothers are performing under pressure, breaking world records, and challenging societal notions of who can successfully compete on the global stage as a high-performance athlete. However, the successes of many mother-athletes are achieved with little support from national or international sport organizations, and they are fighting for policies and practices to support their equitable participation in high-performance sport (Davenport et al. 2023). The purpose of this presentation is to share an in-depth case study outlining the development of evidence-based policy and practice recommendations for pregnant and parenting Canadian high-performance athletes. Methods: Evidence-based recommendations were developed, refined, and confirmed through a comprehensive policy scan, literature review, and an extensive consultation and engagement process with 102 key sport stakeholders via survey and one-on-one and group interviews. Sport stakeholders included athletes representing a range of summer and winter Olympic and Paralympic sports, medical and support staff, representatives of National Sport Organizations, and Sport Canada representatives. Results: Seven national-level evidence-based policy and practice recommendations were developed, refined, and confirmed. Recommendations were presented to Sport Canada and are currently being considered by decision-makers. Within this presentation we will share the seven evidence-based recommendations and the in-depth process in which such recommendations were developed. Conclusion: Policies and practices to support pregnant and parenting athletes play a critical role in facilitating gender equity in sport, and play an essential role in supporting the Government of Canada's goal to achieve gender equity in sport at every level by 2035. The collaborative processes employed in this case study can serve as a model for other sport organizations in their development of evidence-informed policies and practices that support the equitable participation of women in high-performance sport.

Davenport, M. H., Khurana, R., Thornton, J. S., & McHugh, T. L. F. (2023). "It's going to affect our lives, our sport and our career": time to raise the bar for pregnant and postpartum athletes. *British Journal of Sports Medicine*, 57(14), 893-894.

## P054

### "What can you see? What can you hear?" The implementation of a behaviour-based mental toughness framework within international youth football

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Objectives: Researchers have begun to cite mentally tough behaviours (MTbs) as the key link between one's mental toughness (MT) capacity and consistently high performances under pressure (Anthony et al., 2018; McKay et al., 2023). However, researchers have typically overlooked how MTb displays lead to MT development (Anthony et al., 2020). Having previously created a behaviour-based MT development framework for a National Football Association, I adopted the role of practitioner-researcher to implement this framework during a seven-day under-16's international training camp and support international coaches (n = 2) in facilitating youth international footballers' (n = 22) MT development.

Methods: The intervention involved: (1) pre-camp coach education on behaviour-based MT development and pre-camp testing of players' MT using the MT Index; (2) in-camp coach support to implement behaviour-based MT development and personal reflections on intervention delivery; and (3) post-camp social validation interviews to assess coaches' and players' perceptions of the intervention's impact on MT development, and post-camp testing of players' MT.

Results: Coaches' self-efficacy regarding MT development and players' MT levels both increased after participating in the intervention. Coaches highlighted that pre-camp coach education clarified and challenged their assumptions about MT, while the in-camp phase supported their development of players' MT through challenging them to effectively frame and reinforce MTbs. Players attributed their MT development to how coaches clarified, reinforced, and reviewed the MTbs they should display under pressure.

Conclusion: It is recommended that practitioners work with sport organisations to create bespoke MT development frameworks that can be integrated within their development processes, including player development, coach education, and coaching session planning.

Anthony, D. R., Gordon, S., & Gucciardi, D. F. (2020). A qualitative exploration of mentally tough behaviour in Australian football. *Journal of Sports Sciences*, 38(3), 308-319. <https://doi.org/10.1080/02640414.2019.1698002>.

Anthony, D. R., Gordon, S., Gucciardi, D. F., & Dawson, B. (2018). Adapting a behavioural coaching framework for mental toughness development. *Journal of Sport Psychology in Action*, 9(1), 32-50. <https://doi.org/10.1080/21520704.2017.1323058>.

McKay, A., Cropley, B., Shearer, D., & Hanton, S. (2023). Developing a 'clarity of mind': Exploring a behaviour-based approach to mental toughness development in international youth football. *Journal of Applied Sport Psychology*, 1-25. <https://doi.org/10.1080/10413200.2023.2286951>.

## P055

### Learning Anticipation Skill with Kinematic and Contextual Information

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Elite athletes use advanced memory structures to recognize patterns, assess situational probabilities, and interpret cues from player movements to anticipate events (Williams et al., 1999). However, the processes involved in utilizing multiple sources of information for anticipation are not well understood (Broadbent et al., 2015; Gredin et al., 2020). Therefore, this study aims to investigate the acquisition of anticipation skills in the presence of kinematic and outcome probabilities information and to determine whether this learning exhibits characteristics of Bayesian integration. **Methods:** Participants with no prior experience in competitive tennis watched tennis players hitting forehand shots and were asked to predict the outcome of the shot. Accuracy, response times and perceived task effort were recorded before, during and after four acquisition blocks where outcome feedback was provided. In both Experiment 1 and 2, the training group stimuli either included or excluded kinematic information about shot direction. In Experiment 1, the probability of left/right shots remained equal for both groups. In Experiment 2, both groups were trained with a bias in the shot outcome probability towards one shot direction on 80% of the trials across acquisition blocks (without being informed about this manipulation). **Results:** The results showed that anticipation performance improved from pre-to-post in the presence of kinematic information (EXP1) or both information sources (EXP2). Additionally, pre-to-post improvements in the presence of shot outcome probability information were consistent with the trained bias in the shot direction (EXP2). Superior anticipation performance was observed when both sources of information were present. The inclusion of kinematic information led to an increase in perceived effort during early training (EXP1 & 2). Bayesian odds ratios indicated that shot direction probabilities and kinematic information were integrated during the learning of anticipation skills. **Conclusion:** Learning with shot direction probabilities and kinematic information exhibits characteristics of Bayesian integration.

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Gredin, N. V., Bishop, D. T., Williams, A. M., & Broadbent, D. P. (2020). The use of contextual priors and kinematic information during anticipation in sport: Toward a Bayesian integration framework. *International Review of Sport and Exercise Psychology*, 16(1), 1-25. <https://doi.org/10.1080/1750984X.2020.1855667>

Williams, A. M., Davids, K., & Williams, J. G. P. (1999). *Visual perception and action in sport*. Taylor & Francis.



## P056

### A Story of Loss and Gain: A Study of a Lifetime Career in High Performance Motor Sport

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Theoretical Background Cohesion is a multidimensional dynamic construct incorporating both task and social elements of a team: how members come together and remain unified in pursuit of team goals. Cohesion is vital for team harmony and the many advantages have been extensively studied. Some other recent research has evidenced the disadvantages of high team cohesion. Narrative theory created the lens through which to analyse one particular story of a career and life in a top performing motor sport team. Objectives This life history study explored the disadvantages of high team cohesion experienced over the life-span career of one retired professional motorsport driver. The aim was to develop greater understanding of what were the specific costs experienced, the influencing factors in operation around these costs and the significance of the costs. Study Design Over 7 hours of life history data were collected from the participant, a retired rally co-driver, who had a 16 year professional career most notably with the same driver for over ten years. The data collected over the course of a year and a Dual Narrative Analysis was conducted: holistic content analysis and holistic analysis of structure and form. Results and Discussion The most significant costs experienced were Personal Sacrifice along with Pressure to Perform And Pressure to Conform. The key influencing factors were Performance Narrative and what was identified as a new narrative type, a Team Performance Narrative. Narrative alignment of these threads at once increased potential costs and buffered them against them, Conclusion Stephen's story was a Story of Loss and Gain where he lived the life of an athlete: ultimately for him the successes outweighed the costs.

Buyss, C. J. (1978). Humans would do better without groups. *Personality and Social Psychology Bulletin*, 4, 123-125.

Carron, A.V., Brawley, L.R., & Widmeyer, W.N. (1998). Measurement of cohesion in sport and exercise. In J.L. Duda (Ed.), *Advances in sport and exercise psychology measurement* (pp. 213-226). Morgantown, WV Fitness Information Technology

Carron, A.V., Widmeyer, W.N., & Brawley, L.R. (1985). The development of an instrument to assess cohesion in sport teams: The Group Environment Questionnaire. *Journal of Sport Psychology*, 7, 244-266.

Dion, K.L. (2000). Group cohesion: From "field of forces" to multidimensional construct. *Group Dynamics: Theory, Research, and Practice*, 4.

## P057

### A Differential Item Functioning Analysis of the Mindfulness Inventory for Sport

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Objectives: Though the Mindfulness Inventory for Sport (MIS; Thienot et al., 2014) has been used frequently to measure mindfulness among athletes (e.g., Doron et al., 2020; Hut et al., 2023), no published research has examined the impact of meditation experience on its factor structure. The primary purposes of the present study were to (1) examine the factor structure of the MIS, and (2) to investigate the presence of bias in item response based on meditation experience.

Method: Differential Item Functioning (DIF) using the Multiple Indicators, Multiple Causes method (Finch, 2005) was utilized as the analysis on MIS data from 240 adult athletes in North America (M<sub>age</sub> = 20, SD = 6.62, 60% female, 82.1% Caucasian) from a range of sports. The Transtheoretical Model (Prochaska & DiClemente, 1984) was used to inform participants' classification into groups based on meditation experience. Meditation experience was divided into low (no, or limited experience), moderate (6 months or less of experience), or high (6 months or more of experience).

Results: Because the original 15-item measure did not demonstrate adequate model fit, 12-item and 9-item versions were also examined. The 9-item version of the MIS (MIS9) demonstrated the best fit to our data with acceptable fit indices,  $\chi^2(34)=63.61$ ,  $p<.05$ , RMSEA=.06, CFI=.93, SRMR=.05, with an overall internal consistency estimate of .68. Only item 7 of the awareness dimension was identified as presenting a DIF. On this item for the same level of awareness, meditators with a moderate amount of experience scored lower than those with little to no experience.

Conclusion: These findings confirm that the MIS9 may be suitable, though future researchers should explore other potential sources of bias and further examine the factor structure and internal consistency reliability. MIS9 users can also consider removing item 7 when working with athletes with a range of meditation experience.

Doron, Julie, Rouault, Q., Jubeau, M., & Bernier, M. (2020). Integrated mindfulness-based intervention: Effects on mindfulness skills, cognitive interference and performance satisfaction of young elite badminton players. *Psychology of Sport and Exercise*, 47,101638. <https://doi.org/10.1016/j.psychsport.2019.101638>

Finch, H. (2005). The MIMIC model as a method for detecting DIF: Comparison with Mantel-Haenszel, SIBTEST, and the IRT likelihood ratio. *Applied Psychological Measurement*, 29(4), 278-295. <https://doi.org/10.1177/0146621605275728>

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*Sport Psychology*, 35(2), 284-306. <https://doi.org/10.1080/10413200.2021.1989521>

Thienot, E., Jackson, B., Dimmock, J., Grove, J. R., Bernier, M., & Fournier, J. F. (2014). Development and preliminary validation of the mindfulness inventory for sport. *Psychology of Sport and Exercise*, 15, 72-80. <https://doi.org/10.1016/j.psychsport.2013.10.003>

## P058

### Journaling to Enhance Mindfulness in the Mindfulness-Acceptance-Commitment (MAC) Protocol for Optimizing Performance and Well-being

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

The Mindfulness-Acceptance-Commitment protocol (Gardner & Moore, 2007) increases mindful attention/awareness and non-judgmental acceptance of in-the-moment cognitive, affective, and physiological experiences; and promotes willingness to maintain contact with the range of internal experiences and to engage in values-based behavior. MAC's techniques, including meditative (mental) training, cognitive defusion, promotion of experiential acceptance, and values clarification, target MAC's mechanisms of change: enhanced attentional awareness, non-judgmental task-relevant focus, improved emotion regulation, and greater psychological flexibility.

MAC is empirically supported to enhance performance and personal well-being (Moore et al., in press). Given the importance of mindfulness in MAC and the fact that some clients resist meditative exercises, practitioners may ask: "Are their additional techniques beyond meditative exercise that promote mindfulness?" Clinical studies incorporate journaling as part of the mindfulness repertoire (Crawford et al., 2021). While the primary empirically-supported techniques to enhance mindfulness remain meditative exercises, journaling can supplement these exercises in initial intervention stages when a client is resistant to meditative exercises, and practitioners can later revisit formal meditative techniques.

Most studies using journaling as a mindfulness-promoting component have used "gratitude journaling" (Crawford). Suggested instructions for gratitude journaling include: "There are things in our lives, large or small, that we might be grateful for. Think back over the past day/week and write down up to five things in your life that you are grateful or thankful for. The items can be inanimate or animate, material or abstract, general or specific. The goal is to identify things you are grateful for." Because journaling as a meditative technique has a foundation in clinical psychology and has not been studied within sport-performance research, practitioners should carefully consider its utilization, approach journaling with a sound rationale, and ensure that it does not fully replace formal meditative practices. Future MAC research may include journaling as a secondary meditation-promoting technique.

Crawford, A., Sellman, E., & Joseph, S. (2021). Journaling: A more mindful approach to researching a mindfulness-based intervention in a junior school. *International Journal of Qualitative Methods*, 20, 1-11.

Moore, Z.E., Gardner, F.L., & Gross, M., Wolanin, A.T., Marks, D.R., & Pess, R. (in press). Reflections on an empirical examination comparing the Mindfulness-Acceptance-Commitment (MAC) approach and psychological skills training for the mental well-being and sport performance of female collegiate athletes. *ISSP Academy of Science. International Society of Sport Psychology/ Routledge and Taylor & Francis.*

## P059

### Managing stress efficiently: Results from the Pro.Stress intervention program

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Stress arises when individuals perceive their personal and social resources to be insufficient to deal with the pressures imposed by the environment (Lazarus, 1991). Even though perceived as a negative experience, stress is an inevitable part of individual's lives. When it occurs at a moderate level, stress can be considered healthy and motivate goal achievement. However, high-stress levels can lead to severe symptoms of anxiety, depression, low self-esteem, among others. Thus, managing stress is an important life skill that can help individuals to manage stressors in different contexts of their lives and that can improve their wellbeing. According to the Transactional Stress Model (Lazarus, 1999) and to the Interactive Model of Adaptation to Stress (Gomes, 2014), the adaptation to stress process should be analysed considering simultaneously the stressors that trigger the situation, how the situation is evaluated by the individual (i.e., cognitive appraisal) and the feelings that emerge from the situation. ProStress is a psychological intervention program designed to develop stress management skills in individuals in different settings, which considers the stressors' characteristics, primary cognitive appraisal (challenge vs threat perceptions), second cognitive appraisal (coping and control perceptions), and emotions when training individuals to manage stressful situations. This research was conducted aiming to test the efficacy of this psychological program. **Methods.** Data was collected from the intervention group (24 participants, with different background and professions) and a control group (with similar characteristics), in two different time-points: before and after the intervention. The evaluation protocol included measures of stress control, irrational beliefs, cognitive appraisal, and performance perception. **Results:** Comparing to the control group, the intervention group achieved better results, suggesting a more adaptive perception of the stress experience. **Conclusion:** The results showed that the intervention program was a positive experience for participants and helped them managing stress in their work lives.

## P060

### Cognitive load monitoring in elite youth soccer training

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objective:** The cognitive dimension of training is relevant to learning and performing in soccer, though it is rarely specifically quantified. This study assesses the sensitivity of two cognitive monitoring tools and their metrics to different cognitive load conditions, at both daily and microcycle monitoring levels. Cognitive tools are proposed to detect changes in cognitive load at both levels.

**Methods:** Seventy elite youth football players (49 males, 21 females, mean age  $\pm$  SD = 16.83  $\pm$  2.84 years) from a French professional club participated in this 15-week study. The players were monitored during five microcycles with varying cognitive load conditions. A two-week washout period was implemented between each condition. Cognitive load was monitored daily at each post-training session using a Stroop task and the NASA Task Load Index (NASA-TLX). The Rate of Perceived Exertion (RPE) and Global Positioning System (GPS) data were also collected to quantify internal and external load, respectively. Linear Mixed Models with Bonferroni corrections were employed to detect the changes between days and conditions for each monitoring tool.

**Results:** The results indicated that the Mental Demand (MD) and Temporal Demand (TD) scores of the NASA-TLX as well as two metrics of the Stroop task were significantly different across certain days of each condition (all  $p < 0.05$ ). The overall NASA-TLX score, MD, TD, and the Stroop task metrics were all significantly different between the different types of microcycle (all  $p < 0.05$ ). Measures of RPE and GPS varied significantly across both daily and microcycle levels (all  $p < 0.05$ ).

**Conclusion:** The cognitive demand of training can be significantly manipulated and monitored at the daily and microcycle levels. The MD, TD of the NASA-TLX and Stroop task could help to monitor cognitive demand during soccer training sessions. The results also demonstrated that cognitive and physical load are strongly intertwined.

## P061

### Masters athletes' preferences for adult-oriented coaching practices

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** The empirically grounded and psychometrically valid Adult-Oriented Sport Coaching Survey (AOSCS) measures adult-oriented coaching practices. The AOSCS has been used as a professional development tool for coaches to understand how often they use adult-oriented coaching, but also how often their Masters/ adult athletes (MAs) perceive that their coaches use the same practices. Coaches have asked for their MAs' preferences so they can tailor their coaching according to their athletes' interests. This poster outlines the creation of a practical guide of adult sportspersons' preferences for adult-oriented coaching.

**Methods:** MAs (n = 135; 22–82 y/o; 67% Female) completed a survey comprised of demographics and the 22-item five-factor AOSCS preference version. MAs were asked how often they prefer coaching for five different time-points of their seasons (pre-, start-of-, mid-, end-of-, and post-season). Descriptive statistics were calculated and plotted to observe season trends. T-tests were conducted to examine how MAs' preferences aligned with the grand mean.

**Results:** The Framing Learning Situations factor was significantly lower than the grand factor mean at the start-of-, mid-, end-of-season (Mean Diff. = -.44, -.36, -.54; p-values < .002), while the Respecting Preferences factor was significantly higher at the start-of- and mid-season (Mean Diff. = .40, .46; p-values < .003). MAs' preferences were lower in pre/post-season and often displayed a "peaked" trend where the highest preferences occurred at mid-season.

**Conclusion:** MAs' adult-oriented coaching preferences were generally static (non-significant); however, exceptions during the season (start, mid, end), were that MAs prefer their coaches to consider how they wish to be pushed during practice more often, and to relate their training to concerns outside of sport less often. At the end-of-season, MAs prefer their coaches to create skill-based self-discovery situations less often. These data were used to create a simple and practical guide for coaches when adopting an adult-oriented coaching approach.

## P062

### Discrepancies between Soccer Players' Recognition of Their Coach's Communication and Coaches' Perception

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Our study aimed to assess the disparities in coaches' and players' recognition of communication content and frequency and the correlation of such disparities with players' trust in and relationship maintenance strategies with their coaches.

**Methods:** The study adopted a cross-sectional survey involving 134 male players from A university soccer club in Japan, as well as six male coaches (M = 26.33, SD = 5.92), each from a separate team category. Focus was placed on a single team to eliminate the effects of cultural factors that vary significantly among teams. The survey included 132 athletes (M = 20.55, SD = 1.52; level of performance: national level = 20; local level = 48; prefectural level = 41; regional level = 25), excluding those with incomplete responses. Communication frequency was assessed using three indicators: a six-item questionnaire of coach communication (Umezaki et al., 2010), the Japanese version of the Coach-Athlete Relationship Questionnaire (CART-Q; Yamaguchi et al., 2015), and the athlete version of the Coach-Athlete Relationship Maintenance Questionnaire (CARM-Q; Kuribayashi & Sato, 2015). Discrepancy scores were calculated by subtracting the player scores from the coach scores.

**Results:** This study found that discrepancies in coach communication content, such as 'positive verbalisations', were correlated with 'closeness' and 'commitment' in the CART-Q and with subscales of the CARM-Q (rs = -.303 to -.233, ps < .01 to .001). Weak negative correlations were also identified between 'negative verbalisations' in communication content discrepancies and 'closeness' in the CART-Q (r = .251, p < .01).

**Conclusion:** This study indicates that players are more likely to trust their coaches when they perceive positive and friendly language from them more strongly than the coaches themselves recognise. Conversely, players' robust recognition of coaches' negative language tends to diminish their trust in the coaches.

Kuribayashi C., & Sato H. (2015). Pilot evaluation of psychometric property of the Coach-Athlete Relationship Maintenance Questionnaire in Japanese junior tennis players. *Japanese Journal of Sport Psychology*, 42(2), 93–102.

Umezaki T. (2010). Construction of mutual bias in football coaching. *Japanese Journal of Educational Psychology*, 58(3), 298–312.

Yamaguchi K., Okada H., Masuchi K., & Ichimura S. (2015). Using CART-Q to investigate the relationship between high school judo club members and coaches in Japan. *The bulletin of Faculty of Health and Sport Sciences*, 38, 59–67.

## P064

### The Relationship Between Psychological Abilities and Mental Health Among Elite Athletes in Japan

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** In order to provide effective psychological support for elite athletes, it is crucial to understand which of other psychological factors are potentially related to their mental health management. The purpose of this study was to examine the relationship between Japanese elite athletes' psychological abilities (PA) and mental health problems (MHP).

**Methods:** 114 elite-level athletes (mean age = 24.37±4.34; 40% female) who competed internationally as representatives of Japan from various sports (e.g., track and field, rowing, handball, etc.) volunteered to complete a survey consisting of PA (Japan Institute of Sport Sciences-Psychological Ability Test for Elite Athletes, total of 40 items; Tachiya et al., 2020) and MHP (Kessler Psychological Distress Scale, total of 10 items; Kessler et al., 2002). The PA questionnaire consists of 10 first-order subscales and 3 second-order subscales.

**Results:** The reliability coefficients for all the variables appeared as from acceptable to excellent ( $\alpha$ s ranged from .76 to .93). Descriptive statistics and correlation coefficients were computed before running 2 stepwise regression models to predict MHP. The first model with the 3 second-order subscales as predicting variables (PV) revealed that the psychological skills subscale was a significant negative predictor of MHP ( $R^2=.165$ ,  $F(22.188)$   $p < .001$ ). The second model with the 10 first-order subscales as PV found that the self-control and confidence subscales negatively predicted MHP ( $R^2=.176$ ,  $F(11.843)$   $p < .001$ ).

**Conclusion:** The purpose of this study was to examine the relationship between Japanese elite athletes' PA and MHP. The results revealed that elite athletes who reported higher PA demonstrated lower MHP. In conclusion, improving psychological skills, specifically self-control and confidence, potentially reduces mental health issues more among elite athletes. Future research should keep monitoring the relationship between psychological skills and MHP among elite athletes if the relationship is generalizable to a larger athletic population.

Tachiya, Y., Murakami, K., Arai, H., Uto, M., & Hiraki, T. (2020). Development of a test to evaluate the psychological ability required of top athletes. *Journal of High Performance Sport*, 6, 44-61. [https://doi.org/10.32155/jissjhp.6.0\\_44](https://doi.org/10.32155/jissjhp.6.0_44)

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., Walters, E. E., & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological medicine*, 32(6), 959-976. <https://doi.org/10.1017/S0033291702006074>

## P065

### The Challenges of Understanding Safe Sport Guidelines while Fostering Close Coach-Athlete Relationships in Canadian High Performance Tennis

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Developing close, trusting coach-athlete relationships leads to well-being and improved performance (Jowett et al., 2023). However, high performance (HP) coaches around the globe are under severe scrutiny regarding the establishment and maintenance of these relationships due to systemic issues in HP sport that contribute to athlete maltreatment, including in Canada (Kerr et al., 2019; Willson et al., 2022). As such, it is important to consider how coaches develop quality relationships, specifically in HP sport where athletes' needs are sometimes not prioritized. Thus, the purpose of this study was to understand how tennis coaches developed quality relationships with their HP adolescent (14-18 year old) athletes while prioritizing their needs and well-being.

**Methods:** Five coaches (3 male, 2 female) engaged in two semi-structured interviews and three story completion tasks. The data were analyzed using a reflexive thematic analysis (Braun & Clarke, 2019).

**Results:** Findings outlined that the coaches believed establishing a close, trusting relationship with their athletes was fundamental to creating a caring environment in which empathy for athletes' athletic, academic, and personal demands could be demonstrated. Examples of coaching behaviours included demonstrating care towards athletes' social, emotional, academic, and athletic challenges, encouraging dialogue in which athletes expressed their wants and needs, and involving parents to help maintain transparency regarding the establishment of closeness. However, coaches were uncertain if such closeness should be avoided in HP sport given the current climate. This is unfortunate, as coaches can promote positive values by creating close coach-athlete relationships where athletes feel safe speaking up, expressing concerns, or offering new ideas.

**Conclusion:** This study provides practical suggestions for scholars, sport leaders, coaches, athletes, and parents to collaboratively identify safe coaching practices to foster close, trusting coach-athlete relationships that protect athlete welfare.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11, 589-597.

Jowett, S., Do Nascimento-Júnior, J. R. A., Zhao, C., & Gosai, J. (2023). Creating the conditions for psychological safety and its impact on quality coach-athlete relationships. *Psychology of Sport and Exercise*, 65, 102363.

Kerr, G., Battaglia, A., & Stirling, A. E. (2019). Maltreatment in youth sport: A systemic issue. *Kinesiology Review*, 8, 237-243.

Willson, E., Kerr, G., Stirling, A., & Buono, S. (2022). Prevalence of maltreatment among Canadian National Team athletes. *Journal of Interpersonal Violence*, 37, 21-22.



## P066

### University Team Sport Athletes' Perceptions and Experiences of Warm-ups

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Warming up is a universally accepted activity conducted prior to sporting performance aiming to prepare individuals for upcoming competitive demands (Fradkin et al., 2010). However, despite being widely employed by sports professionals, little is known of the psychological implications of warming up. Consequently, this research aimed to explore perceptions and experience of warming up in team sport athletes.

**Methods:** Nine university team sport athletes took part in semi-structured interviews exploring their perceptions of the purpose, influences, and impact of warming up. Data were analysed using collaborative qualitative analysis guidelines (Richards & Hemphill, 2018). Methodological rigor was enhanced via methodological transparency, thick description, peer debriefing, critical friends, and member reflections (Richards & Hemphill, 2018; Smith & McGannon, 2017).

**Results:** Overall, participants highlighted several individual and team benefits from warming up effectively, including improved confidence, focus, cohesion, and coordination. Participants also highlighted how replication of key skills, analysis of opposition, and environmental factors influenced the psychological outcomes of warm-ups. These findings are summarised in the following four higher order themes: 1) Physical preparation, 2) Competition confidence, 3) Team dynamics, and 4) Perceptions of the opposition.

**Conclusions:** Our findings show warming up has several positive psychological consequences for athletes at an individual and group level, highlighting the importance of warming up optimally prior to competition. Warm-ups are also key for athletes to learn about the opposition and practice role-specific skills, demonstrating how warm-ups provide a window of opportunity allowing athletes to develop opposition specific strategies for use in competition. In conclusion, warming up is a key psychological period for athletes and teams and requires further research and applied consideration from a psychological perspective.

## P067

### An autoethnographic report in coping with stress during the Ultra Trail du Mont Blanc (UTMB)

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** The purpose of this study was to explore through the lived experiences of the main author (an ultra-trail runner), how she coped in the final hours of racing with the physical, emotional, and cognitive demands before disengaging at three attempts in the Ultra Trail du Mont Blanc. The UTMB, a 100 mile race with a cumulative positive gain of 10000m and is seen as the pinnacle race of the World Series Finals. The presentation will explore the psychological interventions she deployed to prevent disengagement and reflects upon the processes which finally lead to dropping out of these races.

**Method:** The method adopted an evocative auto ethnographical approach as an innovative inquiry to enlighten social understanding (Sparkes 2000) whilst evoking an emotional response (Bochner & Ellis, 2016). Following Sparkes' model (2020) utilising the personal voice and drawing from first hand experiences merged with the academic voice, an inductive data analysis (Braun & Clarke, 2006) was employed to explore the most salient themes within the data.

**Results:** The main findings supported the notion that psychological resources such as mental toughness (Hardy et al., 2014), resilience (Alliger et al., 2015), self-control (Hagger et al., 2010), and cognitive strategies (e.g. Méndez-Alonso et al., 2021) are essential for running in extreme conditions while facing multiple and simultaneous stressors. However, when pressure, anxiety, perceptual effort alterations, exercise induced pain, and cognitive depletion outweigh the available physical and psychological resources, disengagement occurs (Beattie & Davies, 2010).

**Conclusion:** Psychological resources like self talk (Blanchfield et al., 2014) or emotion regulation (Hanin, 2007) for example, can be ineffective under extreme conditions, even if the motives are solid, and may not be enough to counteract task disengagement in a limited time during an extreme race. Catastrophe in such cases is inevitable.

Alliger, G. M., Cerasoli, C. P., Tannenbaum, S. I., & Vessey, W. B. (2015). Team resilience: How teams flourish under pressure. *Organizational Dynamics*, 44(3), 176-184. <https://doi.org/10.1016/j.org-dyn.2015.05.003>

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Hardy, L., Bell, J., & Beattie, S. (2014). A neuropsychological model of mentally tough behaviour. *Journal of Personality*, 82(1), 69-81. doi: 10.1111/jopy.12034

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Sparkes, A. C. (2000). Autoethnography and narratives of self: Reflections on criteria in action. *Sociology of Sport Journal*, 17(1), 21-43. <https://doi.org/10.1123/ssj.17.1.21>

Sparkes, A. C. (2020). Autoethnography: Accept, revise, reject? An evaluative self reflects. *Qualitative Research in Sport, Exercise and Health*, 12(2), 289-302. <https://doi.org/10.1080/2159676X.2020.1732453>

## P068

### Navigating Gendered Expectations: Exploring Emotional Labour Among Women Head Coaches in Canadian Universities

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objective:** Feminist researchers (Krahn, 2022; Sveinson et al., 2022) contend that a gendered division of labour within sport coaching, including emotional labour, may be a key factor contributing to the persistent underrepresentation of women in coaching roles. Emotional labour is the management of emotions to produce the proper state of mind in others in a work context (Hochschild, 1983), known to lead to potential burnout and emotional exhaustion (Lee et al., 2015). This study critically examined taken-for-granted, gender-neutral assumptions about coaches' work by exploring the use and experiences of emotional labour among white, able-bodied women head coaches in Canadian universities.

**Methods:** Using a feminist paradigm, two in-depth, semi-structured interviews were conducted with nine white, able-bodied women head coaches at universities across Canada, including six full-time coaches and three part-time coaches. Transcripts were abductively analyzed using reflexive thematic analysis (Braun & Clarke, 2022).

**Results:** Two themes were developed to illuminate the emotional labour of the women coach participants. The first theme, "Navigating double-bind," demonstrated how participants are expected to both act and display emotions to meet competing expectations of a hegemonically masculine heroic leader and display stereotypically feminine emotions characteristic of a nurturing mother. The second theme, "Beyond the X's and O's," explored how participants used emotional labour to create and maintain supportive spaces and build relationships to meet student-athletes' holistic needs. These results provide a partial narrative that counters common understandings of coaches' work, predominantly rooted in hegemonic masculine discourses about the technical and tactical aspects of coaches' work (Cassidy et al., 2009).

**Conclusion:** This study contributes to coaching literature by providing a feminist perspective on coaches' work, highlighting the challenges faced by women coaches navigating gender norms and power dynamics. It urges institutions to recognize and support coaches' emotional labour to promote gender equity and foster safer sport cultures.

Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis?. *Qualitative research in psychology*, 18(3), 328-352.

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Hochschild, A.R.. (1983). *The managed heart: Commercialization of human feeling*. University of California Press.

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Sveinson, K., Taylor, E., Keaton, A. C., Burton, L., Pegoraro, A., & Toffoletti, K. (2022). Addressing gender inequity in sport through women's invisible labor. *Journal of Sport Management*, 36(3), 240-25.

## P069

### Effectiveness of acceptance and commitment therapy among adolescent athletes: A systematic review

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Acceptance and Commitment Therapy (ACT) aims to build and strengthen psychological flexibility processes among athletes and improve their performance, well-being, and mental health. Meta-analyses and systematic reviews show that acceptance-based and mindfulness-based interventions might be effective in achieving these goals (Bühlemayer et al., 2017; Noetel et al., 2019; Ptáček et al., 2023), but none of the meta-analyses, or systematic reviews differentiate the developmental phases of participants within included studies. The context of youth athletes undoubtedly differs from that of adult athletes. When using contextual-based approaches (such as ACT) with youth, practitioners must consider contextual and developmental factors (i.e., metacognition and language, identity development, cultural influences, social dynamics, and others). Given that youth athletes make up a substantial part of the population of competitive athletes facing the pressure of known demands of the sporting environment, there is a need to differentiate the evidence base based on the developmental phases of athletes to guide the applied practice. The poster presents the results of a systematic review of 26 eligible studies assessing ACT's effectiveness among adolescent athletes, providing evidence to guide practitioners in applied practice. The systematic review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Hutton et al., 2015), and we utilise the GRADE approach (Schünemann et al., 2013) for quality of evidence assessment.

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**P070**

**Development of an online acceptance and commitment training program for adolescent athletes**

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Acceptance and Commitment Training (ACT) aims to build and strengthen psychological flexibility processes among athletes and improve their performance, well-being, and mental health. Meta-analyses and systematic reviews show that acceptance-based and mindfulness-based interventions might effectively achieve these goals (Bühlemayer et al., 2017; Noetel et al., 2019; Ptáček et al., 2023). Additionally, there has been a growing interest in internet-based intervention and training programs in recent years. For example, Andersson & Nilsson (2019) examined the effectiveness of an internet-based Mindfulness-Acceptance-Commitment program (Gardner & Moore, 2007) in a randomised trial of 125 participants. The results show that the program improved dispositional mindfulness and experiential acceptance, which predicted improved performance and aspects of mental health. Furthermore, Watson and colleagues (2023) recently presented a randomised trial of 81 athletes, assessing the effectiveness of an online acceptance and commitment therapy program in soccer, and the results show that the online program may be effective in reducing perfectionism. Following the results of these studies, online ACT-based interventions and training programs may be time-effective, cost-effective and flexible alternatives to one-on-one sessions for athletes. The poster describes the rationale of an original online acceptance and commitment training program consisting of 8 modules designed for adolescent athletes aged 13-18, which we call Rising Beyond. The program focuses on developing six core psychological flexibility processes consistent with the ACT hexaflex. The poster also briefly outlines a study protocol prepared to test its effectiveness among the target population in Czechia and Norway.

Andersson, H., & Nilsson, M. (2019). Internet-base Mindfulness-Acceptance-Commntiment approach in sports: A randomized controlled trial. [Master's thesis, Umeå University]

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## P071

### Self-recording of variations in optimal performance state due to fluctuations in team sports scoring.

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Introduction:** The optimal performance state model (EOR) is one of the central topics in sport psychology in Spain. To describe it, Palmi, J. (1999, 2015) used seven parameters: being motivated, activated, concentrated, feeling confident, competitive, emotionally regulated and cohesive. The EOR parameters vary during the competition as a response to different changes in the score and impact the player's feeling of being in an optimal performance state.

**Background and research motivation:** Studying these variations is not easy because doing it during the competition causes interferences and doing it afterwards might introduce a bias. Moreover, in team sports, this difficulty increases due to the number of players involved. The aim of this communication is to introduce a pilot test that uses a digital tool to collect data on these variations of the EOR, relating them to score variation during volleyball competition.

**Methodology:** The pilot approach and recording tool were tested with a professional woman volleyball player (22 years old) during 10 regular Spanish league matches. For each set, the EOR parameter with the most incidence was identified; and the variations the 7 EOR parameters linked to score changes (favorable, unfavorable, tie) were assessed.

**Results:** The results obtained from the recordings made during the 10 matches are presented, and the relationships between score changes and EOR variations are studied.

**Discussion/Conclusions:** The ease of use and functionality of the tool tested are explained, as well as the information collected, and the conclusion of the information collected and studied during this pilot test.

**Key words:** optimal performance state, intra-set score variation, volleyball.

## P072

### You can't con a conman: the perception of self-generated deceptive actions

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Recognising whether the action intentions of others are genuine or deceptive can facilitate effective social interactions such as a thief trying to hide their intent to steal from a shop owner or a basketball player looking in one direction while intending to pass in another direction. Common-coding theory (Prinz, 1997) proposes that the ability to perceive a deceptive action is associated with the ability to perform the same action (and vice versa), but can an actor deceive themselves? **Objective:** The study investigated whether individuals could anticipate their own deceptive action outcomes better than others anticipating those same actions. **Method:** Eighteen skilled rugby players executed deceptive (side-step) and non-deceptive actions while running towards a camera. Eight equally skilled rugby players anticipated the outcomes of the deceptive actions generated by the filmed players. Six-months after filming, the original group of eighteen rugby players anticipated their self-generated deceptive actions. **Results:** Players were no better at anticipating their self-generated actions than others were. Instead, the response behaviour when viewing self-generated actions was indistinguishable from that of others viewing the same actions. **Discussion:** Contrary to common-coding theory, these findings suggest that the self-observation advantage might be negated when the observer has acquired extensive visual experience in that observation task.

Prinz, W. (1997). Perception and action planning. *European Journal of Cognitive Psychology*, 9(2), 129-154.



## P073

### The Importance of Psychological Preparation: Experience of the Czech Tennis Elite

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Psychological preparation constitutes a pivotal component within the comprehensive training of tennis players worldwide. In the Czech Republic, however, the importance of the psychological dimension is frequently undervalued. Despite the increasing volume of research dedicated to psychological preparation, there exists a notable gap in understanding how tennis players perceive and engage with psychological preparation [1].

This qualitative study seeks to explore the experiential realm of psychological preparation among elite tennis players. The primary objective is to delineate the distinctive characteristics and obstacles inherent in the psychological preparation of elite tennis players. A secondary objective involves the exploration of players' emotional states experienced within their athletic performance, career peaks and adversities. The study draws upon interviews conducted with eight Czech elite tennis players actively participating in the International Tennis Federation circuit, with rankings reaching up to 1000. Data was collected through semi-structured interviews, subsequently subjected to thematic analysis.

Despite the recognition of its importance, tennis players often fail to prioritise this aspect of their game. Intrinsic motivation is identified as a key determinant of effective psychological preparation. Pre-match preparation involves controlling factors that affect performance, tuning into the optimal zone and managing nervousness. During the match, tennis players are constantly dealing with their emotions, even if they're leading. Post-match reflection is essential for improvement. Tennis players face challenges such as injuries, losing streaks and fatigue, while winning prestigious tournaments and overcoming injuries contribute to a fulfilling athletic journey. These findings not only highlight the importance of psychological preparation in tennis but also offer valuable insights for sport coaches and psychologists.

1. Cece, V. (2020). Mental training program in racket sports: A systematic review. *International Journal of Racket Sports Science*. <https://doi.org/10.30827/digibug.63721>

This work was supported by GAUK 80424 and Cooperatio Program provided by Charles University, implemented at the Faculty of Physical Education and Sport.

## P074

### Behavioral and neurobiological effects of soccer heading training in virtual reality

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Virtual reality (VR) technology has received considerable attention over the last few years, with applications in many performance domains including training of sports-related mental and motor skills (for a recent review see Richlan et al., 2023). The exact psychological and neurobiological mechanisms underlying potential VR training effects in athletes, however, remain largely unknown.

**Methods:** The present longitudinal MRI study reports behavioral and neuroanatomical effects of VR soccer heading training in a male amateur player (age = 37 years). The study was conducted over eight weeks, starting with a pre-test (T0), followed by a four-week VR training phase, after which the first post-test was conducted (T4). After an additional four-week retention phase, the second post-test was conducted (T8). VR training was conducted with a Quest 2 headset (Meta Platforms) and was done for 30 minutes from Monday to Saturday for four weeks. High-resolution structural T1-weighted MRI was acquired with a Siemens Prisma 3 Tesla scanner. For preprocessing and statistical analysis, SPM12 was used.

**Results:** Substantial improvement in real-life heading performance (juggling, heading strength and precision) was accompanied by structural neuroanatomical changes. The comparison of the smoothed, modulated, normalized GM images revealed an increase in GM volume in the left thalamus. In addition, the comparison of the WM images revealed an increase in WM volume in the bilateral cerebellum. The signal intensity values (arbitrary units) show a continuous increase from T0 to T4 with a stable retention effect after four weeks without training (T8).

**Conclusion:** Taken together, the results point towards both stable behavioral and neuroanatomical effects of a four-week VR soccer heading training. With this longitudinal MRI study, we contribute to the growing literature on VR training in sports in general and provide the world's first evidence on fundamental neurobiological mechanisms underlying neuroplasticity related to VR training effects.

Richlan, F., Weiß, M., Kastner, P., & Braid, J. (2023). Virtual training, real effects: a narrative review on sports performance enhancement through interventions in virtual reality. *Frontiers in Psychology*, 14, 1240790.

## P075

### Supporting sport officials' career transitions: a co-construction of a skills framework

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Although some officials are paid as referees, their careers are short, prone to numerous hazards and depend notably on competitive results (Duvant & Nuytens, 2020; Samuel, Galily, & Tenenbaum, 2015). However, there is a paucity of research that addresses and supports the career transition of high-level officials. While research has shown how athletes' soft skills developed during their careers enable them to succeed in other contexts (Gould & Carson, 2008; Jacobs & Wright, 2018), research has not considered this dimension for the officials. In this context, we have co-constructed, with the French soccer officiating stakeholders, a skills framework for high-level referees (2023). From an enactive and phenomenological approach (Durand et al., 2006; Poizat, Salini & Durand, 2013; Leblanc, Bouchot & Secheppet, 2021; Récopé et al., 2014), this research aims to understand how this framework allows referees to make explicit their lived experiences for promoting their skills.

**Method:** 15 French referees officiating in professional football or rugby championships participated in this study. Working groups involving the referees were organized to discuss the skills framework. Three questions were asked:

- "Is the skills framework understandable?"

- "Does it reflect all the dimensions of your officiating occupation?"

- "For each skill, could you to provide an example from your experience?"

Discussions were recorded and transcribed. The analysis focused on several topics: (1) which skills are most significant for referees, (2) which skills are most debated among referees, (3) what are the common and different points between football and rugby referees.

**Results and conclusion :** The results allowed: (1) to identify the elements of the skills framework which constitute connectors of experience, (2) to frame the work to adapt the skills framework according to different objectives: the institutional recognition of the official's skills, a resource supporting career transition, a means to enhance a trade construction.

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Gould, D., & Carson, S. (2008). Life skills development through sport: Current status and future directions. *International review of sport and exercise psychology*, 1(1), 58-78.

Jacobs, J. M., & Wright, P. M. (2018). Transfer of life skills in sport-based youth development programs: A conceptual framework bridging learning to application. *Quest*, 70(1), 81-99.

Leblanc, S., Bouchot, H., & Secheppet, M. (2021). Modélisation théorique de l'expérience mimétique et cours d'action : analyse de situations de formation en enseignement, santé, et sport. @ctivités, 18-1.

Poizat, G., Salini, D., & Durand, M. (2013). Approche énaactive de l'activité humaine, simplicité, et conception de formations professionnelles. *Education Sciences & Society*, 4(1), 97-112.

Récopé, M., Rix-Lièvre, G., Kellin, M., & Boyer, S. (2014). Une appropriation singulière par les STAPS des hypothèses de l'énaction. In M. Quidu (Ed.), *Innovations théoriques en STAPS et implications pratiques. Les sciences du sport en mouvement*. (pp. 94-115). Paris : L'Harmattan.

Samuel, Galily, & Tenenbaum (2015). Who are you, ref? Defining the soccer referee's career using a change-based perspective. *International Journal of Sport Psychology*, 15(2), 118-130

## P076

### A roller coaster of emotions on the bench: A qualitative study of rugby coaches' emotional dynamics during competitive games

**Nadège Rochat**<sup>1</sup>, Simon Boyer<sup>1</sup>, Antoine Couhert<sup>1,2</sup>, Géraldine Rix-Lièvre<sup>1</sup>

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Recent literature on coaches' emotions has highlighted their ability to regulate their emotions through self- or interpersonal regulation strategies (Braun & Tamminen, 2019). Coaches' emotional intelligence has also been shown to be beneficial to coach-athlete interactions (Chan & Mallett, 2011; Davis & Davis, 2016; Smith & Sherwin, 2022). Inspired by an enactive and phenomenological perspective (Colombetti & Thompson, 2007), this study aims to characterize the dynamics of emotionally intense moments (perceived as such by coaches) that occur during an unfolding game situation.

**Methods:** Eight rugby coaches from four U15 to U21 teams affiliated with a French training center participated in the study. Each team was coached by two coaches. Observations and field notes were collected during eight competitive games during the 2022-2023 season. Immediately after the game, coaches completed a graph depicting fluctuations in their perceived emotional intensity throughout the game. Individual explication interviews were conducted one or two days after the game with the graph as a support. An inductive analysis was conducted to identify recurring themes that formed general dimensions.

**Results:** The general dimensions revealed different types of meaningful elements (negative or positive) for coaches that triggered emotional intensity: players' attitudes (individual or collective), refereeing, (in)adequacy between players' performance on the field and the instructions given during training. The results also highlighted the coaches' implicit strategies to deal with intense emotional episodes, and the difficulties in getting rid of ruminative thoughts, which prevented them from being fully present in the unfolding situation.

**Conclusions:** The coaches' emotional dynamics are unique in that the meaningful situational anchors can vary even among coaches working together in the same team. This study suggests perspectives for mental training, particularly to help coaches identify potential trigger situations and self-regulate their emotions to maintain their interactions with players during intense moments of the game.

Braun, C., & Tamminen, K. A. (2019). Coaches' interpersonal emotion regulation and the coach-athlete relationship. *Movement & Sport Sciences-Science & Motricité*, 105(3), 37-51.

Chan, J. T., & Mallett, C. J. (2011). The value of emotional intelligence for high performance coaching. *International Journal of Sports Science & Coaching*, 6(3), 315-328.

Colombetti, G., & Thompson, E. (2007). The feeling body: Toward an enactive approach to emotion. In W.F. Overton, U. Müller, & J.L. Newman (Eds), *Developmental perspectives on embodiment and consciousness* (pp. 61-84). Psychology Press.

Davis, P. A., & Davis, L. (2016). Emotions and emotion regulation in coaching. In P.A. Davis (Eds), *The psychology of effective coaching and management* (pp. 285-306). Nova Science Publishers.

Smith, B., & Sherwin, I. (2022). Coach and athlete perceptions of half-times in high-performance rugby union. *Sports Coaching Review*, 1-23.

**P077**

**Early Developments of the Coaching Gender Self-Efficacy Scale (CGSES)**

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<sup>1</sup>University Of Ottawa, Ottawa, Canada

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Evidence shows girls leave sports at higher rates than boys (Stewart & Taylor, 2000), yet knowledge on how coaches' gender beliefs (i.e., essentialism) impact girls' participation is limited. Gender essentialist discourses permeate the sport landscape, positing sport as a masculine endeavour for which girls are ill-equipped (Allison, 2018). Coaches have expressed a need for evidence-based tools to gain confidence in addressing and deconstructing gender essentialist discourses that impact their coaching practices and consequently, girls' participation. Recently a growing body of research has been dedicated to advancing gender transformative coaching practices (Goorevich & LaVoi, 2024) which inspired the development of the Coaching Gender Self-Efficacy Scale (CGSES).

**Methods:** Scale development and validation is one way to accurately predict and assess coaches' beliefs and, as a result, their behaviours (Young et al., 2019). According to Boateng and colleagues (2018), scale development consists of three phases; item development, scale development, and scale evaluation. This study is dedicated to phase one, comprised of four focus groups with girls' sport coaches (n = 21) for item generation, an expert panel of researchers in the field (n = 3) for item evaluation (i.e., content relevance, representativeness, and technical quality), and three informal cognitive interviews with girls' sport coaches (n = 3) to evaluate face validity of the proposed items with the target population.

**Results:** The focus group data contributed to the development of potential scale items (e.g., girls are weaker than boys) which were further refined by the expert panel and cognitive interviews through qualitative content analysis. This development process resulted in the first draft of the CGSES for evaluation in phase two.

**Conclusion:** Our study offers insights into the scale development process of the CGSES; an assessment tool for future gender-based interventions that challenge the entrenched gender structures, practices and hierarchies in sport.

Allison, R. (2018). *Kicking center: Gender and the selling of women's professional soccer*. Rutgers University Press.

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health*, 6(149). <https://doi.org/10.3389/fpubh.2018.00149>.

Goorevich, A., & Lavoie, N.M. (2024). Essentially different or equally the same: uncovering sport coach discourses about coaching girls. *Sports Coaching Review*. <https://doi.org/10.1080/21640629.2024.2309786>.

Stewart C., & Taylor, J. (2000). Why female athletes quit: Implications for coach education. *The Physical Educator*, 57(4), 170. <https://doi.org/10.1080/07303084.2002.10607744>.

Young, B. W., Rathwell, S., Callary, B., (2019). Testing a coaching assessment tool derived from adult education in adult sport. *Psychology of Sport & Exercise*, 47. <https://doi.org/10.1016/j.psychsport.2019.101632>

## P078

### Do concordant coach-athlete dyads predict higher athletes' perceived competence?

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives.** Although co-orientation (i.e., coaches' and athletes' level of similarity and understanding concerning their views of the quality of their relationship) is considered as a key element of the coach-athlete relationship (CAR) quality, it has been poorly investigated in the literature. The present study aims to extend knowledge on this topic by exploring the associations between one dimension of co-orientation, actual similarities (i.e., the degree of concordance between coaches' and athletes' perceptions of their relationship), and athletes' perceived competence.

**Method.** 152 French handball players (Mage = 15.09, SD = 0.87; 50% male) and their coaches (N= 9), involved in intensive training centres evaluated their CAR quality through the CART-Q (Jowett & Ntoumanis, 2004). In addition, athletes' perceived competence has been measured (Trouilloud & Amiel, 2011).

**Results.** Response surface analyses revealed that actual similarities were significantly related to athletes' perceived competence. Specifically, the athletes' perceived competence was higher when athletes' and coaches' perceptions of the CAR quality were concordant at high values ( $p < .001$ ). In addition, results indicated that the athletes' perceived competence was higher when their perceptions of the CAR quality were superior to that of their coaches ( $p < .001$ ).

**Conclusion.** By exploring the co-orientation through response surface analysis, this study offers new perspectives on the understanding of the CAR. The results support theoretical principles from 3+1Cs model (Jowett, 2007) suggesting that the degree of concordance between coaches' and athletes' perceptions of the quality of their relationship may be associated with athletes' perceived competence. Future work is encouraged to further explore the dimension of co-orientation and its relationship with athlete development.

Jowett, S. (2007). Interdependence analysis and the 3+1Cs in the coach-athlete relationship. In S. Jowett & D. Lavallee (Eds.), *Social psychology in sport* (pp. 15-27). Champaign, IL: Human Kinetic. <https://doi.org/10.1080/1750984X.2016.1184698>

Jowett, S., & Ntoumanis, N. (2004). The coach-athlete relationship questionnaire: Development and initial validation. *Scandinavian Journal of Medicine & Science in Sports*, 14(4), 245-257. <https://doi.org/10.1046/j.1600-0838.2003.00338.x>

Trouilloud, D., & Amiel, C. (2011). Reflected appraisals of coaches, parents and teammates: A key component of athletes' self? *International Journal of Sport Psychology*, 42(1), 97-114.

## P079

### Referee as 'game-maker': An ecological grounded theory.

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Nearly all scientific methods used to interpret referee decision-making performance have prioritised objectivity, uniformity, and prediction as markers of expertise. This pursuit has been founded on a view that an officials' influence on the game should be minimal. Yet, what if the function of referee decision-making was instead to intentionally manage and control the game's trajectory towards key social ends? To answer this question, I sought to generate theory on how individual conceptions held by referees about their task role shaped their decision-making processes and priorities. **Methods:** Using an ecological grounded theory approach (Russell, 2021, Russell et al., 2022, 2024), forty-two past and present referees were involved. Participants included: local and National Premier Leagues (n = 21, ma = 36.8 years, r = 1-30); A-Leagues and FIFA level (n = 14, ma = 32 years, r = 9-20); and former referees (n = 7, ma = 58.8 years, r = 15-30). Male (n = 36) and female (n = 6). **Results:** My analysis produced a running theoretical case that decision-making actions were invested in regulating the referee's perceived visible impact on the game, in the interests of avoiding controversy and any onus of responsibility for how the game transpired. To achieve these goals, local decision-making was focussed on controlling the game's performance direction and intensity, to produce ideal complex psychosocial game states. **Conclusions:** The function of the referee's decisions is to shape the game's evolution towards socially significant priorities. Rather than discrete responses to individual acts of transgression, I propose that referee decision-making be reconceptualised as a non-static adaptive emerging process intertwined with the game's functional cohesiveness. Implications highlight the importance of interrogating scientific and cultural assumptions when analysing social interactive behaviours.

Russell, S. (2021). How individual conceptions of task role influence referee decision-making priorities: Football arbitration as an 'ecologically grounded' process in a complex system. thesis, Queensland University of Technology.

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Russell, S., Renshaw, I., & Davids, K. (2022). Sport arbitration as an emergent process in a complex system: Decision-making variability is a marker of expertise in national-level football referees. *Journal of Applied Sport Psychology*, 34(3), 539-563.



## P080

### Second-Order Planning in Bimanual Object Manipulation Tasks: The Effects of Hand Size, Object Size, and Orientation

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** The prevalence of second-order planning in object manipulation tasks, characterized by the end-state comfort (ESC) effect, is constrained by numerous factors (Rosenbaum et al., 1990). Research on second-order planning among children has been largely inconsistent, with findings demonstrating that increases in hand size (accompanying with aging/growth) are associated with increased ESC (Scharoun Benson, 2021). As such, the current research consists of preliminary data, which seeks to explore the prevalence of second-order planning in bimanual grasping tasks among children.

**Methods:** Children (N = 16; ages 9-10) performed four bimanual cup tasks, first with a standard cup size (7.2 cm diameter), and then with a cup the size of their choosing (4.7-8.4cm diameter). Tasks consisted of children picking up two cups as if someone were to pour water into them, with the cups positioned in four conditions: 1) both upright, 2) both overturned, 3) right upright and left overturned, and 4) right overturned and left upright. Three trials were performed per condition for each cup size. Grasp postures were observed, with specific postures attributed to successful ESC. Hand size was also recorded.

**Results:** Data were organized relative to each hand and the starting position of the cup. Poisson regressions were run for all conditions in the standard and choice cup size tasks. Despite hypotheses, participant age, hand size, nor cup preference were found to be significant predictors of ESC in any condition. As expected, when all cups were facing upright, children demonstrated more frequent ESC compared to when they were presented as both overturned or one upright and one overturned.

**Conclusion:** Despite the lack of significant predictors, these data support the inconsistent evidence for second-order planning among children. Additional data collection is required to elucidate the effects of hand size and object size on ESC in children during bimanual grasping tasks.

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## P081

### The impact of music on the behavior of athletes in the face of stress

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Stress in the sports context can be defined as a psychophysiological response of athletes' bodies to competitive demands, which can influence both psychological well-being and sports performance, as stated by Lazarus (1984), a renowned expert in stress psychology. A recent study found that around 60% of high school athletes experienced a moderate to extreme level of stress due to their sport, and a quarter reported that stress negatively affected their performance (Ward et al., 2023). Therefore, we decided to analyze the behavior of athletes, identifying if music plays a role in reducing stress during physical preparation, training, and the intense pressure they experience in their daily lives, especially leading up to a championship. This is because stress symptoms vary from individual to individual, as do coping resources.

**Objectives:** To investigate athletes' perception of strategies used to reduce stress in training and competitions and the role of music in this preparation.

**Methods:** A field research was conducted with a group of 50 track and field athletes from a team in the state of São Paulo-Brazil. A virtual questionnaire was applied, consisting of questions regarding their routine in training and competitions, as well as the role of music as a coping tool for stress. The questionnaires were analyzed quantitatively, and open-ended responses were categorized using Bardin's Content Analysis method (2016).

**Results:** The participants' responses indicate that the majority intentionally use music in their training and pre-competitive preparation, reporting an improvement in arousal control, anxiety reduction, increased motivation, pleasure sensation, and focused attention. It was also found that rhythm application in physical activities is among the most important tools for motor skill development and performance.

**Conclusion:** The research suggests a relationship between the use of music and the reduction of stress symptoms in order to achieve goals in training and competitions.

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## P082

### Investigating the Interplay of Emotional Intelligence, Sports Anxiety, and Performance Goal Orientation in Elite Athletes from India

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

The cognitive and somatic effects of Sports Anxiety show remarkable similarity among athletes, yet the underlying causes of Sports Anxiety are multifaceted and multifactorial in nature, which is why developing mental training protocols for managing sports anxiety remains a challenge.

It is thus critical to identify the factors and determine the cause and effect relationship between them. The present research aims to study the relationship between emotional intelligence, sport anxiety and performance goal orientation of male athletes, participating in competitive sports, either at the state, national or international level.

A total sample of 102 elite athletes, between the age groups of 16 to 26 years was collected. Pearson's product moment correlation was used to examine relationship between emotional intelligence, sport anxiety and performance goal orientation. Results showed that there is a significant negative correlation between emotional intelligence and sports anxiety, positive correlation between emotional intelligence and performance goal orientation and a negative correlation between sports anxiety and performance goal orientation. The findings of this study have important implications for coaches and sports psychologists. Coaches may be able to use sports anxiety assessments to identify athletes who are less likely to adopt a performance goal orientation and provide targeted interventions to help them manage their anxiety and improve their motivation to achieve success. Developing emotional intelligence at an early age will be a significant intervention for developing athletes, so they are able to manage their sports anxiety better and perform better in sports competitions.

This is help in developing the right mental training protocols to manage Sports Anxiety in athletes at an early age to equip them to manage the pressures of competition.

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## P083

### Are you converting the match point? Self-efficacy and competitive anxiety in (professional) tennis

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

The influence of athletes' anxiety and self-efficacy on their performance and risk-taking in sports, as well as their relations with gender and age, have been the focus of numerous studies. However, the connections have not yet been fully elucidated. Particularly in competitive and professional tennis the state of research remains insufficient. Therefore, the current study explores competitive anxiety, general self-efficacy belief, and risk-taking in competitive and professional tennis. Data from 138 competitive tennis players were collected via an online survey and compared in terms of gender, age and competition level. Participants included 74 female athletes (53.6%) with a mean age of 27.4 ( $\pm$  9.3) years and 64 male athletes (46.4%) with a mean age of 33.09 ( $\pm$  11.47) years of various competition levels (international, national, regional, and beginner), aged between 14 and 63 years. The following instruments were used: German version of the Three Factor Anxiety Inventory (TFAI) (Cheng et al., 2009) to assess somatic, cognitive, and regulatory competitive anxiety, as well as the General Self-Efficacy Scale (GSE) (Schwarzer et al., 1995) and the Short Scale Rediness To Take Risks (R-1) (Beierlein et al., 2015). Women exhibited significantly higher anxiety levels across all three dimensions of competitive anxiety and a significantly lower general self-efficacy belief compared to men. Older athletes reported significantly less competitive anxiety than younger ones. Competition level positively correlates with self-efficacy. Higher self-efficacy belief is associated with greater risk-taking and less competitive anxiety. Remarkably, the regulatory anxiety dimension predicts 60.3% of self-efficacy belief. The results suggest that younger athletes and women in competitive tennis would benefit from interventions aimed at increasing self-efficacy, thereby learning to reduce or manage their competitive anxiety. Sport psychologists should implement adequate individual programs on and off the court for this purpose.

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## P084

### Understanding the Mother-Coach, Child-Athlete, and Teammate Triad in Youth Sport

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Social agents (e.g., coaches, parents, and peers) can play a pivotal role in youth athletes' long-term sport adherence. Within youth sport two of the prominent social agents may coexist as a parent-coach. The presence of this dual role on a sports team may create unique benefits and challenges for all members of the team, including teammates not related to the parent-coach/child-athlete dyad (Eliasson, 2018). The research surrounding parent-coaches has focused on fathers and their involvement in both their sons' and daughters' sporting experiences (Weiss & Fretwell, 2005). The purpose of this research project was to qualitatively explore the mother-coach, child-athlete, and teammate triad experience in youth competitive sport.

**Methods:** A semi-structured interview process was completed with six triads (n =18) of mother-coaches (Mage = 46.60 years), child-athletes, and teammates (Mage = 12.76). Thematic analysis was utilized to reveal shared themes within the experiences of triad members.

**Results:** Five themes were identified amongst all members of the triads: mother-coaches, child-athletes, and teammates. Four of the themes were found to broadly have either been a beneficial aspect of having a mother-coach or resulted in challenges for members of the triad. Benefits associated with mother-coach experiences included having a coach as a role model and perceived comfort. The two themes associated with the challenges of having a mother-coach included the separation of mother and coach roles and higher expectations. The fifth theme related directly to best practice recommendations, such as the importance of having coach mentors and support networks for mother-coaches.

**Conclusion:** The study findings advance our understanding of the minimally studied mother-coach relationships and the perceived experiences of members within the triad. Shared themes demonstrated the benefits and challenges associated with having a parent as a coach from each perspective and best practice recommendations were presented for future mother-coaches.

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## P085

### Better on the Second Try, Exploring Visuomotor Calibration as it Pertains to Accuracy and Precision

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

A task such as hammering, or darts involves an intentional action behavior with a desired effect toward accuracy in successful completion of the task. In this case, to hit a nail and/or target. This requires activation of the perceptual motor system via intentional cognitive action to pursue the task. Sensory perception plays a crucial role toward the focus of a directed movement as it pertains to the perception of the relevant objects (dart and hammer), physical placement of the body, and movement parameters based on an external locus. It is hypothesized that motor calibration occurs following the first throw/swing to in which accuracy is improved based upon the visual feedback of the performance result in relation to the body's frame of reference. 50 participants classified as "non experts" in both darts and hammering were recruited to complete 20 rounds of 5 throws/hits each in darts and hammering. Instructed to aim for the bullseye of a paper target, after each round of five, the participant moved from their physical placement while the target was replaced and returned for the next round, disrupting the body frame of reference on the external target. Statistical analysis showed significance in the distance of the first throw compared to the second, and through to the fifth. While there was non-significant difference comparing the 2nd through the 5th. Confirming our hypothesis of a calibration effect in both the darts and hammering task. Further analysis examined the influence of both a warm up decrement and a learning effect, which were present in the first 10 sets but diminished, while the calibration effect was still both visible and statistically significant in all 20 sets. Implications are the adaption of training strategies for athletes to refine this skill within the first throw to minimize calibration and maximize overall performance.

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## P086

### Relationship between collegiate basketball athletes' competitive trait anxiety and their preference for motivational and instructional self-talk during a free throw

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

The purpose of this study was to examine the relationship between collegiate basketball athletes' competitive trait anxiety and their preference for motivational and instructional self-talk (ST) during a free throw. While previous research has focused on effective ST for specific tasks, there is a possibility that it might not match the athlete's preference for ST. Using preferred mental skills is associated with the feeling of autonomy, which can impact the effectiveness of ST for performance (Lewthwaite et al., 2015). Therefore, there is a need for more research on athletes' ST preferences and influential personal factors. Forty-eight players (Mage = 21.37) participated in the survey, consisting of 33 Asian, 8 White, 4 Black or African American, and 3 two or more races. They answered questions about competitive trait anxiety (Sport Anxiety Scale-2; Smith et al., 2006), preferred strategic ST for free throw (instructional or motivational), and perceived effectiveness of preferred ST (Functions of Self-Talk Questionnaire; Theodorakis et al., 2015). Independent samples t-tests revealed that participants who used their preferred ST for free throw perceived their functions as effective regardless of ST type. Additionally, independent samples t-tests showed that athletes who preferred instructional ST scored significantly higher in competitive trait anxiety ( $m = 2.25$ ,  $sd = .71$ ) than athletes who preferred motivational ST ( $m = 1.85$ ,  $sd = .59$ );  $t(39) = -1.999$ ,  $p = .026$ . These results highlight the need to consider athletes' preferences and other personal factors such as trait anxiety to design effective ST strategies for free throw. Whereas previous studies have shown the effects of motivational ST to reduce anxiety (Hatzigeorgiadis et al., 2009), it may be possible that ST preference should also be considered. Future studies should further investigate personal factors that influence ST preference and how ST preference is related to actual performance rather than perceptions.

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Jana Fogaca was my supervisor for my research to examine the relationship between collegiate basketball athletes' competitive trait anxiety and their preference for motivational and instructional self-talk during a free throw. Fogaca was also my profthrough numerous courses in the sport and exercise psychology program.

## P087

### The Effectiveness of Neurofeedback Technology on Mental Preparation of Paralympic Athletes

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

This research assessed the efficacy of a wearable neurofeedback technology in reducing state and trait anxiety, while increasing attention-concentration and satisfaction during practice sessions – with the aim of enhancing the mental preparation of Paralympic athletes. The FOCUS CALM system, which measures real-time brain activity, consists of a headband worn on the athlete's forehead; brainwave activity is then monitored through sensors. Utilizing Bluetooth connectivity, the system is linked to a mobile application where users engage in challenging gameplay. During each game, the players' achievements are reflected via a score, signifying the user's levels of focus, concentration, and relaxation. The research cohort was comprised of 10 Paralympic athletes from both genders, aged 18–45 years, who engage in six individual and team Paralympic disciplines. The intervention, which spanned six weeks, included five independent and individual sessions per week, each lasting 12 minutes. These sessions were comprised of a range of multifaceted challenges, including agility exercises, memory games, breathing exercises, guided imagery, and mindfulness practices. Interviews were conducted with the participants prior to and following the six-week intervention, to gauge their adherence to the required mental techniques and appraise their levels of state and trait anxiety, concentration, and satisfaction – using three discrete questionnaires. The primary findings indicate that utilizing the technology significantly reduced the participants' anxiety levels, while concurrently elevating their concentration levels. Yet despite improvements seen in these metrics among users, overall satisfaction derived from the technology implementation remained relatively low. Moreover, younger individuals reported more consistent and prolonged utilization of the technology compared to their older counterparts; they also expressed significantly higher satisfaction rates from its use. It is imperative to acknowledge the potential variability in individual responses to neurofeedback, whereby the effectiveness of this technology might be contingent upon diverse athlete-specific factors.

Wearable neurofeedback technology, Brainwave activity, Paralympic athletes

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## P088

### Temporal Benefits of Single Moderate Intensity Continuous Exercise and High Intensity Intermittent Exercise on Executive Function of Adolescents

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Exploring the neural mechanisms underlying the impact of acute aerobic exercise on executive function in adolescents.

**Methods:** In Experiment 1, the EEG data was collected from 63 adolescents (aged 10.11 ± 1.35) using the flanker task one time before and 3 times after intervention of single MICT or HIIT or just watching movies (the post test time was 0, 20 and 40 minutes after the prevention). While in Experiment 2, 70 adolescents (aged 10.07 ± 1.28) were tested four times using the n-back task (1-back and 2-back condition).

**Results:** The behavioral results indicated that the time main effect of the RT was significant in Experiment 1. The P2 amplitude of the MICT group showed significant difference between the inconsistent and consistent condition in all three post tests, and the decrease in ERS was significant in the MICT group, especially during the second post test. Overall, the MICT group showed better facilitation effects in inhibition control tasks.

In Experiment 2, the behavioral results indicated that the time main effect of ACC and RT in 1-back and 2-back conditions were both significant. The P3 amplitude and the ERS of the MICT group showed a relatively larger decrease than the other two groups in 1-back condition, while only the P3 wave amplitude of the HIIT group showed a relatively larger decrease in 2-back condition.

**Conclusion:** The MICT group showed better promotion effect on inhibition control and low cognitive load working memory tasks, while the HIIT group showed better promotion effect on high cognitive load working memory tasks. Our findings contribute to the understanding of the neural mechanism of acute aerobic exercise on executive function in the adolescent population.

**Key Words:** adolescent; inhibition control; working memory; acute aerobic exercise; temporal benefits

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## P089

### Body image interference: how body image emotions and behaviours are related to disruptions in attentional control among elite athletes

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

For elite athletes, maintaining control over attention is paramount not only for the minimization of injury likelihood, but also for the optimization of competitive performance. Performance is weakened when attentional resources are allocated to stimuli aside from the task at hand (Cox et al., 2020). An athlete experiencing dissatisfaction with their body's appearance may have difficulty recovering their attention back to their sport, may experience negative emotions pertaining to their body's appearance, and may engage in body checking behaviour within a process of body surveillance (Misener & Libben, 2020; Sun, 2018). As such, affective and behavioural components of body image may be key factors in explaining how an athlete's body dissatisfaction contributes to deficits in attentional control. The present study investigated body-related emotions and body surveillance as potential explanatory variables in the relationship between body dissatisfaction and attentional control among a sample of elite athletes. Participants (n = 70) were adults competing (inter)nationally in their respective sports. Athletes completed self-report measures of study variables and mediational analyses were conducted for each proposed mediator. Results demonstrate that the direct effect of body dissatisfaction with attention control was significant. Further, indirect effects of body dissatisfaction and attentional control were significant for each emotion (shame,  $R^2 = .33$ ,  $b(SE) = -4.24(1.56)$ ,  $p = .008$ ; guilt,  $R^2 = .51$ ,  $b(SE) = -6.36(1.20)$ ,  $p < .001$ ; authentic pride,  $R^2 = .40$ ,  $b(SE) = 5.18(1.41)$ ,  $p = .001$ ; hubristic pride,  $R^2 = .35$ ,  $b(SE) = 4.22(1.46)$ ,  $p = .006$ ) and body surveillance ( $R^2 = .45$ ,  $b(SE) = -.82(18)$ ,  $p < .001$ ). These findings suggest that elite athletes' body image reflects an important area for consideration in how these individuals can focus on a given task, such as performance in competition. It is therefore imperative for coaches and other leaders in sport to facilitate positive body image experiences for athletes to enhance attention.

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## P090

### Parents' Expectations of Sports Coaching and Acceptance of Corporal Punishment

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Human Rights Watch (2020) published a report concerning the abuse of child athletes in Japan. Repeated corporal punishment often involves parents who, in some situations, may facilitate the practice despite it being prohibited by law. Ueno (2021) showed that parents' expectations as perceived by coaches facilitate corporal punishment. Ueno (2023) clarified that the players' parents' expectation of teaching "proprieties" enhances coaches' coercive behavior. These results, however, were obtained from surveys of coaches. Conversely, this study aimed to clarify the relationship between parents' expectations of sports coaching and acceptance of corporal punishment through a survey among players' parents.

**Methods:** Three hundred sixty-two parents with elementary and junior high school-aged children attending sports clubs participated in this study. Participants responded to 1) a survey of their expectations of sports coaching (winning, proprieties, enjoyment, teamwork and cooperation, technique and physical strength, strong work ethic), and 2) an acceptability scale for corporal punishment.

**Results:** The results show that parents expected sports coaching to be about more than just winning. Multiple regression analysis revealed that parents of elementary school students who expected an emphasis on work ethic were more likely to accept corporal punishment. Contrarily, parents of middle school students who focused on winning were more likely to accept corporal punishment.

**Conclusion:** This study reveals that parents expect sports instructors to provide coaching beyond a focus on winning, regardless of the developmental stage of their children. The parents of elementary school students may overlook verbal abuse and excessive training by coaches, expecting their children to develop a strong work ethic and perseverance. Junior high school students' parents were more likely to condone corporal punishment because winning is advantageous for their children's advancement to high school. Prevention of corporal punishment requires interventions involving both instructors and the players' parents.

Human Rights Watch (2020) "I was hit so many times I can't count": Abuse of child athletes in Japan. <https://www.hrw.org/ja/report/2020/07/20/375777>

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## P091

### Effects of Non-Functional Overreaching and Overtraining Syndrome on Psychological and Cognitive Functioning in Elite Athletes: A Systematic Review.

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objective.** This systematic review aims to examine the available evidence concerning the effects of the dysfunctional aspects of overtraining (OT), specifically non-functional overreaching (NFOR) and overtraining syndrome (OTS), on psychological and cognitive functioning among elite athletes. No systematic review on OT has previously distinguished among different athletic profiles (i.e., elite, non-elite). Nevertheless, elite athletes (i.e., athletes involved in high-performance sport participation; McKinney et al., 2018) undergo unique demands as rigorous training schedules, pursuit of top achievements, and persistent pressures, compared to non-elite athletes (i.e., amateurs).

**Methods.** This review was performed according to PRISMA Guidelines (Page et al., 2021), was preregistered in PROSPERO (CRD42023408409), and conducted across four electronic databases. Studies focused on elite athletes aged 18 or older, competing at national levels, who have experienced interventions leading to NFOR or OTS effects on psychological or cognitive outcomes were included. Methodological quality (risk of bias) was assessed using the ROBINS-E or JBI tool for case report/series.

**Results.** A total of 1,760 articles were retrieved, and 11 studies were included. Seven studies involved OTS athletes, two involved NFOR, and two involved both NFOR/OTS, encompassing a total of 442 participants (164 NFOR/OTS athletes, 271 controls). All the studies assessed at least on psychological outcome and consistently showed alterations in mood, stress, burnout, and fatigue among NFOR/OTS elite athletes, while evidence on psychological well-being emerged as limited and heterogeneous. The unique study on cognitive functioning revealed a clear negative effect of NFOR/OTS on elite athletes' cognitive performance.

**Conclusions.** This review enhances the understanding of sports professionals regarding the deleterious effects of NFOR/OTS on psychological and cognitive functioning of elite athletes, underscoring the necessity for further research to address the unique challenges faced by this category of athletes. This insight is crucial for developing effective strategies to safeguard athletes' well-being and enhance performance.

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Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., ... Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ (Clinical research ed.)*, 372, n71. <https://doi.org/10.1136/bmj.n71>

## P092

### Coaching of individuals with intellectual disability, Czech Republic

**Hana Valkova<sup>1</sup>**

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

The Objective: The right to sport participation has been declared since the 80s of the last millenium (Decade for people with disabilities). It is also applied to people with intellectual disability. Individuals with an ID can be registered with the Wirtus Federation or Special Olympics if they should like to participate in competitive (and international) sports. The aim of the presentation is to clarify the difference between the normative concept (Virtus and SUDS) and relative concept (Special Olympics). Different approaches are related to the ethics of secure training for persons with limited capacity and responsibility for their own decision making. A partial aim is to find out why parents prefer to registered their children in Wirtus or Special Olympics.

Methods: Questioning and interviews with parents, guardians, coaches during both national Czech sport competitions.

Interim results as the project is in process

Wirtus coaches: a clear progression key in a normative sense (limits, first three), somewhat higher ID level of athletes (around 70 IQ), ambitious parents in special-ization.

Special Olympic coaches – are often parents.

Parents (Wirtus): ambition for their child´s success under umbrella Paralympics, more popular.

Parents (Special Olympics): the possibility to be together, experience of success in a relative context, the offer various spectrum of sports, supplementary programs

Discussion: describes some case studies related to training in both sports federations.

Conclusion: Both directions have international validity and respect. It is up to the parents which concept they select. They should respect the benefits and risks of both direction: physical and psychical.

[www.specialolympics.org](http://www.specialolympics.org)

[www.specialolympics.org](http://www.specialolympics.org).

[www.cmps.cz](http://www.cmps.cz)

## P093

### Development of an intervention to improve mental health literacy in Belgian, Slovenian and South African athletes

**Lucas Van Ruyssevelt<sup>1</sup>**, Jolan Kegelaers<sup>1</sup>, Laura Spolverato<sup>1</sup>, Janja Usenik<sup>2</sup>, Heinrich Grobbelaar<sup>3</sup>, Koen De Brandt<sup>1</sup>

<sup>1</sup>Vrije Universiteit Brussel, Brussels, Belgium <sup>2</sup>University of Maribor, Maribor, Slovenia

<sup>3</sup>Stellenbosch University, Stellenbosch, South-Africa

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives.** Improved mental health literacy (MHL) has shown to have a positive impact on athletes' overall well-being and help-seeking behaviour (Breslin et al., 2022). As part of an IOC advanced Olympic Research Grant, this poster presents the development and set-up of an evidence-based MHL intervention targeting 16–25-year-old talented and elite Belgian, Slovenian and South African athletes.

**Methods.** The project consists of two distinct phases: (a) the cross-validation of a 12-item MHL scale, and (b) the development and implementation of an intervention to increase MHL. This abstract discusses the different steps for developing and implementing the MHL intervention.

**Results.** First, a review of existing MHL literature and practices (e.g. quizzes, workshops) was conducted. The MHL workshop developed in the Erasmus+ Sport project "Dual Careers for Mental Health" served as a basis for developing the intervention. Second, the research team discussed the format and participants for the workshop, including structure (3 x 90 min on-site), experimental and control group (2 x 75 per country), and language of the workshop and materials. Third, the content of the intervention was determined, including exercises to educate on help-seeking, debunking myths about MH, self-help strategies, and psychological first aid. Cultural sensitivity and background, and training of the educators was key in the discussions.

**Practical Implementations and Conclusions.** The intervention will take place between May – December 2024. Details on the specific contents of the workshop, timeline for the intervention, and first evaluations of the workshops will be presented during the poster session.

Breslin, G., Shannon, S., Cummings, M. P., & Leavey, G. (2022). An updated systematic review of interventions to increase awareness of mental health and well-being in athletes, coaches, officials and parents. *Systematic Reviews*, 11(1). <https://doi.org/10.1186/s13643-022-01932-5>

## P094

### Call to Action: Integration of Sport Psychology Techniques into Life Skills with Various High Performance Populations

Darrell Phillips<sup>1</sup>, Jacob Chamberlin<sup>2</sup>, **Zeljka Vidic<sup>3</sup>**, Javier Burga<sup>4</sup>

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

All human beings are inherently and inescapably performers. An individual's ability to develop life skills, such as coping with stress, achieving goals, enhancing resiliency and fostering interpersonal relationships leads not only to enhanced personal growth and well-being, but also more optimal performance. Sport psychology techniques have demonstrated to provide multiple benefits for enhancing performance in sport (Lochbaum et al., 2022), as well as the potential applicability in other performance environments such as the field of medicine (Cocks, 2014). Nonetheless, the processes of transferring those techniques to general life skills with other high performance populations such as performing arts, military, police, business, students and medicine still requires further exploration. Thus, the purpose of this poster presentation is to justify a call to action for further research of transferability of sport psychology techniques to life skills with various high performance populations. This will be augmented by discussing intervention results from a series of workshops and seminars conducted with college student populations at a small Midwestern university in the United States with the results revealing encouraging findings with student population. Examples of processes, topics, best models and perceived benefits of integration of sport psychology techniques into life skills will be discussed with the goal of fostering more optimal functioning and performance with various high performing populations.

-Cocks M, Moulton CA, Luu S, Cil T. What surgeons can learn from athletes: mental practice in sports and surgery. *J Surg Educ.* 2014 Mar-Apr;71(2):262-9. doi: 10.1016/j.jsurg.2013.07.002. Epub 2013 Sep 26. PMID: 24602719.

-Lochbaum M., Stoner, E., Hefner, T., Cooper, S., Lane, A.M., & Terry, P.C. (2022). Sport psychology and performance meta-analyses: A systematic review of the literature. *PLoS One.* 17(2):e0263408. doi: 10.1371/journal.pone.0263408. PMID: 35171944; PMCID: PMC8849618.

## P095

### The influence of hard fouls on refereeing decisions in handball

**Ludwig Vogel**<sup>1</sup>

<sup>1</sup>Universität Bielefeld, Bielefeld, Germany

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** The sport of handball requires referees to make precise and timely decisions in a fast and dynamic environment. This study examines the sequential effects of handball referee decisions on subsequent game situations.

**Methods:** Experienced referees from the DHB (German Handball Federation) watched 72 match scenes from four handball matches, each consisting of 9 match scenes per team, including either a hard foul at the beginning or at the end. The match scenes were stopped after the foul to be assessed and the referees made decisions on fouls and personal penalties, instructing them to assess each scene independently.

**Results:** Consistent with the assumption that prior refereeing decisions influence subsequent judgments, our results show that after disqualification decisions, harsher penalties are given for subsequent fouls. However, this influence decreases continuously in subsequent decisions. It is possible that these results occurred due to the unconscious application of game management. That is, in league matches, hard fouls often lead to a series of hard fouls in the immediate course of the match. To prevent this, the referee penalizes the next fouls more severely to maintain control of the game and prevent further escalation.

**Conclusion:** The findings on sequential effects in handball refereeing decisions can help to improve the quality of refereeing and thus promote fairness in the sport.

## P096

### Child Maltreatment at Professional Ballet Schools: Hiding Behind the Cloak of 'Authoritarian Pedagogy'?

**Sophie Wensel**<sup>1</sup>, Gretchen Kerr<sup>2</sup>

<sup>1</sup>University of Toronto, Toronto, Canada <sup>2</sup>University of Toronto, Toronto, Canada

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** The use of authoritarian pedagogy in ballet training, and the belief that it is necessary, persists (Zeller, 2017). Across ballet literature, authoritarian pedagogy typically refers to an expectation for students to be passive, obedient, and uncritical; execute perfect performances; and endure physical and psychological punishments (Alterowitz, 2014; Lakes, 2005; Zeller, 2017). Reports of child abuse and neglect at international ballet schools (e.g., Daly, 2023; Greb, 2020) raise questions about the distinction between authoritarian pedagogy practices and child maltreatment. As part of a larger study of former professional ballet school students' experiences across dance training, academics, living (e.g., in residence), and socializing, the purpose of this research was to understand participants' experiences of behaviours that have previously been referred to as authoritarian pedagogy practices.

**Methods:** Purposive and snowball sampling techniques were used to distribute study advertisements on social media. Participants from six countries included 15 former students from professional ballet schools (12 women, 3 men; ages 18-27) who completed an online, pre-interview questionnaire and semi-structured interview. A constructivist paradigm was used, and data were analyzed using reflexive thematic analysis (Braun & Clarke, 2022).

**Results:** Ballet leader behaviours were often consistent with conceptualizations of child maltreatment, and were reported to have harmed former students' dignity, health, and development (WHO, 1999). Three main themes were generated: the use of maltreatment vocabulary; the cumulative nature of experiences; and perceived negative effects on development. Discussions draw on research that highlights overlapping conceptualizations of child maltreatment and authoritarian parenting, which include coercive control and/or verbal and physical aggression (Backhaus et al., 2023).

**Conclusions:** To prevent the use and normalization of potentially harmful behaviours at professional ballet schools, researchers may consider identifying behaviours that are consistent with child maltreatment rather than disguising them as authoritarian pedagogy practices.

Alterowitz, G. (2014). Toward a feminist ballet pedagogy: Teaching strategies for ballet technique classes in the twenty-first century. *Journal of Dance Education*, 14(1), 8-17. <https://doi.org/10.1080/15290824.2013.824579>

Backhaus, S., Leijten, P., Meinck, F., & Gardner, F. (2023). Different instruments, same content? A



systematic comparison of child maltreatment and harsh parenting instruments. *Trauma, Violence, & Abuse*, 24(5), 3546-3563. <https://doi.org/10.1177/15248380221134290>

Braun, V. & Clarke, V. (2022). *Thematic analysis: A practical guide*. Sage.

Daly, M. (2023, December 19). More dancers allege body-shaming and bullying at UK ballet schools. BBC. <https://www.bbc.com/news/uk-67690626>

Greb, V. (2020, August 9). Berlin's state ballet school confronts allegations of abuse. Deutsche Welle. <https://www.dw.com/en/berlins-state-ballet-school-confronts-allegations-of-abuse/a-54863263>

Lakes, R. (2005). The messages behind the methods: The authoritarian pedagogical legacy in Western concert dance technique training and rehearsals. *Arts Education Policy Review*, 106(5), 3-20. <https://doi.org/10.3200/AEPR.106.5.3-20>

World Health Organization [WHO] (1999). Report of the consultation on child abuse prevention. <https://apps.who.int/iris/handle/10665/65900>

Zeller, J. (2017) Reflective practice in the ballet class: Bringing progressive pedagogy to the classical tradition. *Journal of Dance Education*, 17(3), 99-105. <https://doi.org/10.1080/15290824.2017.1326052>

## P097

### Validation and Invariance Testing of the English Short Physical Activity Enjoyment Scale

**Susanne Weyland<sup>1</sup>**, Navin Kaushal<sup>2</sup>, Julian Fritsch<sup>1</sup>, Darko Jekauc<sup>1</sup>

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Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives.** The level of enjoyment experienced during physical activity is considered an important factor in the formation of physical activity habits (Weyland et al., 2020). Physical activity enjoyment can be measured using the Physical Activity Enjoyment Scale (PACES; Kendzierski & DeCarlo, 1991). To capture the subjective feeling component of this emotion, a short version of PACES was developed and validated in German-speaking samples (Chen et al., 2021; Fritsch et al., 2022). The aim of this study was to examine the internal consistency, test-retest reliability, factorial validity, criterion-related validity, and measurement invariance (across gender and languages) of the English version of this short scale in an English-speaking population.

**Methods.** An online survey with a test-retest design was used to collect data twice on physical activity enjoyment and data on self-reported physical activity at time 2 one week later in an English-speaking sample (n = 276, 189 female, M = 42.55, SD = 16.81 years). To assess measurement invariance across languages, a German-speaking sample was additionally analyzed (n = 1017, 497 female, M = 29.77, SD = 13.54 years).

**Results.** Regarding reliability, McDonald's omega at time 1 was  $\Omega = 0.95$  and the 7-day retest reliability was  $r(199) = 0.69$  ( $p < 0.05$ ). In terms of factorial validity, confirmatory factor analysis showed a good model fit based on the CFI value ( $\chi^2 = 19.8$ ,  $df = 2$ ,  $p < 0.05$ ; CFI = 0.984; RMSEA = 0.180, 90 % CI [0.113-0.256]). The criterion-related validity for light physical activity was  $r(107) = 0.26$  ( $p < 0.05$ ). In addition, the results fully supported measurement invariance across gender and partially measurement invariance across languages.

**Conclusion.** Overall, the English short version of PACES showed good psychometric properties, especially for light physical activity, and can serve as an economical tool to measure physical activity enjoyment.

Chen, C., Weyland, S., Fritsch, J., Woll, A., Niessner, C., Burchartz, A., Schmidt, S. C. E., & Jekauc, D. (2021). A short version of the physical activity enjoyment scale: Development and psychometric properties. *International Journal of Environmental Research and Public Health*, 18(21), 11035. <https://doi.org/10.3390/ijerph182111035>

Fritsch, J., Weyland, S., Feil, K., Burchartz, A., Schmidt, S., Woll, A., Strauch, U., Wienke, B., & Jekauc, D. (2022). A study on the psychometric properties of the short version of the Physical Activity Enjoyment Scale in an adult population. *International Journal of Environmental Research and Public Health*, 19(22), 15294. <https://doi.org/10.3390/ijerph192215294>

Kendzierski, D., & DeCarlo, K. J. (1991). Physical Activity Enjoyment Scale: Two validation studies. *Journal of Sport & Exercise Psychology*, 13(1), 50-64.

Weyland, S., Finne, E., Krell-Roesch, J., & Jekauc, D. (2020). (How) Does affect influence the formation of habits in exercise?. *Frontiers in Psychology*, 11, 578108. <https://doi.org/10.3389/fpsyg.2020.578108>

## P098

### The dynamic nature of emotions and their relation to role perceptions in youth sport

**Stuart G. Wilson**<sup>1</sup>, Luc J. Martin<sup>1</sup>, Alex J. Benson<sup>2</sup>

<sup>1</sup>Queen's University, Ottawa, Canada <sup>2</sup>Western University, London, Canada

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Although emotions represent an inevitable feature in sport, the degree to which athletes experience them varies greatly over time (Levillain et al., 2022) and are likely influenced by the dynamics within a team (Wolf et al., 2018). Interestingly, the scope of situational variation in emotions and the relation to an athlete's role perceptions within a team have yet to be established.

**Objectives:** This study examined (a) the within-person variance of emotional states and (b) how variations in role satisfaction and clarity related to day-to-day fluctuations of positive and negative emotional states.

**Methods:** Using ecological momentary assessment, 110 youth ice hockey players (aged 14-17 years) completed daily self-report questionnaires through a smartphone application. Athletes provided an average of 8.15 responses (N = 896 observations) pertaining to positive (excited, proud, determined) and negative (irritable, upset, distressed) emotional states and perceptions of role satisfaction and clarity within their teams. Data were analyzed using multilevel structural equation modeling.

**Results:** Intraclass correlation coefficients showed substantial variance in emotional states at both within-person (45.9%-62.7%) and between-person (37.3%-49.7%) levels. The within-person associations showed that role perceptions and emotions fluctuated together across time-points. As predicted, athletes reported higher positive affect ( $\beta = 0.25, p < .001, 95\% \text{ CI } [0.14, 0.36]$ ) and lower negative affect ( $\beta = -0.28, p < .001, 95\% \text{ CI } [-0.42, -0.14]$ ) on days when they had higher-than-average levels of role satisfaction. Similarly, they also reported higher positive affect ( $\beta = 0.23, p < .001, 95\% \text{ CI } [0.11, 0.41]$ ) and lower negative affect ( $\beta = -0.30, p < .001, 95\% \text{ CI } [-0.45, -0.15]$ ) on days when athletes reported higher-than-average levels of role clarity.

**Conclusion:** These findings reinforce the variability of emotions and emphasize the important associations with group-related phenomena such as role perceptions. Implications for the literature will be discussed during the presentation.

Levillain, G., Martinent, G., Vacher, P., & Nicolas, M. (2022). Longitudinal trajectories of emotions among athletes in sports competitions: Does emotional intelligence matter? *Psychology of Sport and Exercise*, 58, 10201 <https://doi.org/10.1016/j.psychsport.2021.102012>

Wolf, S. A., Harenberg, S., Tamminen, K., & Schmitz, H. (2018). "Cause You Can't Play This by Yourself": Athletes' Perceptions of Team Influence on Their Precompetitive Psychological States. *Journal of Applied Sport Psychology*, 30(2), 185-203. <https://doi.org/10.1080/10413200.2017.1347965>

## P099

### Mental fatigue over a season in women's Australian Rules Football: Is personality a moderating factor?

**Svenja Wirtz**<sup>1</sup>, Kate Webster<sup>1</sup>, Minh Huynh<sup>1</sup>, Megan Smith, Clare MacMahon<sup>1</sup>

<sup>1</sup>La Trobe University, Melbourne, Australia

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** Mental fatigue fluctuations in AFLW players during a season are influenced by various factors, including season phase, match outcome, and location. Abbott et al. (2020) identified correlations between mental fatigue and wellness indicators. Russell et al. (2022) found no such correlation, emphasizing the importance of individual differences. This study investigates whether personality moderates mental fatigue perception over a season.

**Methods:** One AFLW team (N=30) completed the BFI-44 questionnaire during pre-season. The club's athlete monitoring system was expanded to include a mental fatigue item next to sleep, soreness, stress, and readiness-to-perform ratings. All wellness items were on a 5-point Likert scale. Athletes completed the monitoring after each training day and game, resulting in 5-6 ratings per week throughout the 23-week season. A Spearman's rank correlation is used to investigate the relationship between personality traits and season average of mental fatigue ratings. A Spearman's rank correlation will be applied to examine the relationship between wellness ratings and mental fatigue. A linear mixed model will be applied to identify variables that may moderate mental fatigue levels over the season.

**Results:** No significant correlations ( $p > .05$ ) between overall mental fatigue ratings and personality trait scores were found, openness ( $r = -.13$ ), conscientiousness ( $r = .13$ ), extraversion ( $r = -.29$ ), agreeableness ( $r = .24$ ), and neuroticism ( $r = .09$ ). There is a significant ( $p < .0001$ ), positive correlation between mental fatigue and all wellness ratings, sleep ( $r = .21$ ), soreness ( $r = .19$ ), stress ( $r = .48$ ), and readiness ( $r = .10$ ). The linear mixed model analysis is ongoing.

**Conclusion:** With high athlete compliance, this pioneering study incorporates personality into key wellness and fatigue variables assessed in AFLW. It offers a valuable foundation to explore more detailed relationships. Despite initial data inspection suggesting that personality may not directly influence mental fatigue perception, further investigation is ongoing and will be presented.

Abbott, W., Brownlee, T. E., Naughton, R. J., Clifford, T., Page, R., & Harper, L. D. (2020). Changes in perceptions of mental fatigue during a season in professional under-23 English Premier League soccer players. *Research in Sports Medicine*, 28(4), 529-539.

Habay, J., Uyenbroeck, R., Van Droogenbroeck, R., De Wachter, J., Proost, M., Tassignon, B., De Pauw, K., Meeusen, R., Pattyn, N., & Van Cutsem, J. (2023). Interindividual variability in mental

fatigue-related impairments in endurance performance: a systematic review and multiple meta-regression. *Sports medicine-open*, 9(1), 1-27.

Russell, S., Jenkins, D. G., Halson, S. L., & Kelly, V. G. (2022). Mental fatigue increases across a 16-week pre-season in elite female athletes. *Journal of Science and Medicine in Sport*, 25(4), 356-361. <https://doi.org/10.1016/j.jsams.2021.12.002>

## P100

### The effect of team role and in-game position on pre-start emotions and self-confidence of top-league volleyball players

**Marta Witkowska<sup>1</sup>**

<sup>1</sup>University Of Gdansk, Gdansk, Poland

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

**Objectives:** The assessment of the athlete's emotional state (intensity, content and sign) as well as factors evoking particular emotions, directly affect sports execution (Jarvis, 2006) and cause specific cognitive and somatic symptoms (Borek-Chudek, 2019). Self-confidence is the belief that, despite the stress, the athlete is capable of achieving success during the competition (Martens et al., 1990).

The psychological specificity of volleyball is reflected in the dissemination of emotions among all team members. Mental support in volleyball teams shapes the players' sense of security and reduces the anxiety associated with in-game decision making (Mroczkowska, Supiński, 2018).

However, the diversity of roles within a team and changing scope of responsibilities for elements of the game depending on players' shifting positions, all reflect on different levels of self-confidence, the assessment and intensity of emotional arousal.

The aim of the study was to determine the relationship between pre-start emotional arousal and self-confidence in professional volleyball players depending on their role and position.

**Method:** The study involved 78 top-league volleyball players (M=26.7 years; SD=5.54), assigned to 4 groups: setters, middle blockers, offensive and defensive players.

The following methods were used: Trait Sport-Confidence Inventory (Gazdowska i in., 2017) and Competitive State Anxiety Inventory (Borek-Chudek, 2019).

**Results:** The results supported the hypothesis that players emotional response depend on their position. Setters, compared to offensive players and middle blockers, score lower on scales reflecting the intensity of cognitive anxiety (M=15.5;SD=5.38), they evaluate their cognitive anxiety less negatively (M=-5.8;SD=9.38) and obtain higher scores on the scale determining the level of self-confidence (M=32.35;SD=4.99).

**Conclusion:** Expanding the impact of mental training for volleyball players to include tasks requiring decision-making (Conejero Suárez et al., 2020) and creativity (Müller, 2009) is worth considering. Such tasks significantly reduce the level of anxiety and uncertainty, and help with on-field decisions during sports competition.

Borek-Chudek, D. (2019). Metody do badania cech lęku w sporcie i emocji we współzawodnictwie sportowym – przykłady polskich adaptacji skal SCAT i CSAI-2R Martensa [Methods for examining the anxiety trait and emotions in sports competition - Polish adaptations of the Martens' SCAT and CSAI-2R scales]. In: M. Guszowska, Z. Gazdowska, N. Koperska (Eds.), *Narzędzia pomiaru w psychologii sportu* (p. 5-20). Akademia Wychowania Fizycznego Józefa Piłsudskiego w Warszawie.

Conejero Suárez, M., Prado Serenini, A.L., Fernández-Echeverría, C., Collado-Mateo, D., Moreno Arroyo, M.P. (2020). The Effect of Decision Training, from a Cognitive Perspective, on Decision-Making in Volleyball: A Systematic Review and Meta-Analysis. *International journal of environmental research and public health*, 17(10), 3628.

<https://doi.org/10.3390/ijerph17103628>

Gazdowska, Z., Parzelski, D., & Vealey, R. (2017). Psychometric properties and validation of the Polish adaptation of the Trait Sport-Confidence Inventory (TSCI-PL). *Baltic Journal of Health and Physical Activity*, 9, 124-132.

Jarvis, M. (2006). *Sport Psychology: A Student's Handbook* (1st ed.). Routledge. <https://doi.org/10.4324/9780203965214>

Martens, R., Vealey, R.S., Burton, D. (1990). Competitive anxiety in sport. *Human Kinetics*.

Mroczkowska, H., Supiński, J. (2018). Struktura zadania sportowego a predyspozycje psychiczne zawodniczek uprawiających koszykówkę, siatkówkę i judo [The structure of a sports task and the mental predispositions of basketball, volleyball and judo players]. *Rozprawy Naukowe AWF we Wrocławiu*, 60, 26-31.

Müller, A. J. (2009). Developmental phases for volleyball players. *Creating Active Futures*, 375.

## P315

### The relationship between anxiety, shame, physical self-concept and self-discrepancies in physical education of adolescents

**Dennis Dreiskämper**<sup>1</sup>, Max Keller<sup>1</sup>, Lena Henning<sup>1</sup>, Maike Tietjens<sup>1</sup>

<sup>1</sup>University Of Münster, Münster, Germany

Poster Session I, Kristall Foyer, Juli 16, 2024, 09:40 - 10:30

Physical activity (PA) levels and the enjoyment of physical education (PE) decrease over the lifespan of adolescence. While factors such as a positive and realistic physical self-concept foster motivation and enjoyment of physical activity (Henning et al., 2023), especially affective factors like anxiety and shame lead to decrease of physical activity in general and a negative attitude towards P.E. in particular in adolescents (Wiesche 2023). Besides, recent studies show that also discrepancies between actual self-perceptions and ideal and ought self-perceptions (i.e., the perception of expectations of relevant others such as parents and teachers) might also influence PA behavior in such a way that higher discrepancies lead to a decrease of PA behavior (Henning et al., 2023b). Although it can be hypothesized that discrepancies between self-perception and ought and ideal selves might also influence affective factors such as shame or anxiety in sport settings, this possible connections lacks evidence in adolescents.

In all, 183 students aged 12 to 17 (Mean=4.03, SD=1.47 years, 46.4% females) took part in the study. Written consent was given by parents. Questionnaires on physical self-concept (Stiller et al., 2004), self-discrepancies (Brunet et al, 2012), shame perception (Wiesche, 2016) and anxiety (Smith et al., 2006) were filled out in classroom setting individually.

Results show higher values for female in shame and anxiety ( $z=-7.73/-4.29$ ,  $p<.001$ ). Physical self-concept is negatively to shame ( $r=-.31$ ) and anxiety ( $r=-.49$ ) related. Anxiety and shame are highly associated with each other ( $r=-.57$ ). Discrepancies between real and ought self ( $r=.48/.39$ ) and real and ideal self ( $r=.50/.36$ ) are strongly to moderately correlated to anxiety and shame.

The results indicate that there is a potential in influencing affective factors that decrease PA behavior and P.E. interest such as anxiety and shame by fostering a positive self-concept of adolescents. Interventions should focus on the unrealistic reference norms of self-perceptions.

## P102

### The influence of attentional focus instructions on task focus and motor performance

**Reza Abdollahipour<sup>1</sup>**, Miriam Palomo Nieto<sup>2</sup>, Ludvík Valtr<sup>1</sup>, William Land<sup>3</sup>

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Objective: Research using the inattentive blindness paradigm has shown that an external focus (EF) relative to an internal focus (IF) and no-focus control (Cont) conditions prevented performers from noticing the unexpected stimulus beyond the target area, which seems to be an indicator of task-focus or goal-action coupling, leading to more successful movement outcomes. The current study aimed to examine the influence of attentional focus instructions on the extent of task focus, or goal-action coupling, using unexpected changes within the target area. Method: Participants (N=116, Mage=21.58±1.81 years) were asked to throw a tennis ball with their non-dominant hand from a distance of 3.5 meters at a circular target displayed on the wall. Around the outer edge of the target, twenty small circles, divided into four different colors and target zones (0°-90°; 90°-180°; 180°-270° and 270°-360°) lined the perimeter of the target. Participants performed 15 trials in three attentional focus groups: EF "focus on the flight of the ball", IF "focus on your hand", or Cont "no-focus" instructions. During the execution of the last trial in each group, the color and shapes of four circles in the X and Y axes were changed. Participants then were asked whether they noticed any change in the last trial compared to previous trials, and if "yes" describe it. Results: Throwing accuracy was better in EF than IF ( $p < .001$ ) or Cont ( $p < .001$ ), as well as in those who detected unexpected changes compared to those who did not ( $p < .01$ ). Furthermore, the EF relative to the IF group noticed the change in the last trial more often and provided more detailed descriptions ( $p < .01$ ). No differences were found between IF and Cont groups ( $p > .05$ ). Conclusion: The findings indicate that EF promotes an increased perceptual attunement to task characteristics, which suggests an increased task-focus and goal-action coupling supporting performance.

Abdollahipour, R., Nieto, M. P., Psotta, R., & Wulf, G. (2017). External focus of attention and autonomy support have additive benefits for motor performance in children. *Psychology of Sport and Exercise*, 32, 17–24.

Wulf, G., & Lewthwaite, R. (2016). Optimizing Performance through Intrinsic Motivation and Attention for Learning: The OPTIMAL theory of motor learning. *Psychonomic Bulletin & Review*, 23, 1382-1414.

## P103

### Remote physical exercise on the quality of life of isolated older women during the COVID-19 pandemic

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

During the COVID-19 pandemic, in 2020, with the lack of specific treatment available, many countries adhered to social isolation. In some cases, to mitigate the harmful impacts of isolation, alternative home treatments were implemented. Home physical exercise (HPE) was one of the alternatives adopted to maintain the physical and mental health of older adults, this population being one of the most vulnerable to the virus. The objective of the current study, which is part of a broad research project from LAPE / PPGCMH\* in a collaboration network between Brazil & Italy, was to verify the effects of physical exercise at home on the quality of life of older women in social isolation during the COVID-19 pandemic. A quasi-experimental study was carried out with the application of an HPE \*\* protocol, with 17 older women, for 8 weeks, three times a week, totaling 24 training sessions, of approximately 60 min each. Quality of life was assessed using the World Health Organization Quality of Life Instrument (WHOQOL – OLD). Evaluations were performed before the beginning of the intervention, after 2 weeks of the intervention, to verify the acute effect, after the 8 weeks of intervention, and 15 days after the end of the intervention. At the end of the HPE protocol, we found significant improvements in some domains of the WHOQOL – OLD, including the perception of past, present, and future activities ( $p = 0.006$ ), the social participation domain ( $p = 0.000$ ), the intimacy domain, which assesses how much the older person perceives their levels of companionship, and opportunities to love and be loved ( $p = 0.04$ ), and the general quality of life domain ( $p = 0.003$ ). We conclude that the HPE protocol, guided by professionals at a distance during social isolation in the COVID-19 pandemic, can positively impact the quality of life of older women.

\*LAPE- Laboratory of Sport and Exercise Psychology / PPGCMH – Graduate Program, master's and doctorate in human movement sciences.

\*\*HPE – Home-based physical exercise protocol developed and validated in LAPE and published / OLIVEIRA, A. D.; SOUZA, L. C.; LANGIANO, E.; FALESE, L.; DIOTAIUTI, P.; VILARINO, GUILHERME TORRES; ANDRADE, A. Home Physical Exercise Protocol for Older Adults, Applied Remotely During the COVID-19 Pandemic: Protocol for Randomized and Controlled Trial. *Frontiers in Psychology*, v. 13, p. 828495, 2022.



## P104

### Applied Skill Acquisition Approaches in Imagery: Contextual Interference

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Motor imagery involves generating or rehearsing a movement sequence covertly within the mind, without physically performing the movement. Many of the classical skill acquisition theories are based purely on research involving physical practice. This research aims to identify if the predictions of these theories still hold when physical practice is replaced with motor imagery and action observation. The classical theory (Battig, 1979) tested here compared high contextual interference practice structure (random order of skills) to a low contextual interference practice structure (blocked order of skills). Novice dart throwers (N = 27, Female = 16, Male = 11) imagined and observed videos of darts, football, and badminton skills in either a random or blocked practice structure. A third group acted as a control and instead watch interviews with famous darts players for the same duration. Comparing dart throwing performance at pre-test, post-test, and in a transfer condition (using heavier darts) tested for any differences between the practice structures. Preliminary analysis using a 3 group (Blocked, Random, and Control) 3 time point (Pre-test, Post-test, Transfer) ANOVA with repeated measures for time, evaluated the effect of practice structure. No group ( $p = .680$ ) or time ( $p = .783$ ) main effects were identified, nor interaction between them ( $p = .430$ ). These preliminary findings are in line with recent meta-analysis and systematic reviews that show the contextual interference effect is only observed in highly controlled lab studies using physical practice. It is also possible that contextual interference relies on mechanisms that are not as active when imaging allowing for more informed views on the workings of imagery and the contextual interference effect. Future research focus towards a longer intervention protocol, larger sample size and physical experience with secondary tasks.

Battig, W.F., (1979). 'The flexibility of human memory'. In: L.S. Cermak and F.I.M. Craik (eds.), Levels of processing in human memory. Hillsdale, NJ: Erlbaum. pp. 23-44.

## P106

### Risk factors of reporting sport injury: Violence toward athletes and mental health

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Risk factors for injuries are well-documented. However, most of the literature did not consider mental health issues and violence toward athletes as possible risk factors for injury.

Objectives. The aim is to explore if mental health and violence toward athletes is associated with reporting at least one sports injury in the last 12 months.

Methods. This case-control study included a total of 6356 participants between 14 to 17 years old (3474 girls and 2882 boys) who practice a competitive organized sport. They completed the Violence Toward Athlete Questionnaire (VTAQ), a question about past year sport injury and questions related to mental health (anxiety and depressive symptoms and eating disorders). Multiple logistic regression was used to explore risk factors of reporting at least one sport injury in the past 12 months.

Results. 45.5% of the participants of the sample reported at least one injury in the past year. The final model indicates that, controlling for personal and sport demographics (age, gender, number of sports and type of sport), there is an association between level of competition, number of hours of practice per week, early sport specialization, instrumental violence, anxiety and depressive symptoms and eating disorders and reporting a sport injury in the last year.

Conclusion. These results show the importance of looking at problems in sport in a more systemic approach, namely by integrating variables relating to mental health and interpersonal violence in the analysis of sport injury.

## P107

### The influence of vibratory massage after physical exertion on selected psychological processes

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**Objectives:** The aim of the study was to determine the optimal frequency of vibration, its duration and the position in which the subjects were placed during the oscillatory-cycloid vibrotherapy, in relation to the reduction of subjectively perceived pain, mental discomfort, emotional states and the level of cognitive processes that were disturbed by an intense physical activity (stationary bike anaerobic effort).

**Methods:** Four test were used as measurement tools: Polish version of the POMS questionnaire (McNair et al., 1971; Dudek, Koniarek, 1987), the VAS scale (Gift, 1989) investigating subjective assessment of perceived pain and psychological discomfort; the STROOP test (Schufried, 2017).

Vibrotherapy treatments were conducted with vibrating devices manufactured by Vitberg (Poland). In the vibrotherapy treatments, two frequency ranges were selected for testing: with low frequency (2-52Hz) and with higher frequency (82-100Hz), stimulus exposure time: 10 minutes and 45 minutes respectively and also two body positions during the massage from the lumbar region to the feet - lying position, and with the lower limbs raised by 20°.

The study involved 16 healthy men. After intense physical activity, each participant was randomly subjected to all combinations of vibration massage treatments during the restitution period. Each combination was tested after an anaerobic exercise at 10-day intervals.

**Results:** A two-factor MANOVA analysis of variance indicated that all the studied variables improved significantly over time (after the vibration treatment and 24hours after training). In addition, a statistically significant interaction measurement×frequency was noted for vigor scale (frequency 2-52HZ favored greater improvement in this state). Additionally, a statistically significant interaction was found for measurement×time for the VAS scale ( $p < .05$ ) – the lower pain value was indicated 24hours after the 10-minute vibration treatment.

**Conclusions:** Vibrotherapy offers a chance to positively affect athletes' physiological and psychological states such as their well-being and cognitive processes.

Dudek, B., & Koniarek, J. (1987). Adaptacja testu D. M. McNaira, M. Lorra, L. F. Dropplemana Profile of Mood States (POMS). 30(3), 753–761.

Gift, A. G. (1989). Visual Analogue Scales: Measurement of Subjective Phenomena. Nursing Research, 38(5), 286-287. <https://doi.org/10.1097/00006199-198909000-00006>

McNair, D., Lorr, M., & Doppleman, L. (1971). POMS Manual for the Profile of Mood State. CA: Educational and Industrial Testing Service.

Schufried, G. (2017). Manual Stroop Interference Test. Version 29. Schuhfried GmbH.

## P108

### Subjective experience, self-efficacy, and motivation of professional football referees during the COVID-19 pandemic

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The present multi-method investigation examines the subjective experience of professional football/soccer referees and players during the COVID-19 pandemic and the so-called ghost games (i.e., games without supporters).

Referees from the Austrian Football Association completed questionnaires on self-efficacy, motivation, and general observations and perceptions. In addition, two players and one referee in the Austrian Football Bundesliga were interviewed regarding their subjective experience during ghost games and the effects of emotions on behavior and performance using semi-structured interviews.

Results of the referee survey indicate that the most profound differences between regular and ghost games lie in the domain of intrinsic motivation and subjective experience. Specifically, the experience in ghost games compared with regular games was reported by referees as being less motivating, less excited/tense, less emotional, less focused, and more negative, despite being easier to referee and the players behaving more positively. Qualitative analyses of the videotaped interviews indicated (i) inter-individual variability regarding the extent of the effect of missing supporters on the subjective emotional experience, (ii) different strategies for emotion/arousal regulation, and (iii) interactions between reported emotions, arousal, motivation, self-confidence, behavior, and performance on the pitch. Additionally, non-verbal emotion expression was captured using AI-software. This exploratory analysis revealed varying degrees of arousal and valence regarding the content of the interview statements, demonstrating the convergent validity of our findings.

Our findings contribute to the growing literature on the effects of ghost games during the COVID-19 pandemic and provide insights into the subjective experience of professional football referees. Emotions are investigated as potential processes related to home-field advantage and performance in professional football using a multi-methods approach. Further, we discuss how using both qualitative and quantitative measures, along with verbal and non-verbal communication channels, can deepen our understanding of the emotional influence of spectators on the subjective experience and behavior of sports professionals.

Richlan, F., Thürmer, J. L., Braid, J., Kastner, P., & Leitner, M. C. (2023). Subjective experience, self-efficacy, and motivation of professional football referees during the COVID-19 pandemic. Humanities and Social Sciences Communications, 10(1). <https://doi.org/10.1057/s41599-023-01720-z>

## P109

### “Here, we go to many more funerals than weddings”: Narratives of critical incidents in mountain sports

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**Objectives:** In their systematic review of the literature on the psychology of mountaineering Jackman et al., (2020) called for more research using qualitative methods and a longitudinal design to better understand how athletes cope with adversity in the mountains. In line with this call, the objective of this study was to provide an in-depth and nuanced account of how critical incidents in mountain sports affect both individual athletes and the wider community.

**Methods:** This research predominantly took place in Chamonix Mont-Blanc in the French Alps. Throughout the study the researcher lived in the Alps, becoming an active member of the local outdoor community. Through this immersion, ten participants were recruited to take part in the study, including professional athletes from a range of different mountain sports, mountain guides, and alpine rescue personnel, who had either directly experienced or witnessed at least one critical incident in the mountains. The study utilised an immersive, longitudinal, mixed-methods approach to data collection. This included the use of multiple semi-structured life story interviews, as well as observational data (collected over more than three years), and a reflexive journal (including photos and videos) that was used throughout the research process. Data analysis took place as an iterative process using dialogical narrative analysis.

**Results:** The results outline participants' experiences of living through and after critical incidents in the mountains. Narrative themes include the challenges of making meaning, the juxtaposition of emotions (e.g., grief and guilt vs. apathy and ambivalence), and the balance between growth (e.g., more connected communities), and burnout (e.g., experiencing multiple incidents).

**Conclusion:** This research provides a novel exploration, being the first to specifically investigate the impact of trauma in the context of mountain sports. Its findings offer an evidence-informed basis for the development of community resources to support those who have been adversely affected.

Jackman, P. C., Hawkins, R. M., Burke, S. M., Swann, C., & Crust, L. (2020). The psychology of mountaineering: A systematic review. *International Review of Sport and Exercise Psychology*, 1–39. <https://doi.org/10.1080/1750984X.2020.1824242>

## P110

### Aerobic fitness and academic achievement: Disentangling the indirect role of executive function and intelligence in elementary school children

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Research on children suggests that aerobic fitness is a key factor in explaining individual differences in academic achievement. This talk will offer new insights into the cognitive processes underlying this link by investigating how executive functions (EF) mediate the relationship between aerobic fitness and academic achievement in two studies. The first study scrutinizes the contribution of EF and assesses whether this relationship is selective upon specific school subjects. The second study delves into dissecting the precise roles played by EF and intelligence. In the initial study, a cohort of 317 children aged 8-12 years underwent a VO2max test to evaluate aerobic fitness and completed nine tasks designed to measure various components of EF, including working memory, inhibition, and cognitive flexibility. Moreover, their grades in mathematics and French were collected for analysis. In the second study, an independent group of 218 children aged 8-10 years were underwent similar assessments, including VO2max tests, four EF tasks focusing on inhibition and cognitive flexibility, and crystallized and fluid intelligence from the Kaufman Brief Intelligence Test. Additionally, their academic levels in arithmetic, spelling, and reading were evaluated using the WRAT 3rd edition. Both studies employed multiple mediation structural equation modeling (SEM) techniques to explore the indirect influence of EF on the relationship between aerobic fitness and specific domains of academic achievement. The results unveiled that the direct impact of aerobic fitness on mathematics and arithmetic achievement diminished once the indirect effects of EF were considered, while intelligence did not significantly contribute to this mediation process in the second study. These findings provide valuable insights into the cognitive mechanisms linking aerobic fitness to academic achievement. They hold promise for informing the development of targeted interventions aimed at enhancing academic performance among school children and should encourage children (and schools) to do more exercise.

**P111**

**An Interpretative Phenomenological Analysis exploring student-athletes' lived experiences of using mental toughness and self-compassion to cope with sub-optimal performances.**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** Sub-standard performance and mistakes or failures are inherent aspects of the athletic experience. Whilst athletes may initially respond to adversity negatively, a constructive response can lead to personal development and growth (Fletcher & Sarkar, 2012). Student-athletes are expected to cope with many stressors simultaneously whilst also meeting both sporting and academic expectations, and understanding why they react to adversity with either adaptive or maladaptive responses is therefore beneficial. Mental toughness (MT; Goldberg, 1992) and self-compassion (SC; Neff, 2003) are two constructs considered characteristic of successful athletes. Therefore, the purpose of the study was to gain insight into student-athletes' lived experiences of using MT and SC in the context of poor performance.

**Methods:** Six student-athletes (three male and three female), aged between 18-30 years old, were recruited via purposeful sampling and interviewed using a semi-structured format. All participants competed at county level or above within their respective sport. Transcripts were analysed following the guided principles of Interpretative Phenomenological Analysis (Smith et al., 2009).

**Results:** Data analysis highlighted three main themes regarding the use of MT and SC in relation to: (1) physical conditioning (2) cognitive processing and (3) a lack of control over external factors. Findings indicated that athletes use MT and SC in situations that impact their physical condition, such as illness, injury, and fatigue. MT and SC are also utilised to help address negative thoughts and overthinking, low self-belief, and pressure. Lastly, MT and SC were used by students-athletes when seeking to regain control of their performance.

**Conclusion:** Student-athletes experience a variety of adversities during their athletic journey in the pursuit of their goals and during high-pressure situations. This research demonstrates how MT and SC can be utilised to help student-athletes re-appraise, cope with, and work through adversity to progress toward personal improvements and achieve performance under pressure.

Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of Sport and Exercise*, 13(5), 669-678. <https://doi.org/10.1016/j.psychsport.2012.04.007>

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, 4(1), 26-42. <https://doi.org/10.1037/1040-3590.4.1.26>

Neff, K. D. (2003). Self-Compassion: An Alternative Conceptualization of a Healthy Attitude Toward Oneself. *Self and Identity*, 2(2), 85-101. <https://doi.org/10.1080/15298860309032>

Smith, J., Flowers, P., & Larkin, M. (2009). Interpretative Phenomenological Analysis: Theory, Method and Research. In *Qualitative Research in Psychology* (Vol. 6).

**P112**

**Associations of Aerobic and Muscular Fitness with Sustained Overt Attention and Discrimination Abilities in Preadolescents**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Research has highlighted a link between these cognitive abilities and children's physical fitness. Therefore, this study investigated the associations of two fitness domains, namely aerobic and muscular fitness, with cognitive processes that necessitate sustained overt attention and discrimination abilities in preadolescents. A total of 176 elementary school students (70 girls, mean age = 11.17 years, SD = 0.7) were instructed to perform half-mile run to evaluate their aerobic fitness and the 60-second sit-up and standing broad jump tests to evaluate their muscular fitness. We adopted the visual pursuit and determination tests to assess sustained overt attention and discrimination abilities, respectively. The hierarchical multiple regression analysis revealed that greater aerobic fitness predicted higher visual pursuit test performance ( $\beta = .308$ ,  $t = 3.465$ ,  $p = .001$ ), and muscular fitness did not predict visual pursuit test performance ( $\beta = -.076$ ,  $t = -1.018$ ,  $p = .310$ ), after controlling for age, gender, and body fat percentage, suggesting that the positive association of aerobic fitness with overt attention was independent of muscular fitness. We also observed that greater muscular fitness predicted higher determination test performance ( $\beta = -.178$ ,  $t = -2.318$ ,  $p = .032$ ), aerobic fitness didn't predict determination test performance ( $\beta = .165$ ,  $t = 1.814$ ,  $p = .071$ ), after controlling for age, gender, and body fat percentage, suggesting that the positive association of muscular fitness with discrimination ability was independent of aerobic fitness. Notably, the impact of each physical fitness domain on cognitive function appeared to be distinct and independent of the other ( $\beta = .165$ ,  $t = 1.814$ ,  $p = .071$ ). These findings provide new insights into the unique associations of fitness domains with sustained overt attention and discrimination abilities and can inform the design of exercise programmes that enhance both aerobic and muscular fitness to optimize diverse cognitive abilities in children.

Alvarez-Bueno, C., Hillman, C. H., Cavero-Redondo, I., Sanchez-Lopez, M., Pozuelo-Carrascosa, D. P., & Martinez-Vizcaino, V. (2020). Aerobic fitness and academic achievement: A systematic review and meta-analysis. *Journal of Sports Sciences*, 38(5), 582-589. <https://doi.org/https://doi.org/10.1080/02640414.2020.1720496>

Bull, F. C., Al-Ansari, S. S., Biddle, S., Borodulin, K., Buman, M. P., Cardon, G., Carty, C., Chaput, J.-P., Chastin, S., & Chou, R. (2020). World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *British Journal of Sports Medicine*, 54(24), 1451-1462. <https://doi.org/http://dx.doi.org/10.1136/bjsports-2020-102955>

Chou, C.-C., & Huang, C.-J. (2017). Effects of an 8-week yoga program on sustained attention and discrimination function in children with attention deficit hyperactivity disorder. *PeerJ*, 5, e2883.

<https://doi.org/10.7717/peerj.2883>

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Chou, C. C., Kao, S. C., Pan, C. C., McCullick, B., Fu, H. L., & Wang, C. H. (2023). Cognitively engaging movement games improve interference control and academic performance in overweight children: A randomized control trial. *Scandinavian journal of medicine & science in sports*, 33(4), 521-534. <https://doi.org/https://doi.org/10.1111/sms.14264>



## P113

### Effects of acute psychological stress on heart rate variability in normotensive offspring of hypertensive parents

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** The offspring of hypertensive parents are prone to have reduced heart rate variability (HRV) (Wu et al., 2008) and exaggerated cardiovascular reactivity to psychological stress (Noll et al., 1996). However, few studies have investigated the effects of acute psychological stress on HRV in this population. The purposes of this study were 1) to investigate the differences in HRV between normotensive offspring of hypertensive parents and non-hypertensive parents and 2) to compare the effects of acute psychological stress on HRV between normotensive offspring of hypertensive and non-hypertensive parents.

**Methods:** This was a cross-sectional study. Seventy-eight participants who met the inclusion criteria were recruited for this study. They were divided into the group with a family history of hypertension (n= 42) or the group without a family history of hypertension (n= 36). All participants completed the personal information questionnaire, Physical Activity Readiness Questionnaire, Perceived Stress Scale, and Godin-Shepard Leisure-Time Exercise Questionnaire. Next, participants' electrocardiogram (ECG) was recorded continuously during the four experimental stages, that is, the resting stage, two psychological stress stages (Stroop task and mental arithmetic task), and the recovery stage. The ECG data were then analyzed for HRV. Lastly, participants' aerobic fitness was assessed via a maximal exercise test.

**Results:** The offspring of both hypertensive and non-hypertensive parents have normal and similar resting heart rate and blood pressure. However, participants with a family history of hypertension showed significantly lower HRV at rest. No significant difference in HRV between the groups was observed during the two psychological stress stages and the recovery stage.

**Conclusions:** Normotensive individuals with a family history of hypertension have shown early signs of cardiac autonomic dysfunction. However, the HRV responses to acute psychological stress in this population were not different from those without a family history of hypertension.

Noll, G., Wenzel, R. R., Schneider, M., Oesch, V., Binggeli, C., Shaw, S., Weidmann, P., & Lüscher, T. F. (1996). Increased activation of sympathetic nervous system and endothelin by mental stress in normotensive offspring of hypertensive parents. *Circulation*, 93(5), 866–869. <https://doi.org/10.1161/01.cir.93.5.866>

Wu, J. S., Lu, F. H., Yang, Y. C., Lin, T. S., Chen, J. J., Wu, C. H., Huang, Y. H., & Chang, C. J. (2008). Epidemiological study on the effect of pre-hypertension and family history of hypertension on cardiac autonomic function. *Journal of the American College of Cardiology*, 51(19), 1896–1901. <https://doi.org/10.1016/j.jacc.2007.12.053>

## P115

### Visible Women: Factors associated with mentioning the (female) gender in the title of single-gender studies in sport psychology

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** Evidence has accrued on the so-called gender-data gap, indicating that the perspectives of women are under-represented in data across all sciences. In recent review studies, Cowley, et al. (2021) for sport and exercise science in general and Walton et al. (2022) for psychology in particular, show that studies in the field have included more male participants and more studies were focused on males only. However, women were more visible in the title, as female-only studies were more likely to mention gender in the title. We wanted to further explore factors of the publication associated with this odd odds ratio

**Methods:** Using the publicly available data set from Walton et al. (2022), we coded the previously identified 106 single-gender studies for the stereotype of sport and level of sport participation and ascribed the gender of the lead author. Frequencies were then analyzed for these and previously coded factors.

**Results:** Relative frequency of mentioning female gender in the title increases if the lead author's (ascribed) gender is female, the sample is from an elite population, or the study's theme is on (mental) health or on exercise, but is reduced if the studied sport is prototypically male.

**Conclusion:** We interpret this data as indicating that the male default prevails even in prototypically female conditions. Further research should investigate causes and effects of making women visible in the tile (only). Higher gender-reporting of female authors, e.g., could be due to their higher sensitivity to this bias or results, or from the decision-making of reviewers and editors. The scientific community should discuss the implications on their reporting standards and whether affirmative action should be taken.

Cowley, E. S., Olenick, A. A., McNulty, K. L., & Ross, E. Z. (2021). "Invisible sportswomen": the sex data gap in sport and exercise science research. *Women in Sport and Physical Activity Journal*, 29(2), 146-151.

Walton, C. C., Gwyther, K., Gao, C. X., Purcell, R., & Rice, S. M. (2022). Evidence of gender imbalance across samples in sport and exercise psychology. *International Review of Sport and Exercise Psychology*, 1-19.

**P117**

**Prevalence of eating disorder symptoms and excessive weight control behavior among adolescent Swiss athletes**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Adolescent athletes are at risk of developing disordered eating and excessive weight-control behavior (Bratland-Sanda & Sundgot-Borgen, 2013). However, there is limited knowledge regarding disordered eating among adolescent athletes, especially among male athletes. The aim of this study was to obtain prevalence data on eating disorder symptoms and weight-control behavior among adolescent Swiss athletes. Additionally, the study aimed at investigating potential differences regarding sport gender categories (i.e., female and male), and types of sports (i.e., lean and non-lean). A total of 1005 young athletes aged 14 to 20 years completed the Eating Disorder Examination Questionnaire (Fairburn & Beglin, 1994) and a questionnaire on their sport. A total of 36.2% young athletes showed clinically relevant eating disorder symptoms (EDE-Q global scores > 2.4). Analyses revealed significant differences for sport gender categories ( $\chi^2(1, N = 1005) = 134, p < .001$ ) and types of sports ( $\chi^2(1, N = 1005) = 4.81, p = .028$ ), with athletes in female's sport category and those in lean sports showing higher eating disorder symptoms than athletes in male's sport category or those in non-lean sports. Additionally, 33.9% of these young athletes reported excessive exercising, further 5.4% showed self-induced vomiting, and 2.2% reported using laxatives. Young athletes of the female's sport category reported more self-induced vomiting ( $\chi^2(1, N = 987) = 9.64, p = .002$ ), and more excessive exercise ( $\chi^2(1, N = 990) = 28.2, p < .001$ ) than those in male's sport category. Moreover, young athletes in lean sports engaged more in excessive exercise ( $\chi^2(1, N = 990) = 6.19, p = .013$ ) than those in non-lean sports. It can be concluded that already young athletes are at risk to show eating disorder symptoms and unhealthy weight-control behaviour, especially those competing in a female's sport category and in lean sports, therefore. These findings emphasize the importance of early identification.

Bratland-Sanda, S., & Sundgot-Borgen, J. (2013). Eating Disorders in Athletes : Overview of prevalence, risk factors and recommendations for prevention and treatment. *European Journal of Sport Science*, 13(5), 499-508. <https://doi.org/10.1080/17461391.2012.740504>

Fairburn, C.G., Beglin, S.J., 1994. Assessment of eating disorders: interview or self-report questionnaire? *International Journal of Eating Disorders* 16 (4), 363-370.

**P118**

**Less-is-more via Embodiment – How the Body Simplifies Cognition**

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We put forth that embodiment, the body performing ostensibly 'cognitive' tasks, is a result of the less-is-more principle. Less-is-more states that effective decision making involves reducing the load of mental computation as much as possible while maintaining (or improving) performance (Shah & Oppenheimer, 2008). Because embodiment involves the body taking up some of this computational load (Shapiro & Spaulding, 2019), by solving 'cognitive' tasks, we argue it is an instance of the less-is-more principle. For example, an outfielder attempting to arrive at the landing position of a flyball will move their body to solve this task, instead of laborious mental calculations. By running such that they maintain a constant angle to the ball, they will always end up where the ball lands. The body in action solves the problem, without mental computation, which leaves mental capacity for deciding which baseman to throw to (McBeath et al., 1995, Gigerenzer, 2021). More specifically, we argue there are two mechanisms with which the body reduces mental computational load: constraining involves the body reducing input (such as fewer visual fixations) or the space of available options (limiting option generation to physically feasible actions), and off-loading involves the body using its mechanics to arrive at solutions to calculation (using the sensorimotor system to improve anticipation). In sports, athletes are frequently in complex, time-pressured, and uncertain situations, making the need for less-is-more even more important. Simultaneously, they are also confronted with tasks that require actions, making the body a valuable resource. Our perspective goes beyond describing surface-level tendencies of athletes' performance. By pinpointing the underlying mechanics of decision making, this proposal targets the how of decision-making processes. This allows for improved interventions regarding decision making.

Gigerenzer, G. (2021). Embodied Heuristics. *Frontiers in Psychology*, 12. <https://www.frontiersin.org/articles/10.3389/fpsyg.2021.711289>

McBeath, M. K., Shaffer, D. M., & Kaiser, M. K. (1995). How Baseball Outfielders Determine Where to Run to Catch Fly Balls. *Science*, 268(5210), 569-573. <https://doi.org/10.1126/science.7725104>

Shah, A. K., & Oppenheimer, D. M. (2008). Heuristics made easy: An effort-reduction framework. *Psychological Bulletin*, 134(2), 207-222. <https://doi.org/10.1037/0033-2909.134.2.207>

Shapiro, L. A., & Spaulding, S. (2019). Embodied Cognition and Sport. In M. L. Cappuccio (Ed.), *Handbook of Embodied Cognition and Sport Psychology* (pp. 3-22). The MIT Press. <https://doi.org/10.7551/mitpress/10764.003.0006>

**P119**

**The Mental Health of Elite-Level Coaches: A Systematic Scoping Review**

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Elite-level coaches are exposed to multiple performance, organisational and personal stressors which may contribute towards reduced mental health and wellbeing. This systematic scoping review examined the current body of evidence to explore what is known about the mental health of elite-level coaches (i.e. wellbeing and mental ill-health), the risk and protective factors that influence coach mental health, and the relationship between mental health and coaching effectiveness. The review adhered to the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines. A systematic search was undertaken and updated in September 2022 using six electronic databases. A quality appraisal was also performed using the Mixed Methods Appraisal Tool (MMAT). 12,376 studies were identified and screened, with 42 studies satisfying the inclusion criteria. Despite the paucity of high-quality research, findings indicated that 41% of the included studies examined themes connected to wellbeing, with 76% assessing the nature or prevalence of mental ill-health in elite-level coaches. Among studies exploring mental ill-health, coach burnout was the primary focus (50%), while scant research examined symptoms associated with clinical disorders (e.g. anxiety and depression) (<25%). Overall, psychological outcomes for elite-level coaches were shaped by risk and protective factors operating at the individual, interpersonal, organisational and societal level. Preliminary evidence was also found to suggest that poor mental health may contribute towards reduced coaching effectiveness. It is proposed that coaching effectiveness could therefore be employed as a 'hook' to engage elite-level coaches in greater consideration of their mental health needs. Alongside the development of methodologically robust research, there is a need to examine dynamic individual (e.g. psychological skills), interpersonal (e.g. strong social supports) and organisational (e.g. workload) factors that aim to preserve the mental health and optimise the efficacy of elite-level coaches.

**P120**

**Longitudinal examination of the effect of specific and non-specific goal types for physical activity promotion in an insufficiently active population**

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**Objectives:** The benefits of goal setting for physical activity are widely reported (e.g., McEwan et al., 2016; Howlett et al., 2019), particularly for those considered insufficiently active (i.e., completing <150-minutes of moderate-vigorous physical activity/week; WHO, 2020). However, the effects of different goal types (e.g., specific, learning, open) on longer-term behaviour change and the psychological variables underpinning these changes (e.g., motivation, self-efficacy) are relatively unknown. This study aimed to explore the effects of different goal types on both physical activity and the psychological variables that are important for physical activity engagement (Rhodes & Kates, 2015).

**Methods:** Insufficiently active adults (N = 45) completed a 7-week step count intervention and were randomly assigned one of three goal conditions (Open: "see how many steps you can walk each day"; Specific: "walk 20% steps above baseline each day"; Learning: "identify and implement one strategy to walk 20% steps above baseline each day"). Pre and post intervention measures were collected including physical activity using IPAQs and Fibion accelerometers, self-efficacy, affective experiences, motivation, and goal motives.

**Results:** All three goal conditions elicited increases in step count from baseline, with the highest post-intervention step count observed in the learning goal condition (M = 8654, SD = 637.73). However, ANCOVA analysis found no significant differences between goal types on step count (F[2,41] = 0.413, p = .67, partial η<sup>2</sup> = .020), motivation (p = .98), self-efficacy (p = .88), or affect (p = .94).

**Conclusion:** This study found that goal setting remains effective in changing insufficiently active adult's behaviours regardless the type of goal pursued. These findings offer initial insight into the effects of goal types on physical activity and psychological outcomes which could be used to inform future behaviour change research.

Howlett, N., Trivedi, D., Troop, N. A., & Chater, A. M. (2019). Are physical activity interventions for healthy inactive adults effective in promoting behavior change and maintenance, and which behavior change techniques are effective? A systematic review and meta-analysis. *Translational Behavioral Medicine*, 9(1), 147-157.

McEwan, D., Harden, S. M., Zumbo, B. D., Sylvester, B. D., Kaulius, M., Ruissen, G. R., Dowd, J., & Beauchamp, M. R. (2016). The effectiveness of multi-component goal setting interventions for changing physical activity behaviour: a systematic review and meta-analysis. *Health Psychology Review*, 10(1), 67-88.

Rhodes, R. E., & Kates, A. (2015). Can the affective response to exercise predict future motives and physical activity behavior? A systematic review of published evidence. *Annals of Behavioral Medicine*, 49(5), 715-731.

WHO guidelines on physical activity and sedentary behaviour. who.int/ Published November 25, 2020. Accessed June, 2021. <https://www.who.int/publications/i/item/9789240015128>

## P121

### Frequency of violence and attitudes towards violence in sport

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**Objectives:** The aim of the study was to determine the frequency of different forms of violent behaviors in sports and to examine athletes' attitudes toward violence in sport setting.

**Methods:** The study sample consisted of 242 athletes (41% women) from different sports (Mage = 20,76, SD = 1,58). The participants indicated the frequency with which they encounter psychological and physical violence from sporting peers and coaches. In addition, participants indicated to what degree they agree with beliefs that are considered related to the occurrence and persistence of violence in sports.

**Results:** According to the obtained results, 83.9% of participants experienced psychological violence, while 47.9% faced physical violence from their coaches. Furthermore, 78.5% encountered psychological violence, and 43.8% experienced physical violence from peers within the sports setting. A considerable proportion of athletes reported attitudes that are regarded as risk factors for the occurrence and persistence of violence in sports. Namely, 19.8% of participants acknowledge their readiness to endure coaches' aggressive behavior if it would contribute to the advancement in their career; 28.9% stated that they feel worse when their coach ignores them than when he/she insults them; 38% hold the belief that when their coach yells at them, it signifies that the coach cares about them; 10,4% believe that coaches' violent behaviors are justified because they contribute to the strengthening of athletes; and 8.7% of the participants believe that people who cannot stand the violent behavior of coaches and/or athletes have no place in sports.

**Conclusion:** In line with previous studies (Hartill et al. 2021), the results reveal a high incidence of psychological and physical violence in sports. In addition, the findings point out the complex relationship between violence and sport, emphasizing the need to change the narrative about violence as an inherent part of sports activities.

Hartill, M., Rulofs, B., Lang, M., Vertommen, T., Allroggen, M., Cirera, E., Diketmueller, R., Kampen, J., Kohl, A., Martin, M., Nanu, I., Neeten, M., Sage, D., Stativa, E. (2021). CASES: Child abuse in sport: European Statistics – Project Report. Ormskirk, UK: Edge Hill University

## P122

### Operationalizing Physical Literacy Through Sport Education in an Elementary Physical Education Program

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Sport Education (SE) is a curriculum and instruction model replicating positive aspects of organized sports experiences in a physical education context. Students within SE experience team affiliations, practice together, formal competition, record keeping, role playing, and experience social development opportunities, emphasizing the affective learning domain. This study aimed to evaluate the comparative effectiveness of two models in physical education for enhancing physical literacy, sport-specific skill competence, enthusiasm, and sport-specific literacy. Canadian students in grades 3-5 (age:  $9.58 \pm 0.92$ ) participated in an 11-session team handball module. Classes were randomly allocated to either the Direct Instruction model (DI, control group,  $n = 22$ ), focused on skill acquisition through introductory activities, skill/drill practices, and gameplay, or SE ( $n = 42$ ). Both groups demonstrated increased experience in team handball, with a significant change over time (Wilk's  $\eta^2 = .858$ ,  $F(2, 59) = 4.867$ ,  $p < .01$ ). However, the SE group reported significantly higher skill competence, increased team handball literacy, and more enthusiasm at the post-test compared to the DI group. The Canadian Assessment of Physical Literacy 2.0 was used to assess the domains of physical competence, physical activity behaviours, knowledge and understanding, and motivation and confidence. Overall physical literacy scores showed a significant change over time for both groups (Wilk's  $\eta^2 = .810$ ,  $F(4, 57) = 4.642$ ,  $p < .001$ ). The SE cohort had significantly higher scores in the motivation and confidence domain at time 2 compared to the DI group ( $F = 14.621$ ,  $p = .001$ ,  $\eta^2 = .21$ ). While both models led to gains in team handball experience, the SE group reaped additional benefits in terms of enhanced skill improvement, superior rules understanding, increased enjoyment, and more motivation and confidence. These findings underscore the added value of the Sport Education model in enhancing domains of physical literacy.

## P123

### Empowering young athletes against interpersonal violence - design and evaluation of a workshop series in sports clubs

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**Objective:** Sports clubs are places where children and adolescents acquire skills and tools to succeed in sports and life. However, research on interpersonal violence (IV) consistently points out that not all experiences in sports clubs are beneficial. Athletes need to be included in efforts to prevent IV, as they are the ones it concerns most (Mountjoy et al., 2022). Thus, one major task for organized sports is to educate athletes about their right to safe sports and to empower them to use their voices, e.g., through evidence-based educational workshops. This study investigates whether a workshop series influences beliefs about bystander behavior, individual boundaries, and preventive culture.

**Methods:** Training groups (12-18 years old) of eight German sports clubs participated in a series of four workshops. The workshops were designed using the Intervention Mapping framework (Bartholomew Eldredge et al., 2016) and delivered in a field study with a wait-list-control design. A questionnaire based on the theory of planned behavior (Ajzen, 1991) was developed. Repeated measures MANOVA were used to compare changes in bystander behavior, individual boundaries, and preventive culture over three points of measurement.

**Results:** Preliminary analysis was performed after two measurement points. The reduced sample consisted of  $n=54$  participants ( $n=35$  female;  $n=21$  wait-list control group) with a mean age of 13.87 years (SD 1.48). At the descriptive level, behavioral control of bystander behavior, intention towards individual boundaries, and preventive culture appeared to improve for the experimental group. However, the repeated measures MANOVA analysis did not reveal significant main or interaction effects.

**Conclusion:** With the complete data set and the inclusion of the third point of measurement, the results are expected to evolve. However, common method bias, e.g., social desirability, might affect participant responses. Based on the results of the evaluation, future research should amend and improve the proposed workshop concepts.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)

Bartholomew Eldredge, L. K., Markham, C. M., Ruiters, R. A. C., Fernández, M. E., Kok, G., & Parcel, G. S. (2016). Planning Health Promotion Programs: An Intervention Mapping Approach. John

Wiley & Sons, Incorporated. <http://ebookcentral.proquest.com/lib/kiz-uniuml/detail.action?docID=4312654>

Mountjoy, M., Vertommen, T., Greinig, S., Burrows, K., & Tercier, S. (2022). "Nothing About Us, Without Us": Empowering the Youth Athlete Voice in #SafeSport. *Clinical Journal of Sport Medicine*, 32(2), 79. <https://doi.org/10.1097/JSM.0000000000000980>

## P124

### Questioning the transfer of motor imagery benefits to design effective imagery training programs

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Over the last decades, a large amount of experimental research aimed at determining optimal motor imagery (MI) practice guidelines. Research progressively provided a comprehensive framework to develop effective interventions. Yet, the scientific literature paid little attention to transfer effects resulting from MI practice. Pioneering data showed that the benefits of MI practice were not transferred from a simple to a more complex motor task (Roure et al., 1998). In the present paper, we examined whether performance gains following MI of a complex motor task were task-specific or might be transferred to simpler motor skills (Guillot et al., 2022). Twenty-eight golf players of intermediate level were involved in a 12-weeks test-retest design, where swing and putting performances were measured. All participants were subjected to three 4-week imagery interventions using internal visual imagery, external visual imagery and kinesthetic imagery, which were contrasted to a control pre-test measure. During each MI intervention, they were requested to mentally rehearse only the swing shot. Data showed that all imagery interventions improved swing performance at retest, but also revealed that gains largely transferred to the putting performance which was not trained physically. Additional benefits were found external visual MI training, for both skills. Interestingly, individual MI ability scores predicted performance gains under the corresponding MI training condition. Taken together, present findings support transfer effects of MI interventions. It is suggested that MI should focus on most difficult technical motor skills. Practically, this effect should be considered to achieve optimally effective interventions to enhance performance in relation to individual MI ability profiles.

Guillot A., Debarnot U., Monarchi-Comte Y. & Di Rienzo F. (2022). Questioning the transfer effect of motor imagery benefits: The neglected variable of interest. *Asian Journal of Sport and Exercise Psychology*, 2, 91-98.

Roure, R., Collet, C., Deschaumes-Molinari, C., Dittmar, A., Rada, H., Delhomme, G., & Vernet-Mauray, E. (1998). Autonomic nervous system responses correlate with mental rehearsal in volleyball training. *European Journal of Applied Physiology*, 78(2), 99-108.



## P126

### Stepping beyond tradition: Comparing traditional verbal coaching instructions to a constraints-led approach when learning boxing stance

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Background. Coaching approaches derived from ecological psychology are becoming recognised as superior to traditional techniques. An example is the constraints-led approach (CLA). It is argued that the CLA can promote an external focus of attention, potentially increasing the efficacy of this approach. Objectives. In the present mixed methods study, the efficacy of using a physical constraint was evaluated against prescriptive instructions for learning the boxing stance and footwork with qualitative effects on individuals' attentional focus also explored. Methods. Thirteen participants (Female = 6, Mean age = 22±2 SD), allocated to either CLA (n = 7) or prescriptive instructions (n = 6) groups, completed 100 trials, dispersed over acquisition, intervention, retention and transfer phases. Symmetric mean absolute percentage error (SMAPE) was used to assess performance through trial-by-trial accuracy compared to forecasted 'ideal' performance; devised from participants' respective shoulder-width stances. After each phase, participants provided a qualitative attentional focus account. Results. Preliminary analysis (of a growing data set) revealed a significant interaction (Group\*Phase) for SMAPE (p = .023) favouring the prescriptive instructions group at retention (p = .008); this was attenuated at transfer. For the CLA group, SMAPE was significantly lower at transfer (p = .013), compared to retention performance. Two higher-order themes (External/Internal) and four lower-order themes (Internal-Associative/Dissociative; External-Associative/Dissociative) were synthesised from raw qualitative attentional focus accounts. However, both groups shared similar attentional foci. Despite the prescriptive instructions group having initially outperformed the CLA group, only the CLA group demonstrated significant learning outcomes, assessed via transfer. Attentional focus varied within groups, with no clear distinctions between groups. Respectively, it was unclear whether attentional focus influenced skill acquisition in the present study. Conclusion. Due to the similar improvements between groups and the additional motor learning benefits of CLA proposed in the literature, boxing coaches may implement the CLA into their traditional practices.

## P127

### The Impact of Perceived Parental Pressure on Athletes: A Meta-Analytic Review

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Objectives: This study investigated the impact of perceived parental pressure (PPP) on various aspects of young athlete development, including mental health concerns, physical health, enjoyment of sport, self-esteem, goal orientations, and motivation. Using a meta-analytic review of existing literature, the study sought to elucidate the effects of PPP on young athletes' overall well-being and performance outcomes.

Methods: Following PRISMA guidelines, we conducted a systematic search across several databases, including EBSCO Host (e.g., PsycINFO, SPORTDiscus), Web of Science, ProQuest, and Google Scholar. Inclusion criteria comprised empirical studies providing appropriate analyses from which to calculate effect sizes and included variables of interest within English language publications. Various study designs (prospective, retrospective, cross-sectional) were included. Effect sizes were synthesized using both random-effects and fixed-effects models, while heterogeneity and publication bias were scrutinized through I<sup>2</sup> statistics, funnel plots, and Egger's test.

Results: Our meta-analysis included 31 studies with a combined sample of over 6,000 athletes. We found that PPP had a significant positive relationship with athlete mental health problems, specifically anxiety (r = .16, p < .001), as well as a significant positive relationship with the ego/performance goal orientation (r = .28, p < .001). Conversely, PPP was significantly negatively associated with sports enjoyment (r = -.16, p < .05). These findings indicate that higher PPP correlated with heightened anxiety, increased ego/performance-oriented goals, and reduced enjoyment in sports.

Conclusions: The meta-analysis revealed that PPP is a significant psychological factor for young athletes and was associated with increased anxiety, diminished sports enjoyment, and a rise in ego/performance goal orientations, which may encourage a "win-at-all-costs" attitude, undermine teamwork, and reduce long-term motivation in athletes. Given the significance of these associations, our findings indicate a need for informed parent interventions that promote a mastery-oriented climate, prioritize personal improvement and effort, and facilitate healthier athlete attitudes and well-being.

**P128**

**Aesthetic Disconnect: Girls' Experiences of Competitive Aesthetic Sports**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** So-called “aesthetic sports,” such as gymnastics and dance, conjoin intensive athletic performance with the ideal of physical flawlessness. There are many instances of aesthetic athletes’ perfectionism leading to distorted body image and related outcomes (e.g., Paixão et al., 2021; Voelker et al., 2014). The current study proposes the concept of “aesthetic disconnect,” namely, experiences unique to aesthetic athletes that involve the conscious or unconscious detachment of the self from the body with the goal of improving athletic performance. This study seeks to understand how competitive aesthetic sport involvement may affect girls’ relationships to their bodies, and how they make sense of their psychosocial and physical experiences within aesthetic sport.

**Methods:** Structured interviews with six young female competitive figure skaters (ages 13-17) were undertaken with the goals of understanding a) how do the athletes psychologically understand and perceive their competitive aesthetic sport involvement and b) whether there is a unique sense of self-body disconnect which results from this involvement. Interviews were transcribed and coded for meaning using an inductive approach to thematic analysis.

**Results:** Data collection is ongoing but based on initial results and the pre-existing research literature, several key themes are expected to emerge. These include the collective perspective of the “ideal” body for competitive figure skating (e.g., Voelker & Reel, 2015); a tendency towards pain suppression (e.g., Lampe et al., 2019); endorsement of individual perfectionistic tendencies (e.g., Paixão et al., 2021); and strong personal identification with being a competitive figure skater (e.g., Turton et al., 2017).

**Conclusion:** Themes are anticipated to support participants’ experiences of competitive aesthetic sports as complex and deeply personal, while being unified by a shared tendency to separate the self from the body in order to excel in the sport. This tendency may facilitate aversive outcomes such as disordered eating, depression, and anxiety.

Lampe, J., Groneberg, D. A., Ohlendorf, D., & Wanke, E. M. (2019). Pain in female dancers and dance teachers: Perception, assessment, and related behavior. *Scandinavian Journal of Medicine & Science in Sports*, 29(4), 623-632. <http://dx.doi.org.proxy.lib.sfu.ca/10.1111/sms.13387>.

Paixão, C., Oliveira, S., & Ferreira, C. (2021). A comprehensive model of disordered eating among aesthetic athletic girls: Exploring the role of body image-related cognitive fusion and perfectionistic self-presentation. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psycho-*

*logical Issues*, 40(11), 5727-5734. <http://dx.doi.org.proxy.lib.sfu.ca/10.1007/s12144-020-01142-z>.

Turton, R., Goodwin, H., & Meyer, C. (2017). Athletic identity, compulsive exercise and eating psychopathology in long-distance runners. *Eating Behaviors*, 26, 129-132. <http://dx.doi.org.proxy.lib.sfu.ca/10.1016/j.eatbeh.2017.03.00>.

Voelker, D. K., Gould, D., & Reel, J. J. (2014). Prevalence and correlates of disordered eating in female figure skaters. *Psychology of Sport and Exercise*, 15(6), 696-704. <http://dx.doi.org.proxy.lib.sfu.ca/10.1016/j.psychsport.2013.12.002>.

Voelker, D. K., & Reel, J. J. (2015). An inductive thematic analysis of female competitive figure skaters’ experiences of weight pressure in sport. *Journal of Clinical Sport Psychology*, 9(4), 297-316. <http://dx.doi.org.proxy.lib.sfu.ca/10.1123/jcsp.2015-0012>.

## P129

### The influences of aging and age simulation on implicit motor sequence learning

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Younger adults outperform older adults in various motor and cognitive tasks and in motor sequence learning (Vieweg et al., 2023; Voelcker-Rehage, 2008). The reasons of the observed age-related differences may result from age-related declines in sensory and motor functions or from age-related alterations in brain function. The use of an age simulation suit mimics the physical challenges of aging by affecting visual perception, joint flexibility, and overall strength through elements such as colored glasses that blur vision, earmuffs that reduce hearing, and weights that restrict movement. We investigated whether these peripheral constraints also affect learning of an implicit gross-motor sequence task, and we assessed the correlation of cognition and motor sequence learning. In a between-subjects design, we asked 15 younger adults with the age simulation suit (M = 23.2 years), 14 younger adults (M = 22.1 years) without the suit and 15 older adults (M = 70.2 years) to learn a fixed 10-element motor sequence across 28 trials. A retention test followed on day 2. Additionally, we assessed perceptual processing speed and working memory capacity. The results show performance improvements for all participants during acquisition of the motor sequence. Although the suit slowed down the young participants, younger participants in both groups outperformed older adults during acquisition and retention. These results suggest that younger participants wearing the suit show substantial compensation for peripheral constraints, emphasizing the role of cognitive factors beyond the restrictions introduced by the age suit. We also found a correlation of cognitive speed, working memory and motor learning. These findings align with previous research indicating that diminished cognitive functioning, especially in older age, is linked to reduced proficiency in implicit motor sequence learning.

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## P130

### Effects of acute aerobic exercise on inhibitory control and decision-making function in mobile phone dependent individuals—An ERP study

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**Objectives:** Currently, problematic mobile phone use is prevalent in university students and influences their health outcomes in many ways. Existing evidence suggests problematic mobile phone use was associated with lower inhibitory control and decision-making. There is little neurobiological evidence regarding the acute exercise-elicited cognitive benefits on mobile phone-dependent university students. Thus, this study aimed to investigate the effects of acute moderate-intensity aerobic exercise on inhibitory control and decision-making function in mobile phone dependent individuals and the characteristics of in-task brain activation, particularly the P3, N2 and Feedback-related negativity (FRN) components.

**Methods:** A randomized crossover design was conducted. Twenty-eight mobile phone dependent university students participated in cycling and sitting experimental conditions. Following interventions, inhibitory control and decision-making were separately measured by the Stroop task and Iowa Gambling Task (IGT). Task-state EEG data were collected.

**Results:** Acute moderate-intensity aerobic exercise accelerated Stroop task response time ( $P < 0.05$ ) and increased central parietal P3 amplitude ( $P < 0.01$ ), but the N2 amplitude was not significantly different between the two experimental conditions. Meanwhile, acute moderate-intensity aerobic exercise improved the block 5 IG index ( $P < 0.01$ ) and total IG index ( $P < 0.05$ ). The higher P3 ( $P < 0.01$ ) and FRN ( $P < 0.01$ ) were observed in the loss feedback, but FRN and P3 amplitude were not significantly different between the two experimental conditions.

**Conclusion:** These findings suggest that acute moderate-intensity aerobic exercise improves the level of cognitive resource engagement and enhances inhibitory control function, as reflected in the late component P3, but was not influenced by monitoring processes in the early ERP component. Meanwhile, it decreases the propensity for risky decision-making and promotes decision-making function in mobile phone dependent university students, but was not influenced by FRN and P3 amplitude, which was only found to be larger when elicited in the loss feedback.

**Keywords:** mobile phone dependent; aerobic exercise; inhibitory control; decision-making; ERP

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## P131

### Anticipation of backcourt throws in junior and senior handball goalkeepers

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**Objectives:** Handball goalkeepers are often under high spatio-temporal pressure that requires them to anticipate an opponent's action to save the goal. Practitioners have reported difficulties in goalkeepers' transitions from junior to senior competition which could partially be caused by an increase in spatio-temporal pressure and, related to that, higher demands on goalkeepers' anticipatory skill at the senior level. To address this question and to test the hypothesis of better anticipatory skill in senior than junior goalkeepers, we investigated junior and senior goalkeepers' anticipation of handball backcourt throw outcome. **Methods:** Thirty-five junior (M = 17.22 years; SD = 0.71; n = 11 female) and n = 43 senior (M = 25.03 years; SD = 5.14, n = 18 female) goalkeepers from the highest four German handball leagues were shown 144 videos of backcourt throws from three different court positions (backcourt left [BL], backcourt centre [BC], backcourt right [BR]). The throws were occluded at three different times (t1 = last step; t2 = turning point of the throwing arm; t3 = ball release). Goalkeepers were asked to anticipate throw direction (left, right) on a touch screen. **Results:** Response accuracy increased from early to late occlusion,  $p < .001$ ,  $\eta^2 = .28$ . Moreover, junior goalkeepers were more accurate than senior goalkeepers for BC-throws, whereas descriptively the opposite was found for BL- and BR-throws (position x group interaction,  $p = .001$ ,  $\eta^2 = .11$ ). None of the other effects were statistically significant. **Conclusion:** Differences in anticipation between junior and senior goalkeepers might not (solely) account for difficulties in goalkeepers' transitions from junior to senior competition. The position-dependent group differences identified may be indicative of different strategies in junior and senior goalkeepers' use of contextual information. Implications for future testing and potential training programs will be discussed.

## P132

### The Effect of Exercise Types on Cognitive Function Among Breast Cancer Patients: A Systematic Review of Randomized Controlled Trials

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**Objectives:** This systematic review aims to examine randomized controlled trials investigating the effect of exercise on cognitive function among breast cancer patients, with that it seeks to compare the effects of different types of exercise

**Methods:** The review incorporated studies retrieved up to December 25, 2023, from three electronic databases: PubMed, Web of Science, and Scopus. Inclusion criteria mandated that studies meet the following conditions: participants had a history of breast cancer; exercise was utilized as an intervention; study results encompassed at least one cognitive function assessment, and the study design was a randomized controlled trial. The quality of the studies was evaluated using the PEDro scale.

**Results:** Seventeen studies, comprising 1549 participants, were included in the analysis. More than half of these studies reported positive benefits of exercise on cognitive function. Notably, resistance exercise failed to demonstrate benefits across various aspects of cognitive function, while aerobic exercise showed positive effects on self-reported cognitive function, processing speed, and working memory. Mind-body exercises and multi-component exercises were more frequently adopted as intervention approaches, and their positive impacts on various cognitive functions were consistently observed.

**Conclusion:** Mind-body exercises and multi-component exercises emerge as viable strategies to enhance cognitive function for breast cancer patients. Future research endeavors may concentrate on delving into tailored exercise prescriptions for mind-body exercises or multi-component exercises, aiming to establish comprehensive exercise guidelines specifically designed for the benefit of breast cancer patients.

## P133

### Well-being in Austrian university students: psychometric properties evaluation of the WHO-5 and the SWLS and trends before to during COVID-19

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**Objectives:** Even prior to the COVID-19 pandemic, research indicated alarmingly low levels of well-being among students. However, several studies have highlighted that the COVID-19 period has further exacerbated this issue. This is a matter of great concern, as experiencing poor well-being and mental health at a young age increases the likelihood of these problems persisting into adulthood. The first aim of the current study was to evaluate the psychometric properties of the German versions of the World Health Organization-Five Well-being Index (WHO-5) and the Satisfaction with Life Scale (SWLS) among a sample of students in Austria. Subsequently, this study aimed to investigate the trends in well-being before and during the COVID-19 period.

**Methods:** A repeated cross-sectional design was utilised to evaluate the well-being of students at the University of Graz (Austria), both before and during the COVID-19 pandemic. The German versions of the WHO-5 and SWLS questionnaires were employed to measure well-being. Confirmatory factor analysis (CFA) was applied to assess model fit. Additionally, the multiple indicator multiple cause (MIMIC) model was used to evaluate trends in well-being.

**Results:** Both questionnaires showed good internal consistency and adequate fit, after freeing error correlations (WHO-5:  $\chi^2=5.662$ , RMSEA=0.029, CFI=0.999, SRMR=0.011; SWLS:  $\chi^2=20.465$ , RMSEA=0.070, CFI=0.991, SRMR=0.019) and high intercorrelation ( $r=.743$ ). The MIMIC model revealed a negative trend over time (before vs during COVID-19) for both WHO-5 ( $\beta=-0.114$  [CI<sub>95</sub>: -0.175, -0.052],  $p<.001$ ) and SWLS ( $\beta=-0.075$  [CI<sub>95</sub>: -0.136, -0.014],  $p=.016$ ).

**Conclusions:** While the psychometric properties of the WHO-5 and SWLS questionnaires were generally satisfactory, the lack of uni-dimensionality highlights the importance of examining these properties across diverse populations. This study identified a negative trend in well-being from before to during the COVID-19 pandemic among students, underscoring the need for more attention to their mental health.

## P134

### How “International Olympic Committee consensus meeting on mental illness in elite athletes” are formed? -Introduce two important figures

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The first stage is the real story, personal perception of athlete suicide cases.

The second stage was to search the truth in the West and meet important figures in psychiatry and medical psychology in Europe and the United States.

In the third stage, the International Olympic Committee (IOC) serves as a milestone in the development of new academic discipline- Sports Medical Psychology, Sports Psychiatry.

There are several important figures in the development of international sports medical psychology. Here, we mainly make a dialogue with two figures: John HEIL and Li Jing ZHU. They are the founders of the International Olympic Committee's Elite Athletes Consensus Statement campaign. Member of the Executive Committee of the “International Olympic Committee Consensus Meeting on Mental Illness in Elite Athletes”, further “International Olympic Committee Consensus Statement on Mental Illness in Elite Athletes”.

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## P135

### Sports Forensic Psychiatry

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Background: The author has worked with top Russian female tennis players before, and he has won the top rankings in the ATP. Once she was kidnapped by an illegal organization, and her achievement is in stagnation state.

In this case, we are concerned from the Forensic aspect. Through case studies, qualitative research with student-athletes. In the Olympic family, there are many forensic medical psychological problems. includes: kidnapping; behavior that impedes motor skills (such as having legs amputated, etc.); murder; sexual assault; institutional betrayal, institutional persecution, institutional cowardice, Helms effect, etc. by members of the Olympic family.

I hope that in our Olympic practices, we will pay attention to not only the physical health, but also the mental health of members of the Olympic family. This is not only the responsibility of the International Olympic Committee, but also national Olympic Committee.

Zhu, L.J. et-al. (2018). Sport psychiatry



## P136

### Dancesport training facilitates sensorimotor synchronization: Electrophysiological evidence of beat perception

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**Objectives:** Effectively synchronizing external signals with actions is a basic competence necessary to achieve motor skills (Oppici et al., 2020; Repp & Su, 2013), and yet rhythmic training pertaining to potential benefits of sensorimotor coordination have seldom been investigated. This study examined whether dancesport experience (i.e., competitive ballroom dancing) promoted sensorimotor synchronization at both the behavioral and neural levels for fast or slow beat tempos and for stimuli presented as visual or audio cues to explore the mechanisms underlying sensorimotor synchronization.

**Methods:** Participants were assigned to either a group with dancesport experience (n=32, 10 males) or a nondancer control group (n=30, 10 males). Their cortical activity was measured using electroencephalography during a finger-tapping task in which participants tapped in time to a visual (blue circle flashing in a gray background) or auditory (pure low-frequency tone) stimulus presented at a slow (800 ms) or fast (400 ms) tempo.

**Results:** Compared with nondancers, dancers had more accurate and stable behavior in sensorimotor synchronization regardless of beat stimulus type. In addition, neural resonance and efficient attentional allocation as assessed through electrodes placed over the medial frontal cortex were stronger in dancers than in nondancers. The beat tempo in particular may regulate neural oscillations during sensorimotor tasks.

**Conclusions:** Dancesport exercise together with rhythmic training may improve sensorimotor coupling and motor behavior. Future exploration of various beat tempos may provide new ideas for interventions aimed at improving sensorimotor coordination.

**Keywords** Dancesport, Sensorimotor synchronization, Neural oscillation, Event-related Potentials, Exercise

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## P137

### Researching Leisure-Time Physical Activity: Should I seek a large cross-sectional sample, or follow only a few people closely over time?

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**Objectives:** Traditional approaches for understanding determinants of leisure-time physical activity (LTPA) - a key health behaviour - often rely on population-level (nomothetic) averages, potentially overlooking person-specific (idiographic) associations. This exploratory study describes how subjective readiness and motives for LTPA relate to volitional effort (duration, intensity) and affective experience (pleasure, displeasure) from an idiographic perspective. A secondary purpose was to explore the potential for different interpretations when data is averaged within individual and assessed using a variable-centred approach.

**Methods:** Twenty-two participants (25±8 years old, 54.5% women) from the United States and Germany were asked to provide self-report data while continuing their regular physical activity patterns for 10 weeks. Ecological momentary assessment procedures were applied that allowed participants to provide pre-activity reports (physical, cognitive, emotional readiness and situational motive for activity) and post-activity reports (activity type, duration, perceived exertion, ratings of affective valence). Basic descriptive statistics, spearman rank correlation procedures, and data visualization approaches were implemented to describe the sample, interpret within- and between-person associations, and demonstrate heterogeneity in person-specific associations, respectively.

**Results:** Participants provided 519 reports of LTPA (24±11 events/person), which displayed between- and within-person variety in type, duration, intensity, and affective experience of LTPA sessions over time. Exemplar cases highlight discrepancies in interpretation based on level-of-analysis, for example the nomothetic association ( $\rho=.42, p=.05$ ) between motive to replenish energy and LTPA duration was observed in only one within-person analysis (41% demonstrated weak-to-large inverse effects). Alternatively, the negligible nomothetic association ( $\rho=.02, p=.93$ ) between physical readiness and LTPA-related affect did not reflect the 59% of within-person analyses demonstrating moderate-to-large positive effects.

**Conclusion:** Due potential differences in interpretation based on level-of-analysis and the heterogeneity of within-person effects, subsequent research aiming to identify determinants of LTPA effort and experience should integrate contemporary, person-specific analyses in early-stage research for developing individually tailored approaches.

## P138

### A Realist Inquiry Exploring a Ward Based Physical Activity Service in a Psychiatric Intensive Care Unit.

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**Objectives:** To date, there is no research evaluating Psychiatric Intensive Care Unit (PICU) Physical Activity (PA) programmes. This inquiry aimed to understand 'what works, for whom, how, and under what circumstances' within a ward-based PA service in a PICU, to generate recommendations for commissioners and service providers, to enhance PA provision in PICU settings.

**Methods:** The study utilised a realist inquiry to formulate programme theories, subjecting them to testing, and refinement. Data collection was conducted through observational (85 hours) and interview (24 interviews and four focus groups) techniques.

**Results:** Leadership: Leaders played a pivotal role in emphasizing quality of care, optimising medication, and supporting staff. This fostered a stable therapeutic foundation, for the promotion of adjunct therapies (i.e. PA)

**Access to PA:** Due to constraints imposed by mental health act sections, patients often could not leave the ward. To maximize PA access, a gym was installed on the ward, and the garden made accessible. The gym's design de-risked the environment, enhancing staff confidence and safety within that space.

**Staffing and rapport:** A supernumerary staff member, with expertise in psychopathology and PA, oversaw patient well-being and PA. This staff member, characterised by qualities such as passion and consistency, built rapport and trust with patients which maximised PA access and played a key role in reframing patients' perceptions of the clinical team.

**Changing perception of a Mental Health Ward:** The service offered one-to-one gym sessions. This helped to reframe how patients perceived being on the ward. Leading to improved cooperation and engagement.

**Conclusion:** This inquiry highlights the importance of adopting a socio-ecological approach, (leadership, environmental factors, relational dynamics, and individual considerations), in the delivery of PA programs within PICU settings. By recognizing the interplay of these factors, we can better understand what PA strategies work, for whom, how, and under what circumstances.

## P139

### The effect of visual environment on eye movement and cycling stability when passing a straight and narrow path.

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(Objective) This study aimed to investigate the effect of eye movement on the cycling stability.

(Theoretical Background) In challenging cycling situations such as rough terrain and narrow roads, the gaze is directed toward the path (Vansteenkiste et al., 2013; 2014). In these cases, an eye movement called OKR (optokinetic response) occurs to suppress the blurring of the visual field. Environments for eliciting OKR might contribute to stability of visual field and then improve cycling stability, while suppressing OKR might impair the cycling stability. We hypothesized that suppression of eye movement could reduce cycling stability and eliciting of eye movement could improve cycling stability.

(Methods) Eighteen participants (23.3±2.02 years old, 168.8±6.48 cm height) cycled on the path with city cycle (27inch). They cycled as slowly as possible and tried not to deviate from the path. In control condition (Control), they cycled on a white board. In eliciting of eye movement condition (Stripe), participants cycled on stripe board without specific instructions regarding where to direct their gaze. In suppression of eye movement condition (Laser), they cycled on a stripe board with fixating laser projected 4m ahead of the bicycle. For each condition, they cycled five practice trials and five test trials. The results of spectrum analysis on eye movement, cycling distance, and cycling time were compared among conditions.

(Results) Frequency of eye movements was not different between Control and Stripe, whereas spectrum of peak frequency of eye movement in Laser was significantly lower than that of Control and Stripe, indicating that eye movement was suppressed by fixating an object at certain distance. Cycling distance and time in Laser were significantly shorter than those of Control and Stripe, indicating that suppression of eye movement reduced cycling stability.

(Conclusion) From these results, it was suggested that suppression of OKR is associated with cycling instability.

Vansteenkiste, P., Cardon, G., D'Hondt, E., Philippaerts, R., & Lenoir, M. (2013). The visual control of bicycle steering: The effects of speed and path width. *Accident; Analysis and Prevention*, 51, 222–227. <https://doi.org/10.1016/j.aap.2012.11.025>

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## P140

### Quality and quantity of movement-contingent perceptual effects impacts the effectiveness of action-effect priming on a ball-tossing task

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Objective: Recent evidence suggests that the perceptual effects that are associated with an action during learning can subsequently be used to prime and facilitate performance of that action (i.e., action-effect priming) (Land, 2018). The present study aimed to determine whether the quality (perceptual effects associated with good or bad performance) and quantity of associations between an action and its perceptual effects influence the degree of action-effect priming on a ball-tossing task. Method: During a training phase, participants (N = 27) performed an underhanded ball toss to a short (3.4m) and long (5.8m) target (N = 360 total, n = 180 each distance). Following each toss, auditory feedback was produced based on the participants' assigned training condition. Participants assigned to a Near Feedback (NF) condition heard an audible tone immediately following tosses that landed near the target, whereas, participants assigned to a Far Feedback (FF) condition only heard the tone on tosses that landed far from the target. Different pitch tones (high or low pitch) were associated with tosses to the short and long target. During a test phase, the auditory tones were presented as imperative stimuli before each toss, indicating the target to which the participant was to toss (e.g., low pitch – short target). Results: Tossing accuracy significantly improved for participants in the NF condition when cued by the auditory tone previously associated with the target during training. In contrast, tossing accuracy for participants assigned to the FF condition tended to be less accurate when cued by tones associated with poor performance. Additionally, the strength of the priming effect was moderated by the number of associations experienced between task performance and auditory feedback. Conclusion: Overall, findings indicate that the quality and quantity of associations between an action and its perceptual consequences during learning impacts the effectiveness of action-effect priming.

Land, W. M. (2018). Priming of complex action via movement contingent sensory effects. *Human Movement Science*, 61, 135-143. doi: 10.1016/j.humov.2018.08.001

## P141

### Examining an ideomotor account of external focus benefits

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Objective: Based on an ideomotor account of action control (Elsner & Hommel, 2001), the current study examined the extent to which bi-directional relationships formed between an action and its resultant perceptual consequences underlies the benefit of an external focus of attention. According to this perspective, anticipation of the perceptual consequences of an action activates the associated action-effect representation that initiates and guides movement execution. As such, if an external focus functions to prime action-effect associations, then training conditions that limit the development of these associations should minimize the effectiveness of an external focus. Method: To examine this contention, participants (N = 40) trained across two days on a seated ball tossing task assigned to either a feedback or no-feedback training condition (N = 160 trials total). Participants assigned to the feedback condition had full visual and auditory perceptual feedback of the ball toss, whereas participants assigned to the no-feedback condition had visual and auditory feedback removed following release of the ball. Knowledge of results were provided after each toss. On day three, all participants performed the ball tossing task with full perceptual feedback across three attentional focus conditions: control (no focus instruction), internal (focus on movement of arm), and external focus (focus on flight of the ball). Results: For participants who trained with full perceptual feedback, throwing accuracy was significantly better under external focus relative to internal focus ( $p < .05$ ). In contrast, participants who trained without perceptual feedback showed no difference in tossing accuracy between the attentional focus conditions ( $p > .05$ ). Conclusion: The benefit of an external focus was dependent upon the learned associations between movements and their perceptual consequences. Under training conditions that limit this association, the benefit of an external focus was reduced. Findings support the re-conceptualization of attentional focus effects in accordance with effect-based theories of action control.

## P142

### Improving the Communication of Football Coaches from a Behavioral Analysis Perspective

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Coaches' pressure on their athletes, as well as injuries and a lack of enjoyment of sport practice, are major contributors to sports withdrawal. Behavioral intervention programs have been proven effective in improving methods for coaching and providing more beneficial learning contexts in sports. This study seeks to evaluate a brief psychological intervention in football coaches to prevent possibly harmful verbal responses and improve the use of supportive feedback. This study was carried out at an amateur football club where 15 coaching staff teams volunteered to participate. This study's experimental design is a randomized controlled trial with seven control groups and eight experimental groups with delayed intervention. Coaches' verbal responses were counted using an adapted version of the Coaching Behavior Assessment System. The data was examined using the Poisson Regression Model. The results show a reduction in hostile feedback by 87.7% (CI = 71% -94.9%), technical instructions with ball in play by 39.8% (CI = 24.2% -52.2%), complaints to referees by 95.8% (CI = 82.8% -99.3%), and an increase in praise contingent with successful action by 87% (CI = 13% -209%) following the intervention. These findings have significant implications for the implementation of programs aimed at improving instruction delivery in sports coaches, since a detailed intervention for molding the verbal response is provided, as well as valuable insights into creating a favorable learning environment for adolescents and young athletes.

Keywords: Psychological intervention, Behavioral intervention, Sport coach, Verbal response, Technical instructions, Randomized controlled trial, Experimental design, Coaching Behavior Assessment System.

## P143

### Modelling the Compensatory and Carry-over Effects between Physical Activity and Fruit-Vegetable Consumption in Young Adults: A Prospective Study

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Objectives: Physical activity (PA) and fruit-vegetable consumption (FVC) are crucial factors jointly affecting young adults' physical and mental well-being (Duan et al., 2022). However, the psychosocial interactive mechanisms of these two health-protective behaviors are still understudied. This study aimed to examine the compensatory and carry-over mechanisms between PA and FVC based on a novel two-layer social-cognitive model among Chinese young adults.

Theoretical background: The Compensatory Carry-Over Action Model provided a theoretical framework for this study (Tan et al., 2018), which demonstrated the changing process of individual behavior as well as the interactive mechanisms between multiple health behaviors.

Methods: This study used a two-wave prospective design involving 322 Chinese young adults. Participants' demographics, intention, compensatory cognition, self-efficacy and planning for PA and FVC, as well as their PA and FVC were collected at baseline, while their PA and FVC were measured again at 2-month follow-up. Structural equation modelling with path analysis was performed using Mplus.

Results and Discussion: The results revealed that the proposed two-layer social-cognitive model explained 50.2% and 61.6% variance for PA and FVC, respectively. In the first-layer targeting changing process of individual behavior (PA or FVC), combined volitional predictors (i.e., self-efficacy, planning) significantly and partially mediated the effects of intention on behavioral performance for both PA and FVC (Indirect effect = .11 to .25, both  $p < .001$ ). In the second-layer targeting the interaction of two behaviors, the compensatory cognition that FVC can be compensated by PA significantly and fully mediated the effect of FVC intention on PA (Indirect effect = .06,  $p = .003$ ). The chained mediating role of volitional factors in the relationship between PA intention and FVC was also supported (Indirect effect = .25,  $p < .001$ ). Future interventions on promoting multiple health behavior change should consider compensatory cognition and carry-over mechanisms between different behaviors.

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Geller, K., Lippke, S., & Nigg, C. R. (2017). Future directions of multiple behavior change research. *Journal of Behavioral Medicine*, 40(1), 194–202.

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## P144

### Neurophysiological Responses of Volleyball Players: A Literature Review on EEG and HRV

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**Objectives:** Recent studies have explored the potential benefits of neurofeedback and biofeedback training in close-loop sports like golf, archery, and shooting. However, open-loop sports, such as volleyball, receive less attention in these fields. In volleyball, performing skills under pressure demands focus and arousal adjustment, and possible causes of fatigue during high intensity exercise include in central nervous system effects.

This study aims to bridge the gap in applying neurophysiological science to volleyball players, providing unique insights into this sport

**Method:** This study adhered to the PRISMA guidelines and conducted a literature review based on specific selection criteria. A total of 21 articles were included in the review, encompassing 459 participants.

**Result:** Two different findings: Electroencephalography (EEG), heart rate variability (HRV). The topic of EEG comprised 4 articles. They consistently used cognitive tasks to measure players' performance, detecting specific brain wave bands, power, and brain regions. The topic of HRV included 15 articles. Most studies suggest that HRV values can reflect ANS activity, regardless of using time-domain or frequency-domain analysis. Potential options to assess the player's condition include Total Frequency (TF), InRMSSD, SDNN, and rMSDD. However, there is consistency regarding the support for parasympathetic activity, but not stress-related results.

**Conclusion:** Most researchers have attempted to monitor volleyball players' physical fatigue using heart rate variability (HRV) and ratings of perceived exertion (RPE). As a monitoring tool, HRV helps determine changes in sympathetic and parasympathetic modulation in volleyball players after several matches or practices. Research on EEG focuses on identifying the functional brain areas involved in attention/concentration, or distinguishing between athletes' brain features and those of non-athletes. Studies on biofeedback interventions still require further research to confirm the benefits for athletes' psychological resilience.

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## P145

### Ahead of the Game: Underlying Mechanisms of a Sports-Based Mental Health Literacy Intervention

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**Objective:** This study aimed to evaluate the implementation of the athlete component of a sports-based mental health literacy intervention – Ahead of the Game (AOTG). We investigated the underlying mechanisms driving intervention outcomes, and the intervention's intended and unintended outcomes.

**Method:** Twenty-three adolescent males (12 – 17 years old) who had recently participated in the Help Out a Mate mental health literacy group took part in dyads (n = 4) or focus groups (n = 5). We used reflexive thematic analysis to analyse dyad and focus group data. Several strategies were employed to enhance the rigour of the data, including the use of critical friends and reflection on researcher positionality.

**Results:** Participants reported improved knowledge of depression and anxiety literacy, greater knowledge and perceived importance of help-seeking, greater confidence to seek help, greater confidence to provide help to peers experiencing mental health difficulties, as well as shifts in language, attitudes, and willingness to have conversations about mental health post-workshops. Unintended outcomes of the intervention included trickle-down effects; participants who attended the workshops reported that the program benefitted those who did not engage with AOTG. Participants also experienced strengthened team cohesion through shared learning experiences and vulnerability.

**Conclusions:** These findings suggest that a brief mental-health literacy program can have an influence beyond the immediate and intended effects of the program, appears to be both acceptable and feasible, and may be sustainable. We suggest strategies and key takeaways to improve the participation, engagement, and implementation of sports-based mental health literacy interventions.



## P146

### Memories and experiences from physical education are linked to adult physical behavior: a retrospective study

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

A physically active lifestyle in childhood reduces the risk of various diseases in adulthood. At the same time, in Western societies, the transition from childhood to adolescence is characterized by a dramatic decline in physical activity. Based on a small number of studies, it can be assumed that experiences in physical education make a key contribution to this change. Using a retrospective online survey, we investigated whether experienced enjoyment and memories of physical education are related to current physical activity and sedentary behavior. Data from 400 respondents aged 18-77 were analyzed (281 = female; 117 = male; 2 = diverse). Based on the study by Ladwig et al. (2018), participants rated their retrospective enjoyment of physical education, whether they were chosen first/last, as well as their current physical activity and sedentary behavior. They also indicated their best and worst memories of PE lessons in an open-ended question format (this data is not considered further in the abstract). Retrospective perceived enjoyment of physical education correlated significantly with current physical activity (in MET units;  $r = .18$ ,  $p < .001$ ), but not with sedentary behavior ( $r = -.04$ ,  $p = .40$ ). The participants differed significantly from each other in their current physical activity when they were divided according to the statement "having been chosen first in physical education":  $F(3, 396) = 6.57$ ,  $p < .001$ ,  $\eta^2 = .05$ . These quantitative data reinforce the assumption that physical education has a lasting effect on physical activity behavior in adulthood. Therefore, physical education teachers should focus more on positive experiences and enjoyment in physical education.

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## P147

### Impact of COVID-19 Pandemic on Home Advantage in Euroleague Basketball

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**Objectives:** This study aimed to understand how training and playing conditions during the COVID-19 pandemic affected the performance of Euroleague Basketball (EB) players.

**Methods:** Using a non-participant observation analysis, the study compared the seasons before the lockdown (2018–2019 and 2019–2020; pre-pandemic) with the season after restart (2020–2021; pandemic). Paired t-tests and Wilcoxon tests were applied for variables with normal and non-normal distributions, respectively.

**Results:** The results revealed significant changes ( $p < 0.05$ ) in several offensive and defensive performance-related variables during pandemic times (without attendance): free throw attempts, free throw percentage, turnovers, three-point attempt rate, fouls (small effect sizes, ESs), points, and possessions (trivial ES). The pre-pandemic home advantage (HA) (70%) significantly decreased after the lockdown, with games played with no crowd (~51%;  $p = 0.018$ , large ES). The one-sample t-test showed that the HA after the COVID-19 interruption was not significantly greater than 50%, indicating that the HA did not endure during the pandemic. Although significant differences between home and away teams were found for most performance-related variables (excepting turnovers) in both pre-pandemic and pandemic conditions, variations of the relative HA were only significant for free throw attempts (large ES), points (medium ES), and turnovers (medium ES).

**Conclusion:** The COVID-19 pandemic has affected the basketball EB games in terms of match performance and HA. We found that most performance results had significantly diminished after restarting the competition. The lack of seasonal rhythm, unfavorable periodization, or psychological stress could be attributed to a change in tactics, or physical or technical abilities. In addition, several performance-related variables changed in games played without spectators, contributing to the fading of the HA effect during the pandemic season.

**P148**

**Validating the Self-Report Behavioral Automaticity Index in German: Exploring Future Directions and Enhancements**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

In daily life, some behaviours require conscious control (e.g., planning to go for a run), while other behaviours are performed more automatically – with less or no conscious control (e.g., running itself). Despite their intentions, individuals often fail to engage in regular physical activity (PA). To support individuals to adopt and maintain PA behaviour, the formation of (partially) automated habits can be one of several techniques to promote behaviour change. For research on the characteristics of conscious vs. less conscious processes, valid measures regarding the automaticity of behaviours are necessary. As objective measurements of automaticity of PA behaviours are still difficult, researchers primarily rely on self-reports. The Self-Report Habit Index (SRHI; Verplanken & Orbell, 2003) and its automaticity subscale, the Self-Report Behavioural Automaticity Index (SRBAI; Gardner et al., 2012), are regularly used to assess habit and automaticity. To date, there is evidence for the validity of the SRHI in German (Thurn et al., 2014), but no validation of the SRBAI in German. The aim of this research is to validate a German automaticity scale and explore its applicability in PA research. In Study 1 (N = 302), we examined the factorial structure of seven automaticity items identified in the Discriminant Content Validation by Gardner et al. (2012) for moderate and vigorous PA and walking. Additionally, behavioural characteristics and activity enjoyment (Chen et al., 2021) were assessed. Confirmatory factor analysis (CFA) suggests that the automaticity items comprise multiple factors and that more than four SRBAI items load onto one automaticity factor (see also Opwis et al., 2023). Data collection for Study 2 is ongoing and will provide information regarding the convergent/divergent validity and test-retest reliability of the automaticity scale developed in Study 1. The studies contribute to the development of a robust automaticity measure and facilitate cross-cultural comparisons.

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Gardner, B., Abraham, C., Lally, P., & de Bruijn, G.-J. (2012). Towards parsimony in habit measurement: Testing the convergent and predictive validity of an automaticity subscale of the Self-Report Habit Index. *International Journal of Behavioral Nutrition and Physical Activity*, 9(1), 102. <https://doi.org/10.1186/1479-5868-9-102>

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Verplanken, B., & Orbell, S. (2003). Reflections on Past Behavior: A Self-Report Index of Habit Strength 1. *Journal of Applied Social Psychology*, 33(6), 1313–1330. <https://doi.org/10.1111/j.1559-1816.2003.tb01951.x>

## P149

### Relationship between College Student-Athletes' Life Stress and Sport Injury: The Moderating Role of Dispositional Mindfulness

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives.** By adopting Williams and Andersen's (1998) stress-injury model, we attempted to examine the association between college student-athletes' life stress and the moderating role of dispositional mindfulness in the stress-sport injury relationship. **Methods.** We sampled 201 college student-athletes out of 402 and assessed sports injury, life stress, and dispositional mindfulness. **Results.** Bivariate correlation analyses found life stress, dispositional mindfulness, and sport injury were all correlated. Further, two separate hierarchical regressions found that disposition mindfulness moderated sport-specific life stress-injury relationship but not general-life stress-injury. **Conclusion.** We concluded that sport injury is prevalent in competition sports, especially contact sports. We suggest future studies might examine how other personality traits influence life stress-injury relationships and provide athletes with stress reduction programs such as mindfulness interventions. Doing so can mitigate life stress-injury relationships and promote overall psychological well-being.

Anderson, M. B., & Williams, J.M. (1988). A model of stress and athletic injury: Prediction and prevention. *Journal of Sport and Exercise Physiology*, 10, 294-306.

## P150

### Delivering ProjectSCORE in Canada and Portugal: Lessons Learned and Future Pathways

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**Theoretical background:** Positive youth development (PYD) through sport has been an emerging topic for many coaches, researchers, and policy makers across the globe. Developed using a PYD framework, ProjectSCORE ([www.projectscore.ca](http://www.projectscore.ca)) is a self-directed online tool for coaches and parents to assist with the deliberate delivery of positive youth sport programs.

**Objectives:** The goal of this presentation is to reflect on the process of developing, implementing, and researching the resource over the past 12 years within both Canadian and Portuguese contexts. Considerations related to each of the topics mentioned above will be provided to assist others who wish to develop online resources.

**Approach and results:** This journey has resulted in many lessons learned and aspects to consider for the future. The evolution of ProjectSCORE has culminated in a resource that sport organizations, coaches, coach developers, policy makers, and parents can use to integrate PYD into their programs. The on-going adaptations made to ProjectSCORE have been undertaken to stay current with advances in theoretical underpinnings related to PYD and to provide materials that best serve coach-parent collaborations. Although there are benefits to providing access to coach development through online learning, it must be recognized that limitations exist. Indeed, a significant limitation of ProjectSCORE is the inability to provide direct support and contextualized knowledge for coaches to foster PYD effectively.

**Discussion:** Thus, there is the need to find innovative ways to help complement exposure to ProjectSCORE with on-going support and opportunities for reflection across coach development systems. This implies that it becomes imperative for sport organizations to continuously communicate with coaches to understand the benefits and drawbacks of online versus in-person coach development. Moving forward, efforts to enhance the access and delivery of ProjectSCORE will continue with hopes of integrating the free resource into additional socio-cultural contexts.

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## P152

### Sources of Threat During Public Speaking: The Development and Validation of the Public Speaking Threats Questionnaire (PSTQ)

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** Public speaking is a frequent recurrent task in both occupational and educational settings. However, it often elicits worries, concerns, apprehensions, anxieties, and, in extreme cases, fear, panic, and avoidance. Although many questionnaires already exist in the public speaking anxiety literature, they fail to identify the specific threatening stimuli causing the anxiety response. Instead, they focus on determining the intensity of a person's anxiety. This disregard for identifying sources of perceived threat risks intervention effectiveness. To rectify this limitation, this paper aimed to create and validate a new model for the identification and categorisation of public speaking threats.

**Methods and Results:** Relevant literature and the first author's applied work were used to generate items for the instrument. Three studies were carried out to assess the content and validity of the Public Speaking Threats Questionnaire (PSTQ), using three independent samples. Based on a sample of 248 adults (Mage = 33.54, SD = 7.89), Study 1 utilised a Bayesian structural equation modelling (BSEM) approach, revealing a 3-factor model containing 26-items. The 3-factor model consisted of physiological arousal, self-perceptions, and external judgements. Study 2 further validated a lightly revised model (27 items) using BSEM with a larger sample (n = 709; Mage = 38.97, SD = 12.33). Evidence of construct stability and criterion validity of the PSTQ is presented, with all subscale scores correlating significantly with existing assessments of anxiety. Study 3 assessed test-retest reliability and predictive validity using a sample from a UK university (n = 131; Mage = 20.16, SD = 2.56). The final 3-factor, 27-item model achieved an excellent fit (PPp = .52, RSMEA = .02, TLI > .95, and CFI > .95).

**Conclusions:** The valid PSTQ is expected to significantly enhance and streamline current methodologies for the assessment and treatment anxiety related to public speaking. Practical applications and directions for future research are discussed.

## P153

### Public Speaking Anxiety - A Systematic Review and Meta-Analysis

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** Public speaking can be a fear-inducing and anxiety-provoking experience for individuals, potentially resulting in poor performance and missed educational, social, and professional opportunities. To provide applied practitioners with effective methodologies for the reduction of public speaking anxiety (PSA), this paper aimed to systematically review and meta-analyse theoretically driven interventions related to reducing PSA.

**Methods:** Following the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines, a systematic review and meta-analysis examined articles from 1st January 2000 to 1st June 2023. Of the 1,293 articles identified, 26 studies with 2,253 participants met the inclusion criteria.

**Results:** Research was of a moderate to high methodological standard. Interventions varied in type (e.g., exposure-based, cognitive-based), duration (30 seconds to 45 hours), and focus (e.g., symptom vs. source). The overall effect of psychological interventions for PSA across 42 interventions was  $g = 1.17$  (95% CI = 0.88-1.45), with high heterogeneity.

**Conclusions:** While this review provides support for the efficacy of psychological interventions in reducing anxiety related to public speaking, rigorous research is warranted to examine long-term efficacy, real-world implications, sources of fear/anxiety, self-efficacy development, and individual differences in treatment assignment.

**Keywords:** public speaking anxiety, fear of public speaking, communication apprehension, presenting, systematic review

## P154

### The short form of the Sports Competition Rumination Scale (SCRS-SF) for applied sports psychology and research

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Thoughts like “That already went wrong the last time.” are often perceived as limiting by athletes. These thoughts can be triggered by one’s athletic performance or goal setbacks, and can be intrusive and repetitive, which is why this type of thinking referred to as rumination (Martin & Tesser, 1996). The present study aimed at presenting the short form of a sports-specific measure that captures ruminative thoughts regarding competition-related problems, the so-called Sports Competition Rumination Scale (SCRS).

Overall, we aggregated data of 901 competitive athletes (female: 448, male: 451, divers: 2; age range: 16–68) from different disciplines. To shorten the SCRS to a feasible length for the application in future research and applied sport psychology, we used three complementary approaches: (1) recommendations by Horvath and Röthlin (2018), (2) findings of an exploratory factor analysis, and (3) comparisons with the item selection of a goal-directed rumination scale containing the same items in relation to a different context (see Krys, 2020). Accordingly, we selected items based on low, middle, and high mean values, factor loadings, and the solution of the goal-oriented rumination scale. The results of the three approaches indicated a three-item solution containing the core characteristics of rumination (i.e., repetitiveness, intrusiveness, uncontrollability). In addition, we compared the SCRS-SF with the original validation sample (N = 198) regarding the internal consistency ( $\alpha = .83$ ) and correlations with theoretical related constructs (i.e., general, and clinically relevant rumination, worry, as well as general and competition anxiety,  $r = .39-.51$ ). Results supported the reliability and validity of the SCRS-SF and provided preliminary evidence for an ecological measure for future research and applied sport psychology.

Horvath, S., & Röthlin, P. (2017). How to Improve Athletes’ Return of Investment: Shortening Questionnaires in the Applied Sport Psychology Setting. *Journal of Applied Sport Psychology*, 30(2), 241–248. <https://doi.org/10.1080/10413200.2017.1382020>

Krys, S. (2020). Goal-directed rumination and its antagonistic effects on problem solving: a two-week diary study. *Anxiety, Stress, & Coping*, 33(5), 530–544. <https://doi.org/10.1080/10615806.2020.1763139>

Martin, L. L., & Tesser, A. (1996). Some ruminative thoughts. In R. S. Wyer, Jr. (Ed.), *Ruminative Thoughts*. *Advances in Social Cognition* (Vol. 9, pp.1–47). Psychology Press. <https://doi.org/10.4324/9780203763513>

## P155

### Relationship between attentional focus and EEG activity during one-legged standing task

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Attentional focus influences performance during motor task execution. It has been known that external focus, which refers to attention toward the external environment, benefits performance more than internal focus, which refers to attention toward the body (Wulf, 2013). However, the mechanism still needs to be fully clarified from the viewpoint of cognitive neuroscience. In particular, brain activity during internal focus has yet to be elucidated. This study aims to compare physical performance and brain oscillation when a physical task was executed with internal or external focus, and to explore the relationship between attentional focus and performance.

Twenty-four undergraduate and graduate students completed a one-legged standing task, in which they were instructed to “stand as still as possible without shifting the center of gravity” for 40 seconds while paying attention to a particular focus point. There were four conditions of focus point: head top, lower dantian, sole, and fixation point on a wall. We evaluated participants’ performance by the center of gravity sway distance and compared it with the brain oscillations. Muscle activity of the tibialis anterior and soleus muscles, and the attention level were also measured.

The results demonstrated that the center of gravity sway distance was larger in the lower dantian and sole conditions than in the fixation point conditions. Both tibialis anterior and soleus muscle activity does not differ between the conditions. Brain oscillation analysis showed that greater alpha power was observed significantly in the sole condition than in the fixation point condition at frontal, central, parietal, midline parietal, and occipital regions.

These results indicate that the center of gravity sway is smaller when focusing on external point, with lower alpha power. In contrast, in the case of internal focus, both postural control and alpha power differ depending on the part of the body where attention is directed.

Wulf, G. (2013). Attentional focus and motor learning: a review of 15 years. *International Review of Sport and Exercise Psychology*, 6(1), 77-104.

## P156

### Psychological First Aid (PFA) for Extreme Stress Reactions among Athletes and Performers

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Already facing complex demands, athletes/performers of all ages may face extreme stressors throughout their performance years. Psychological distress is a common and predictable reaction to extreme stressors. While most distress reactions are short term, they can cause significant complications, including subclinical and clinical variants of PTSD, substance/alcohol abuse, depression, anxiety, and physical complaints. While CBT is highly empirically supported to treat clinical PTSD once it develops (Forbes et al., 2020), a short-term, evidence-informed intervention called Psychological First Aid (Wang, 2021) can be employed in diverse settings just following exposure to the event to reduce immediate distress and promote adaptive functioning and coping. Therein, PFA may potentially inhibit the development of PTSD. Originally developed for use following disaster and terrorism, PFA can be implemented in the initial days and weeks following a variety of traumatic events and extreme stressors. With no discipline-specific restrictions on who can complete the online PFA training and deliver the services, sport-performance professionals worldwide can develop competence in delivering this brief practical, supportive, and pragmatic psychosocial intervention to their clientele. Importantly, PFA is neither a clinical nor emergency psychological intervention, but is psychosocial in nature (Sim & Wang, 2021). PFA’s modular components include focusing on basic needs/ensuring psychosocial needs are fulfilled; active listening and reassurance; providing compassionate emotional comfort; problem identification; support regarding self-care/well-being/adaptive coping; fostering connection with support networks; encouraging social interaction; and possibly aligning the client with assistance to prevent further harm (NCTSN, 2024a). As athletes/performers face unique and stressful life demands (injury, travel, competition, fandom, abuse, multinational conflict/war, etc.) that may unexpectedly lead to extreme stress, this descriptive poster introduces PFA and its relevance for sport-performance professionals, and describes how to receive the brief PFA training (NCTSN, 2024b) to add to the services they can provide in the days and weeks after traumatic incidents.

Forbes, D., Bisson, J.I., Monson, C.M., & Berliner, L. (Eds.) (2020). *Effective treatments for PTSD*. Guilford. National Child Traumatic Stress Network (NCTSN; 2024a). About PFA. <https://www.nctsn.org/resources/psychological-first-aid-pfa-online>.

National Child Traumatic Stress Network (NCTSN; 2024b). Psychological First Aid (PFA) Online. <https://www.nctsn.org/resources/psychological-first-aid-pfa-online>.

Sim, T., & Wang, A. (2021). Contextualization of psychological first aid: An integrative literature review. *Journal of Nursing Scholarship*, 53(2), 189-197.

Wang, L., Norman, I., Xiao, T., Li, Y., & Leamy, M. (2021). Psychological first aid training: A scoping review of its application, outcomes and implementation. *International Journal of Environmental Research and Public Health*, 18(9), 4594.



## P157

### Investigating common spatial processing mechanisms for numbers and movement: Does number magnitude affect the direction of gait?

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**Objectives.** Typically, people show a processing advantage for small numbers in the left space, and for large numbers in the right space. Considering that this is usually measured with simple movements (i.e., button presses), the present study aims to test whether similar spatial biases occur also for large, complex movements, namely walking. **Methods.** Participants wear a Quest 2 virtual reality headset and are immersed in a virtual gym. At the beginning of each trial (N=90), a virtual screen positioned centrally in front of them shows a number ranging from 1 to 9; participants are required to retain the number in working memory and walk towards a target area represented as an arc that runs symmetrically left and right of the central screen. Participants' decision to walk left or right is recorded through the motion sensors embedded in the Quest 2. When the participants enter this target zone they are asked to recall the number previously shown on the screen. **Results.** Data collection is still ongoing; we expect to observe spatial biases in the decisions to walk left or right of the central screen. Specifically, we expect 1) to observe a higher frequency of spatially congruent than incongruent decisions (e.g., more left than right movement decisions for small numbers); 2) that the direction of gait is affected by a distance effect, with larger angles (between the crossing point of the target area and the imaginary straight line) when participants are exposed to extreme (e.g., 1 or 9) versus central (e.g., 4-5-6) number magnitudes. **Conclusion.** The results will shed light on the potential common spatial processing mechanisms for numbers and complex movements.

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## P158

### Maturity matters for a developmental embodied-cognition perspective in sport and exercise psychology?!

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A developmental perspective is inherent to sport and exercise psychology. When and how we learn or train specific motor-cognitive skills to perform better or develop a higher level of sports expertise (in the future) are at core developmental (Musculus & Raab, 2022). Building on a holistic developmental perspective and general tenets of developmental embodied-cognition approaches (Musculus et al., 2021), it seems warranted for developmental research in sports and exercise psychology to systematically consider maturity in addition to and in relation to chronological age.

To elicit the impact of maturity relative to the impact of chronological age on sport-specific motor-cognitive performance, four data sets were re-analyzed. In three studies, climbing-specific motor-cognitive planning processes were assessed using an experimental paradigm implemented through an interactive climbing wall system capturing response times (Musculus et al., 2021). In one study, soccer-specific cognitive decision-making processes were tested using a video-based option generation paradigm (Musculus et al., 2019). Maturity was assessed using the Mirwald formula (Lüdin et al., 2022; Mirwald et al., 2002). Correlational analyses with maturity and chronological as well as the performance measures.

Preliminary results suggest a strong association between maturity and chronological age ( $r = .83$  to  $.97$ ). In all studies, correlational patterns for maturity and chronological age were identical indicating medium relations to the number of planning steps (i.e., holds) and total climbing time (climbing studies) and small/medium relations to option quality and efficient decision-making (i.e., use of Take-the-First heuristic).

Together, the results do not suggest differential developmental effects of maturity and chronological age. More fine-grained analyses aiming at extreme groups comparisons will be conducted to elicit the potential differential relationship between maturity and age. The approach will be discussed regarding the potential added value for developmental-embodied cognition theorizing, and empirical designs of developmental research in the context of sport and exercise.

Lüdin, D., Donath, L., Cobley, S., & Romann, M. (2022). Effect of bio-banding on physiological and technical-tactical key performance indicators in youth elite soccer. *European Journal of Sport Science*, 22(11), 1659–1667. <https://doi.org/10.1080/17461391.2021.1974100>

Mirwald, R. L., G. Baxter-Jones, A., Bailey, D. A., & Beunen, G. P. (2002). An assessment of maturity from anthropometric measurements. *Medicine & Science in Sports & Exercise*, 34(4), 689–694. <https://doi.org/10.1097/00005768-200204000-00020>

Musculus, L., & Raab, M. (2022). A Developmental Perspective on Motor-Cognitive Interactions and Performance in Sports. *Psychology of Sport and Exercise*, 61. <https://doi.org/10.1016/j.psychsport.2022.102202>

Musculus, L., Ruggeri, A., & Raab, M. (2021). Movement matters! Understanding the developmental trajectory of embodied planning. *Frontiers in Psychology*, 1–12.

Musculus, L., Ruggeri, A., Raab, M., & Lobinger, B. H. (2019). A developmental perspective on option generation and selection. *Developmental Psychology*, 55(4), 745–753.

## P159

### Shame Among Athletes: Theoretical and Practical Considerations to Consultation

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**Background:** Shame is a profoundly agonizing emotion rooted in feelings of inadequacy or falling short. It encompasses a dread of exposing weaknesses or shortcomings and the incapacity to meet individual or societal expectations. In competitive sports, shame emerges during various evaluative moments, such as performance demands, instances of failure, and periods of self-assessment both on and off the field. However, its broader implications in athletic contexts remain relatively overlooked (Partridge & Elison, 2009) and are limited to ethical breaches like rule-breaking, neglecting its broader significance as a pervasive emotion (Ryall, 2020).

**Objectives:** The purpose of this presentation is threefold: (i) to present a theoretical view of shame, (ii) to demonstrate its manifestation through the clinical experience of working with athletes, and (iii) to discuss the key curative elements of shame in the consultation process with athletes.

**Methods:** The theoretical and practical implications of addressing shame in the athletic context will be discussed using brief clinical vignettes while holding a holistic view of athletes (Wylleman & Rosier, 2016) and applying a clinical sport psychology perspective on consultation (Moore & Bonagura, 2017).

**Conclusions and Discussion:** Shame often triggers a desire to withdraw and conceal oneself, making it challenging for athletes experiencing shame to perform in front of an audience, as required in competitive sports. Additionally, its toll on athletes' well-being is profound. Assisting athletes in such situations requires building a solid rapport, integrating different aspects of the self, and altering the emotional narrative. These aspects will be discussed, drawing from various approaches, including psychodynamic, cognitive-behavioral, and existential perspectives.

Moore, Z. E., & Bonagura, K. (2017). Current opinion in clinical sport psychology: from athletic performance to psychological well-being. *Current opinion in psychology*, 16, 176-179.

Partridge, J. A., & Elison, J. (2009). Shame in sport: Issues and directions. *Journal of Contemporary Athletics*, 4(3), 197-210.

Ryall, E. S. (2020). Shame in sport. In *Emotions in Sport and Games* (pp. 15-32). Routledge.

Wylleman, P., & Rosier, N. (2016). Holistic perspective on the development of elite athletes. In *Sport and exercise psychology research* (pp. 269-288). Academic Press.

## P160

### Insights Derived from the Long Practice of Psychological Support for Athletes

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When the authors were university students, they studied sport psychology from the traditional perspectives of natural science and causality while training to master the fundamentals of academic research. Later, as they became interested in psychological support for athletes and began practicing sport psychology, they recognized the need for clinical methods that directly involve the research subject (client) and thus sought professional training in psychotherapy, which shifted them from a causal perspective toward a synchronic and semantic one. Accordingly, "clinical" came to be viewed not as an abnormality or problem, but as the primary method of understanding the subject.

The purpose of this study was to clarify the characteristics and our understanding of athletes and the competitive world by analyzing interview records from counseling and psychotherapy sessions with athletes the authors have counselled. As a result, five key-points for successful counseling for athletes were identified: 1) "Body-related" narratives offer a distinctive "window" to the athlete's connection to his/her inner world and experience. 2) In addition to teaching psychological skills (mental training), the mind can be strengthened through talking and other forms of self-expression (counseling). 3) The client's initial complaint often contains clues to the subsequent resolution of the problem, while "problems" can be seen as "psychological issues", and conversely "psychological issues" can be seen as "problems." 4) The basic stance regarding the counselor's understanding of the client involves a shift from causal to synchronic theory. 5) The relationship between adaptation to reality (performance enhancement) and individuation (psychological maturity) is that of necessary co-existence and mutual support. Adapting these five key-points should provide practitioners with important clues and psychological issues for supporting client athletes. They can also be seen as unique characteristics of sports counseling.

## P161

### Tackling cases of maltreatment in sport: The experiences and recommendations of sport psychology consultants

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**Objectives:** The present study focused on sport psychology consultants' (SPCs) experiences of working with cases of maltreatment. More specifically, given the "unique position" SPCs occupy as gatekeepers of athletes' safety and well-being (Kerr & Stirling, 2019), the present study explored their recommendations for practice in relation to maltreatment.

**Methods:** This study employed a qualitative, semi-structured interview design, guided by interpretative phenomenological analysis (IPA). Five Health and Care Professions Council (HCPC) registered SPCs provided their nuanced experiences and recommendations for working with cases of maltreatment in sport. The data were analyzed following published guidelines for IPA (Smith et al., 2017).

**Results:** Overall, the findings present a detailed account of SPCs' lived experiences of working within a challenging system and the ingrained nature of cases of maltreatment in sport. Consistent with this presentation's aims, SPCs in the present study also outlined various strategies to tackle the issue of maltreatment. These recommendations included a strong focus on prevention rather than being reactive to maltreatment cases. Other recommendations were also made at the organizational level concerning accountability and the need for representativeness of sporting boards.

**Conclusions:** From an applied perspective, the findings provide important recommendations for sporting organizations and SPCs around safeguarding individuals in sport. The findings also present key considerations for regulatory bodies such as AASP, FEPSAC, BASES, and the BPS about the continued need for education and training of both neophyte and experienced SPCs around maltreatment. Lastly, the findings reinforce the need for an ongoing consideration of the wider culture in sport.

Kerr, G., & Stirling, A. (2019). Where is safeguarding in sport psychology research and practice? *Journal of Applied Sport Psychology*, 31(4), 367-384. <https://doi.org/10.1080/10413200.2018.1559255>

Smith, J., Spiers, J., Simpson, P., & Nicholls, A. (2017). The psychological challenges of living with an ileostomy: An interpretative phenomenological analysis. *Health Psychology*, 36, 14S 151. <https://doi.org/10.1037/hea0000427>

## P162

### Perspectives on the behavioural determinants of professional jockey's weight-making behaviours: a COM-B analysis

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Jockey's face pressure to compete in their sport based on the unique weight-making demands they face (Burke et al., 2021). Weight-making has been shown to negatively impact the physiological and psychological health of jockeys (Dunne et al, 2022; King et al, 2021). In the horseracing industry, prevalence rates of engagement in weight-making behaviours are high, with values ranging from 71-86% (Dunne et al., 2021; Dolan et al., 2011). Therefore, the aim of this study is to explore the behavioural determinants of jockeys' weight-making behaviour from the perspective of jockeys and other stakeholders in the horseracing industry, underpinned by the capability, opportunity, and motivation model of behaviour (COM-B; Michie et al., 2011). Semi-structured interviews will be conducted with jockeys, jockey coaches, racecourse officials, jockey agents, valets, trainers, and stable staff in order to gather an industry wide perspective of the factors which lead to jockeys engaging in, and adhering to weight-making practices. All interviews will be transcribed and uploaded to Nvivo 12 for data analysis, with data collection ceasing at the point of data saturation (Saunders et al., 2018). Interviews will be analysed using reflexive thematic analysis (Braun & Clarke, 2019). The expected impact of this research is to gather a greater understanding of the factors which influence jockey's engagement in, and adherence to weight-making practices, from the industry as a whole. This will provide a behavioural diagnosis, underpinned by the COM-B model, which will inform the design and implementation of a behaviour change intervention with jockeys related to their weight-making behaviours. Potential implications of this research, and future interventions, are improvements of the physical and psychological health of jockeys as they make-weight to compete.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative research in sport, exercise and health*, 11(4), 589-597.

Burke, L. M., Slater, G. J., Matthews, J. J., Langan-Evans, C., & Horswill, C. A. (2021). ACSM expert consensus statement on weight loss in weight-category sports. *Current sports medicine reports*, 20(4), 199-217.

Dolan, E., O'Connor, H., McGoldrick, A., O'Loughlin, G., Lyons, D. & Warrington, G. (2011). Nutritional, lifestyle, and weight control practices of professional jockeys. *Journal of Sport Sciences*, 29(8), <http://doi.org/10.1080/02640414.2011.560173>

Dunne, A., Warrington, G., McGoldrick, A., Pugh, J., Harrison, M., O'Connor, S., O'Loughlin, G. & Cullen, S. (2021). Physical and lifestyle factors influencing bone health in jockeys: A comprehensive update of the bone density status of Irish jockeys. *International Journal of Exercise Science*, 14(6), 324-337.

Dunne, A., Warrington, G., McGoldrick, A., Pugh, J., Harrison, M., & Cullen, S. (2022). Body Composition and Bone Health Status of Jockeys: Current Findings, Assessment Methods and Classification Criteria. *Sports Medicine-Open*, 8(1), 23.

King, L., Cullen, SJ, McGoldrick, A., Pugh, J., Warrington, G., Woods, G. & Losty, C. (2021a). Mental health difficulties among professional jockeys: A narrative review. *BMJ Open Sport & Exercise Medicine*, <https://doi.org/10.1136/bmjsem-2021-001078>

Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation science*, 6(1), 1-12.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H. & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality & quantity*, 52, 1893-1907

## P163

### Examination of the Process Through Which Psychological Support Counseling Can Lead to Enhanced Performance

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Psychological skills training, in which psychological techniques are taught to athletes, has been the main method used for performance enhancement, but psychological support using counseling techniques has also been found to be effective for this purpose. But “how” and “through what mechanism” does counseling enhance performance? The factors and processes involved have not been adequately examined. Therefore, this study analyzes the effectiveness of counseling in enhancing performance through a case study of a male athlete in his 30s who specialized in target-shooting (hereafter referred to as the “client”) who had problems maintaining his optimal psychological state during competitions.

His main complaint was of a large gap between his performance in practice and in competitions. The higher the level of competition, the less control he had over himself. Eighty-seven counseling sessions (50 minutes per session) were conducted with this client over a five-year period, and the counseling records were analyzed for narratives related to performance enhancement (physical and psychological). Counseling was based on the person-centered approach (Rogers, 1951). During the sessions, the client focused on his own movements during competition, and the counselor asked questions to help deepen the client’s understanding of his own narrative.

These sessions also led to the client’s deeper awareness of the shooting-specific movements of “posture,” “smooth process of targeting (Sizen-Soten),” “triggering,” and “follow-through.” It furthermore led to him having better self-understanding in competitive situations and to changes in his approach to practice and competition (proactive involvement and ingenuity in practice sessions). The client’s talking about his own performance led to his active engagement in the practice phase as described in the theory of self-regulated learning (Zimmermann & Schunk, 2001). This may have led to an improvement in the quality of practice, leading to enhanced performance in competitions.

Rogers, C. 1951: Client-centered therapy: Its current practice, implications, and theory. Houghton Mifflin.

Zimmerman, B.J. & Schunk, D.H. (2001): Self-Regulated Learning and Academic Achievement. Second Edition. Lawrence Erlbaum Associates.

## P164

### Double Whammy: Testing an interactionist hypothesis of self-focus and distraction mechanisms when performing with anxiety

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Anxiety often impairs performance in sport. Two mechanisms are predominantly used to account for this phenomenon, in an either-or manner. The first is a self-focus mechanism (e.g., Reinvestment Theory; Masters & Maxwell, 2008), wherein excessive self-focus via anxiety interferes with task execution. The second is a distraction mechanism (e.g., Attentional Control Theory; Eysenck et al., 2007), wherein reduced attentional control via anxiety increases distractibility and lessens attention for task execution. Interestingly, no previous study has conducted a comprehensive empirical test of these mechanisms’ interaction. Two experiments utilised university student samples to test whether anxiety-induced self-focus is most detrimental to performance when attentional control demands and distraction were high. Experiment 1 (N = 200) comprised a motor-sequencing task which participants learnt explicitly or implicitly (thus manipulating self-focus propensity) and subsequently performed under differing levels of attentional control (presence versus absence of visual distractors) and anxiety demands (high versus low anxiety). Experiment 2 (N = 200) comprised a cognitive response task which participants performed under differing levels of attentional control (constant versus variable task goal) and anxiety demands (high versus low anxiety) while self-focus propensity was assessed via self-report questionnaires (state decision specific reinvestment scale). In both experiments, random effect path models revealed that reinvestment under high anxiety was most detrimental to performance when attentional control demands were high. These findings support an ‘Interactionist Hypothesis’, which suggests that the occurrence of self-focus is most detrimental when demands for attentional control/resources are high. Therefore, similarly to anxiety-induced distraction, self-focus may act as another source of attentional demand and contribute to exceeding attentional capacity to impair performance. Future research into anxious performance is encouraged to investigate mechanisms in combination rather than isolation.

Masters, R., & Maxwell, J. (2008). The theory of reinvestment. *International Review of Sport and Exercise Psychology*, 1(2), 160-183.

Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: attentional control theory. *Emotion*, 7(2), 336.

## P165

### Examining the predictors of psychology skills use in athletic therapy: A theory of planned behaviour approach

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

In the absence of certified mental performance consultants, athletic therapists (ATs) are uniquely positioned to assist injured athletes with the psychological component of recovery through the use of psychological skills (Arvinen-Barrow & Clement, 2015). Previous findings are inconsistent with respect to the influence of ATs' attitudes and their use of psychological skills in practice (Hamson-Utley et al., 2008; Heaney et al., 2017). Furthermore, previous literature does not account for other factors that could influence this relationship. Objective: The objective of the study was to identify which factors of theory of planned behaviour (Ajzen, 1985) are predictors concerning the use of psychological skills in practice along with the influence of sport psychology education. Method: Ninety-four certified Canadian ATs were surveyed consisting of demographic questions (e.g., sport psychology education) along with measuring the five factors contained within the theory of planned behaviour. A multi-group path analysis was used to analyze the data. Participants were categorized into four groups: educated (i.e., formal and informal education), formal education only, informal education only, no education. Results: The results indicated that the model was a good fit to the data (CFI = 0.99, RMSEA = 0.07). Overall, ATs with higher perceptions of subjective norms and perceived behavioural control were more likely to have the intention and to use psychological skills in practice. When examined by sport psychology education level, perceived behavioural control was a significant predictor of intention and behaviour for ATs with formal education. Further, attitude and intention were significant predictors of behaviour when ATs had no formal sport psychology education. Therefore, those with and without formal education in sport psychology have different motivations to use psychological skills in practice. Conclusion: Findings of this study demonstrate ATs' previous education in sport psychology is an important consideration when addressing ATs' use of psychological skills in practice.

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## P167

### Perspectives towards, and experiences of clean sport in international Cerebral Palsy Football: A cross-cultural qualitative exploration

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** The role and proximity of an athlete's entourage (e.g., doctors, nutritionists, psychologists), and team culture are critical influences on clean sport behaviours; however limited research has explored these influences within a para sport context. Our novel study aimed to develop an understanding of the role of athlete support personnel (ASP) in influencing clean sport culture(s) within international CP football. **Methods:** 26 participants representing 13 countries and 5 continents (n = 11 athletes, n = 15 ASPs) took part in semi-structured online interviews (mean age 36.1 years, n=9 female, n=17 male). ASPs included coaches, physiotherapists, strength and conditioning coaches, classifiers, and managers. Interviews explored definitions and contexts of clean sport behaviours and cultures, relating to country-specific organisations, and the international federation of CP football.

**Results:** Reflective thematic analysis uncovered four overarching themes: (1) Defining Clean Sport: Insights from CP athletes and ASP (2) Clean Sport Accountability (3) Unmasking the game: Integrity issues in CP football and (4) Towards a clean sport culture in CP football: Athlete and ASP centred suggestions. Data revealed varying perspectives towards the role and responsibilities of ASPs in developing and encouraging clean sport behaviours. Contemporary issues surrounding clean sport in CP football were identified within the integrity theme, namely classification integrity, fair play, and dysfunctional power relationships (e.g., between coaches and players).

**Conclusions:** Overall, our insightful data highlighted a lack of clarity surrounding the role of ASPs in influencing clean sport behaviours in CP football, with evidence that behaviours conflict with the integrity and equality of the sport, calling for education and reform.



## P168

### Study about the Hungarian national swimming team's applied coping strategies and anxiety regulation from the perspective of the management team

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

In previous researches with swimmers, the surrounding professionals rarely participate in studies, despite of their prominent role in the life of the swimmers and preparation for the competition. Another reason justifying the examination of the staff's point of view is the often limited ability of self-reflection in athletes (Cowden, 2016). The aim of this study is to investigate the perspectives, experiences, and approaches of professionals working alongside the Hungarian national swimming team, from the aspects of mental and psychological state, preparation and support of the athletes, as well as their anxiety and coping strategies.

In our study, we have conducted semi-structured interviews with nine professionals, who are or have previously been closely involved with athletes from the Hungarian national swimming team. These professionals included physical therapists, coaches and sport psychologists. The interviews have been examined by the guideline of Braun's thematic analysis method.

We have created categories, subcategories and higher level categories in 3 dimensions: anxiety, coping, mental care and support.

In the first dimension (anxiety), we established higher-level categories on respondents' perceptions of the extent and types of anxiety swimmers have to face, and the potential triggers for such anxiety.

In the second dimension (coping), we have created higher-level categories based on how professionals perceive the extent to which coping mechanisms with stress and anxiety are real and adaptive among the swimmers.

In the third dimension (mental care and support) we developed higher-level categories regarding the mental support and assistance methods they employ, including their perspectives on athletes' mental care, characteristics of effective professionals, and athletes' attitudes towards psychological care and preparation.

The responses evolved around high performance anxiety, inadequate coping strategies, and a low level of mental health culture. The latter, which includes the failure to seek help, is often caused by dysfunctional beliefs within the closed environment.

Cowden RG. Mental Toughness, Emotional Intelligence, and Coping Effectiveness: An Analysis of Construct Interrelatedness Among High-Performing Adolescent Male Athletes. *Percept Mot Skills*. 2016 Dec;123(3):737-753. doi:10.1177/00315125166666027. Epub 2016 Aug 23. PMID: 27555364.

## P169

### The Use of Virtual-Reality to Capture Batting Skill in Women's Performance Pathway Cricketers: A Test of Construct Validity

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** Virtual reality (VR) offers potential new solutions for measuring skill in sport. To assess construct validity and the suitability of a VR simulation, previous work has used comparisons between performers of different skill levels. If performance in VR is valid then a distinction between skill levels should be observed. Most work has compared experts and novices, but this does not offer the sensitivity needed to apply VR testing in high performance settings. Here we examined how specialist batters, all-rounders, and bowlers, who play within the same high-performance team, scored in a cricket batting simulation. If a valid measure, then batters will score more runs and lose less wickets than other groups.

**Methods:** A sample of 50 players from a women's first-class county pathway completed a five-over batting test in the VR cricket platform 'Cover Drive Cricket'. The simulation incorporated specific bowler types and speeds for the women's game. The batting group (n = 11) are select for batting skill, all-rounders (n = 20) are selected for combined ability with bat and ball, and bowlers (n = 19) are selected for their bowling skill. Dependent variables included runs scored, wickets lost, and batting average.

**Results:** The VR platform successfully differentiated between participants of different specialisms for runs scored (F2, 47 = 5.083, p = .010,  $\eta^2$  = .178) where batters scored more runs than bowlers (p = .01). However, there was no difference between groups for wickets lost or overall batting average.

**Conclusion:** These results provide some support for the construct validity of this VR cricket batting simulation, as the specialist batters scored more runs than their peers who specialise in bowling. However, the lack of difference in number of wickets lost, and therefore batting average, suggests further work is needed before VR can be fully endorsed for batting testing.

## P170

### Cross-Cultural Physical Literacy

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

The study endeavors to foster sports engagement and physical activity among children originating from Syria, Turkey, and Europe while concurrently nurturing cultural inclusivity and acceptance. Its core objective lies in crafting a comprehensive cross-cultural physical literacy toolkit through the collaborative efforts of scholars, sports practitioners, and nutritional experts.

The theoretical framework of the research is anchored in the concept of physical literacy (Almond & Whitehead, 2012), which underscores its pivotal role in facilitating enduring engagement in physical endeavors and optimizing performance therein. Augmenting this framework, Erikson's psychosocial developmental stages are invoked to illuminate the significance of learning acquisition in shaping children's developmental trajectories (for more info see Erikson & Joan, 1998)

A prominent issue addressed is the dearth of tailored resources and support mechanisms catering to the diverse cultural backgrounds of children, particularly those hailing from Syrian, Turkish, and European communities. The insufficiency of such provisions potentially impedes these children's access to and participation in sports and physical activities.

Methodologically, the study adopts a collaborative approach, convening experts across various disciplines including academia, sports coaching, sports psychology, physiotherapy, and nutrition. The toolkit's development involves meticulous deliberations and integration of multifaceted insights during its academic formulation. Moreover, the physiotherapeutic component aims at fostering motor development, mitigating sports-related injuries, enhancing muscular flexibility, and facilitating overall motor proficiency. Simultaneously, educational endeavors concerning balanced nutrition are incorporated into the initiative.

Post-implementation, a comprehensive survey was administered to ascertain the toolkit's efficacy. Preliminary findings reflect encouraging outcomes, including heightened sports participation rates among children and enhanced nutritional knowledge. This study underscores the criticality of tailored cross-cultural interventions in promoting sports engagement and cultural inclusivity among diverse cohorts of children, thereby advocating for more inclusive strategies within the realm of sports education and physical activity promotion.

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Erikson, Erik H.; Erikson, Joan M. (1998). The Life Cycle Completed (Extended ed.). New York: W. W. Norton & Company. ISBN 978-0-393-34743-2.

## P171

### FITnurse: A Mindful Physical Activity Intervention for Nursing Students

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** High pressure and stress have been linked to nursing student academic and clinical performance (Ratanasiripong et al., 2015). This research aims to evaluate the effectiveness of FITnurse, a pre-semester mindful physical activity intervention, on well-being and performance in first-year nursing students, as compared to a mindful eating control group.

**Methods:** In a non-randomized control trial, before the start of the fall semester, 54 first-year nursing students (90.3% female, 93.5% white, M-age=19.3years) participated in a 6-day introductory mindfulness course self-selecting into an additional FIT-nurse or a mindful eating intervention control group for 4 daily 90-minute sessions. Participants subsequently engaged in mindfulness doses over 14 weeks. Questionnaires were distributed before (T1), immediately after (T2), and at semester's end (T3). Perceived Stress Scale (PSS), Oldenburg Burnout Inventory (OBI), State Mindfulness Scale-Physical Activity (SMS-PA), and Five Facet Mindfulness Questionnaire (FFMQ) scores were collected.

**Results:** Controlling for baseline levels of each dependent variable, multilevel models predicted each outcome from time within each group, assessing immediate and semester-long effects. Controls (n=27) reported increased stress (b=.11, p<.05) and burnout (b=.08, p<.05) at T3, but no significant increases were observed for FITnurse participants (n=27). Both groups reported increased state mindfulness at T2 (FN: b=.50, p<.001; C: b=.77, p<.001), but only FITnurse reported improvements at T3 (b=.20, p<.05). Controls reported increased mindfulness skills at T2 only (b=.15, p<.001), whereas FITnurse participants reported marginally significant increases at T3 (b=.05, p=.06).

**Conclusion:** Preliminary analysis suggests that FITnurse had immediate and semester-long impacts on students in conjunction with mindfulness training. FITnurse has the potential to (a) buffer against stress and burnout during the academic semester (b) increase mindfulness (c) bolster mindful strategies. Ongoing data collection and analysis will include performance-based outcomes (i.e., clinical skills, GPA) and time\*group interaction analysis.

Ratanasiripong, P., Park, J., Ratanasiripong, N., & Kathalae, D. (2015). Stress and anxiety management in nursing students: Biofeedback and mindfulness meditation. *Journal of Nursing Education*, 54(9), 520-524.

**P172**

**The relationship between baseline autonomic nervous system activity and virtual reality-based cognitive performance: a preliminary study in triathletes**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** Cognitive functions and the autonomic nervous system (ANS) have been frequently linked to high-performance across domains for example in sports (Scharfen & Memmert, 2019; Fort et al., 2022). Although the influence of physical and neural states on cognitive traits has been proposed, the relationship of the ANS and cognitive performance in real-world virtual reality scenarios have not been examined yet, especially with the comparison of athletes and non-athletes. Therefore, this exploratory study aims to analyze this ANS-cognition relationship by assessing possible cognitive performance differences in athletes and non-athletes, together with electrophysiological measures.

**Methods:** Triathletes (n=7 (males=4, females=2, missing gender=1); mean age=33.13) and sedentary non-athletes (n=9 (males=5, females=4); mean age=40.55) were measured concerning their vagally mediated heart-rate-variability (HRV) activity in a 3 minute baseline test (SDNN, rmssd, pNN50, high frequency power percentage) and their cognitive performance in a virtual reality test ("Modified version of NORA VRx-TM - Core" (Neo Auvra®, Turkey) including working memory (verbal, visuospatial, task-switching speed), visual attention (accuracy, speed, span), visuospatial attention span and information processing speed.

**Results:** HRV parameters and cognitive scores present small to medium sized correlation coefficients for visuospatial working memory, task switching speed and visual attention scores and medium to large coefficients for visuospatial attention span in the analysis including all participants. Cognitive performance did not differ between triathletes and non-athletes but all HRV parameters are meaningfully increased in triathletes.

**Conclusion:** In line with recent frameworks of strong body-brain links (Westlin et al., 2023; Greene et al., 2023) the present study shows distinct relationships of HRV parameters and VR-based cognitive performance in real world settings. Although this exploratory sample size is too small to detect possible differences among the groups, the correlational results may hint at the relationship between ANS and cognition.

Scharfen, H. E., & Memmert, D. (2019). Measurement of cognitive functions in experts and elite athletes: A meta-analytic review. *Applied Cognitive Psychology*. <https://doi.org/10.1002/acp.3526>

Forte, G., Morelli, M., Grässler, B., & Casagrande, M. (2022). Decision making and heart rate variability: A systematic review. *Applied Cognitive Psychology*, 36(1), 100–110. <https://doi.org/10.1002/acp.3901>

Westlin, C., Theriault, J. E., Katsumi, Y., Nieto-Castanon, A., Kucyi, A., Ruf, S. F., Brown, S. M., Pavel, M., Erdogmus, D., Brooks, D. H., Quigley, K. S., Whitfield-Gabrieli, S., & Barrett, L. F. (2023). Improving the study of brain-behavior relationships by revisiting basic assumptions. *Trends in Cognitive Sciences*, 27(3). <https://doi.org/10.1016/j.tics.2022.12.015>

Greene, A. S., Horien, C., Barson, D., Scheinost, D., & Constable, R. T. (2023). Why is everyone talking about brain state? *Trends in Neurosciences*, 46(7), 508–524. <https://doi.org/10.1016/j.tins.2023.04.001>

## P173

### Elite Swimmers' and Coaches' Understanding and Psychological Experience of Taper: A Multi-Phase Qualitative Investigation

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** Taper refers to a progressive reduction in training load before competition, which aims to reduce physiological and psychological fatigue and enhance athletic performance (Stone et al., 2023). The performance enhancing effects of taper are well documented, ranging from 0 to 6%, with most athletes gaining 2 to 3% in performance (Murach & Bagley, 2015). In elite swimming, taper is an important component of race preparation, but is often misunderstood by athletes and coaches. Anecdotal, and through our own practical experiences of working in elite swimming environments, this misunderstanding results in cognitive and emotional disturbance and subsequent maladaptive changes in behaviour (e.g., motivation to train).

**Methods:** A multi-phase qualitative investigation was conducted with the aim of exploring the psychology of taper. This was achieved via two specific phases (P1 and P2), aiming to i) examine swimmers' and coaches' understanding of what taper is, and ii) their consequent psychological experience associated with taper (i.e., thoughts, feelings, and behaviours). Intensity sampling was used to identify elite level swimmers (P1, N=10; P2, N=9) and coaches (P1, N=8, P2, N=6). An interpretive descriptive methodology was used in both phases, with data collected via semi-structured interviews and analysed in line with interpretive description recommendations (Thorne, 2016).

**Results:** Findings from P1 suggested swimmers and coaches understood taper as an unpredictable training phase, which was idiosyncratic and multidimensional. In P2, their reported thoughts, feelings, and behaviours centred around ensuring taper had positive psychological and performance related effects. Similarities across both studies were examined to identify the key psychological features of taper. This suggested that psychology of taper is complex, imperfect, transactional, and multilevel in nature.

**Conclusions:** This research provides the first detailed insight into the psychology of taper in elite athletes, highlighting the need for further research and applied considerations.

Murach, K. A., & Bagley, J. R. (2015). Less Is More: The Physiological Basis for Tapering in Endurance, Strength, and Power Athletes. *Sports*, 3(3), Article 3. <https://doi.org/10.3390/sports3030209>

Stone, M. J., Knight, C. J., Hall, R., Shearer, C., Nicholas, R., & Shearer, D. A. (2023). The Psychology of Athletic Tapering in Sport: A Scoping Review. *Sports Medicine*, 53(4), 777-801. <https://doi.org/10.1007/s40279-022-01798-6>

Thorne, S. (2016). *Interpretive Description: Qualitative research for applied practice* (Second Ed). Routledge.

## P175

### External focus instructions optimize drop landing biomechanics in female volleyball players

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** External focus (EF) instructions have been shown to be more effective than internal focus instructions in reducing the risk of ACL injury and knee joint loading. However, it is unclear whether knee biomechanics vary as a function of different types of EF instructions. Therefore, the aim of this study was to examine the effect of different EF instructions on the biomechanical variables associated with the risk of ACL injury in the knee joint during a drop landing. **Methods:** Eight female volleyball players (age: 13.4±0.4 years, height: 167.1±4.2 cm, mass: 58.2±2.7 kg, experience: 1.3±0.6 years) performed landings from a 50 cm height under three different EF conditions: 1) QUIET: focus on landing as quietly as possible; 2) SAFE: focus on landing as safely as possible; 3) SOFT: focus on landing as softly as possible; and one no-focus condition. A Qualisys 3D motion capture system and a Kistler force platform were used to compare the following biomechanical variables associated with ACL injury risk: vertical ground reaction force, knee angles, and moments in the sagittal, frontal, and horizontal planes. Variables were compared using discrete data analysis during the first contact and the first and second peaks of VGRF. **Results:** All EF instructions examined biomechanically reduced the risk of ACL injury compared to the no-focus condition. Among these instructions, "focus on landing as softly as possible" demonstrated the most significant reduction in biomechanical loading of the ACL, as evidenced by the significantly lowest maximal vertical ground reaction force, internal rotation angles, and high flexion angles. Importantly, no significant changes in crucial knee moments were found across the conditions. **Conclusion:** Overall, these findings support the beneficial impact of EF instructions in mitigating ACL injury risk during drop landings and may be useful in decreasing the likelihood of ACL injury during landing.

## P176

### Emergency Sport Psychologist, Helping 120 Cheerleaders Find Their Spirit Again After a Traumatic Sporting Accident: A Case Study

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

This case study examines the immediate sport psychological intervention toward the emotional shock, trauma, and short-term psychological recovery of a large team of 120 cheerleaders following a serious sporting accident at a large-scale multi-sport event. While the injured athlete received medical attention, the rest of the athletes were expected to continue performing throughout a week's worth of events. Upon highlighting the context of the case, the practitioner will discuss the intervention facilitated in the immediate response of the accident in his role as the team's sport psychology professional. Utilizing the IRASTT framework and Hot Debrief (Brazil, V., & Williams, J. 2021) in helping individual athletes, groups, and teams navigate and process the emotional trauma, affect wellbeing, recover a healthy mindset, and confidence to perform again. In the follow up research, no previous case studies, or examples of this type of event were found to consult on appropriate intervention. Feedback from athletes via "Sport Psychology Consultant Evaluation Form" (Partington & Orlick, (1987) and group supervision sessions with colleagues served as professional feedback. The purpose of this presentation is to build awareness, guidance, and knowledge of this incident and intervention to the field for other practitioners facing similar situations in the future. With the lack of previous examples in anecdotal and published case studies, an important implication within this case study is the development and presentation of a framework based on the Hot Debrief (Brazil, V., & Williams, J. 2021). This framework serves as a guide and tool for future practitioners to utilize as a short-term sport psychological intervention, with focus on nurturing and fostering immediate psychological recovery. The outcome goal being that applied practitioners in the future will be better equipped in facilitating such an intervention if and when it is needed.

Brazil, V., & Williams, J. (2021). How to lead a hot debrief in the emergency department. *EMA-Emergency Medicine Australasia*, 33(5), 925-927.

Partington, John, and Terry Orlick. "The sport psychology consultant evaluation form." *The Sport Psychologist* 1.4 (1987): 309-317.

## P177

### Mindfulness and stress-recovery balance during a two days of BMX competition

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<sup>1</sup>Univ Brest, Brest, France

Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** The stress-recovery balance refers to the quality of adjustment of recovery strategies that one mobilizes according to his or her stress states (Kellmann, 2010). Psychological recovery strategies, including mindfulness, which has garnered interest (Blevins et al., 2021). Adopting a biopsychosocial perspective, the study aimed to investigate the relationship between mindfulness and stress-recovery balance within real competitive settings.

**Method:** Eighteen young BMX riders from a National Training Center were monitored during a two-days competition. Firstly, they completed the Mindfulness Inventory for Sport (MIS, Thienot et al., 2014) several weeks before the competition to assess mindfulness skills in a sports context. Secondly, the Short Recovery and Stress Scale (SRSS; Kellmann & Kölling, 2019) was used the morning of the competition (Pre) and the following morning of the competition (Post) to monitor the stress-recovery balance, while heart rate variability (RMSSD indices) was used to evaluate the parasympathetic reactivation. Finally, participants rated mindfulness states, perceived effort, and subjective performance after each race. Kruskal-Wallis tests compared high and low mindfulness score groups, and repeated measures correlations were conducted using the R package "rmcorr" using bootstrapping (Bakdash & Marusich, 2017).

**Results:** Results showed at the pre competition a significant difference between the groups with high vs. low non-judgmental skill for the recovery state,  $p < 0.05$ . At the post-competition, results revealed a significant difference between the groups with high vs. low refocusing skill for the stress state  $p < 0.05$ . No significant difference was observed for RMSSD. Awareness state positively correlated with subjective performance ( $r_{rm} = 0.23$ ,  $p < 0.05$ , [0.03; 0.42]) but no correlation was found between mindfulness states and perceived effort.

**Conclusion:** These findings highlight the role of mindfulness in the stress-recovery balance during competition. Mindfulness emerges as a potential recovery strategy, offering practical and research implications.

Bakdash, J. Z., & Marusich, L. R. (2017). Repeated measures correlation. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.00456>

Blevins, P., Moyle, G., Erskine, S., & Hopper, L. (2021). Mindfulness, recovery-stress balance, and well-being among university dance students. *Research in Dance Education*, 1-14. <https://doi.org/10.1080/14647893.2021.1980528>

Kellmann, M. (2010). Preventing overtraining in athletes in high-intensity sports and stress/ recovery monitoring. *Scandinavian Journal of Medicine & Science in Sports*, 20, 95-102.

Thienot, E., Jackson, B., Dimmock, J., Grove, J. R., Bernier, M., & Fournier, J. F. (2014). Development and preliminary validation of the mindfulness inventory for sport. *Psychology of Sport and Exercise*, 15(1), 72–80. <https://doi.org/10.1016/j.psychsport.2013.10.003>

Kellmann, M., & Kölling, S. (2019). *Recovery and stress in sport: A manual for testing and assessment*. Routledge, Taylor and Francis Group.

## P178

### Sound intensity and frequency spectrum of volleyball serves affect the predictions of ball's landing point based on auditory-motor experience

**Fabrizio Sors**<sup>1</sup>, Ivan Camponogara<sup>2,3</sup>, Geremia D'Orso<sup>1</sup>, Mauro Murgia<sup>1</sup>

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

In ball sports such as volleyball, the impact sound of the ball is used to define the shot length and predict the final ball position on the court. Several studies thoroughly investigated the role of sound intensity in predicting the ball's landing point, neglecting the contribution of the sound frequency spectrum component. Here, we investigated the contribution of the sound frequency spectrum in defining a volleyball serve's length (i.e., distance). We recorded the sound of short and long volleyball serves (ecological sound) and changed their frequency spectrum in pink noise, preserving their intensity (noise sound). We then presented both types of sounds – 100 trials for ecological sound and 100 trials for noise sound, with the two blocks in counterbalanced order – to expert volleyball players (N = 30, of which 17 females; mean age = 23.6 ± 3.2) and measured their performance in short and long-shot classifications. The role of auditory-motor experience in sound classification was also explored by testing soccer players (experience on ball shots but not sport-specific auditory-motor experience; N = 30, of which 10 females; mean age = 23.3 ± 4.6 years) and non-athletes (no auditory-motor experience in sports; N = 32, of which 18 females; mean age = 24.1 ± 2.5 years). We found that hearing ecological sound leads to better sound discrimination performance than noise sound. Concurrently, we found an effect of the specific auditory-motor experience, with volleyball players outperforming non-athletes and soccer players. Interestingly, experts in different sports domains (soccer players) mainly used sound intensity for shot classification. This underlines the importance of specific auditory-motor experience in encoding specific sound frequency spectrum for the sound of action classification.



**P179**

**Understanding biopsychosocial sport injury risk factors in competitive, collegiate cheer student-athletes.**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** While utilization of mental skills to mitigate biopsychosocial sport injury risk factors is well documented (Gledhill et al., 2021; Williams & Andersen, 1998), barriers exist implementing these sport injury prevention (SIP) programs in-the-field. Current literature recommends one solution is to co-develop SIP programs with end-users to account for the unique “content” and “context” of each team (Benjaminse & Verhagen, 2021), but few SIP studies have explored this recommendation. This study focused on collaboration with collegiate cheerleaders to understand the biopsychosocial injury risk factors unique to their team.

**Methods:** Two focus groups were conducted, with six cheer student-athletes, to understand how they experience stress, worry, and anxiety; when they feel vulnerable to injury; how they cope with stressors; and what their expectations are for a mental skills SIP program. Data were analyzed using thematic analysis (Braun & Clarke, 2012) to understand their team’s biopsychosocial injury risk factors and SIP program needs.

**Results:** Three themes with several sub-themes emerged. Cheerleaders experience recurring stressors in comparison to other sports (e.g., financial aid), within cheer specifically (e.g., nature of sport), and in ways that increase their feelings of vulnerability to injury and illness (e.g., previous injuries). Cheerleaders cope with the demands of student-athlete life through use of self-care practices (e.g., nightly routines), social support systems (e.g., teammates), and organization techniques (e.g., schedules). Cheerleaders stated specific goals they want to achieve with the SIP program (e.g., control the controllables) and provided logistical program design details (e.g., teach a variety of mental skills).

**Conclusions:** Successful SIP programming begins with understanding participants’ lived experiences. Collegiate cheerleaders experience recurring stressors; understand the importance of, and utilize, several coping strategies; and have specific expectations for SIP programming. These findings provided the foundation for the creation of a co-developed SIP program for cheer student-athletes.

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**P180**

**Effects of Acute Aerobic Exercise on Memory Suppression of Food Cues of Restrained Eaters**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** To explore the effects of food cues on memory suppression among successful restrained eaters(SREs), unsuccessful restrained eaters(UREs) and non-restrained eaters(NREs), and investigate the neural mechanism of different intensities of acute aerobic exercise of restrained eaters.

**Methods:** In Study 1, we compared SREs, UREs, and NREs on memory suppression through a TNT paradigm. Different types of food cues(2a: high and low calorie, 2b: large and small portion) were designed in the TNT paradigm with UREs in study 2. To investigate the effect of different intensities (low, moderate, and high) of acute aerobic exercise on memory suppression, the EEG data were recorded during the TNT task with UREs.

**Result:** The results of Study 1 showed that all groups completed memory suppression tasks very well, while UREs showed higher recall accuracy than NREs, indicating weak memory suppression abilities among UREs. In Study 2, we found that UREs faced more difficulties to suppress memories of high calorie foods (2a) and large portions of food(2b). The results of Study 3 illustrated that successful memory suppression induced shorter P2 latencies and more negative amplitudes and shorter latencies of N2. Low intensity exercise facilitated memory suppression, while high intensity exercise induced shorter LPC latencies, leading to failed memory suppression.

**Conclusion:** The study revealed that the failure in memory suppression in UREs maybe the key reason why they couldn't restrain yummy food, especially those high calorie or large portion ones. Low intensity exercise may enhance their memory suppression. This study offered new insights into the association between exercise, restrained eating, and memory suppression.

**Key Words:** restrained eaters, memory suppression, food cues, acute aerobic exercise, ERPs

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## P181

### Understanding Athletes' Problems When Providing Psychological Support: Review and Classification of Levels of Physical and Mental Experience

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

It is necessary for athlete whose lives are centered on physical activity to listen attentively with the physical experiences in mind when providing psychological support to them. Even if the main reason of their visit is psychological concerns. Their clinical narratives can cover a broad range of content, from consciously understandable matters to unconscious domains where mind and body may appear inseparable. While listening to their complaints as expressed, we also need to understand the relevant background and context for making accurate assessments. Appropriate psychological support requires proper assessment, so probing the different levels of their physical and mental experiences is critically important. The purpose of this study was to review previously reported case studies such as Nakagomi (2021), and then based on Kawai's the structure of mind and body (2003), Itoh's somatization level (2009) and authors' clinical experiences, to argue that the following levels of physical and mental experience should be considered in understanding athletes' problems.

(1) Conscious experience level: This level applies to many athletes who seek psychological support. The presence of a support provider who always listens attentively to the problem narrative along with any related experiences facilitates the athlete's maximum performance.

(2) Somatization level: Somatic symptoms appear that correspond to psychological condition. Athletes in this level manifest their internal problems somatically, which then impacts their performance. Psychological problems reveal themselves through poor movement, which are perceived as somatization of internal problems. Psychogenic motor action disorders and some yips are included in this level.

(3) Body/Mind level: The problems of athletes in this level cannot be explained by issues of either the body or mind alone; rather these problems are integrated. For example, yips cannot be explained by causes rooted in either the body or mind alone, various psychosomatic disorders, or injuries.

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## P182

### Reviving Choking Research: Exploring the Experience of Choking under Pressure through a Contextual Behavioural Science Lens

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

'Choking' in sport is "an acute and considerable decrease in skill execution and performance when self-expected standards are normally achievable" (Mesagno & Hill, 2013, p.270). Choking has been defined through mechanistic explanations including anxiety and attentional failures, leading to descriptions of, but not necessarily applicable models that adequately address this challenge. Today, the sport psychology discipline grapples with converting definitions into workable intervention solutions.

This thesis adopts a pragmatic and functional contextual approach to explore choking through three studies that aim to 1) develop conceptualization and better inform behaviour change; 2) examine predictions of Relational Frame Theory (RFT) in relation to choking; 3) evaluate the influence of acceptance and mindfulness-based processes on underpinning mechanisms; and 4) develop an Acceptance and Commitment Therapy (ACT) intervention to resist choking and maximize performance experiences. This research understands choking as a performance 'experience' opposed to 'outcome,' to challenge existing narratives which fail to consider situational, internal, and historical contexts surrounding a choke.

Study one explored 12 athletes' experiences of choking through focus groups. An alternating treatments design tested the impact of contextual cue conditions on 10 elite golfers' putting performances. Finally, an intervention-retention study evaluated the efficacy of an ACT programme for addressing psychological inflexibilities.

Study one conceptualized choking as an experience where performers encounter challenges with how they relate to their experience of performing under pressure (e.g., under self-imposed rules or conditions). Thematic analysis revealed choking may be evoked through athletes' experience of cues in the performance environment, namely comparison (to competitors, past performances) and distinction (competition importance).

This research offers a novel approach through a functional contextual research perspective and ACT intervention strategies. From an applied perspective, this research aims to shift the goals of interventions from removing unwanted experiences (e.g., anxiety, self-doubt) to cultivating flexible mindsets when competing in pressurized environments.

Mesagno, C., & Hill, D. (2013). Definition of choking in sport: Re-conceptualization and debate. *International journal of sport psychology*, 44, 267-277.

**P183**

**The Impact of Immersive Virtual Reality on the Self-Efficacy and Attention of Individuals with Substance Use Disorders**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** The role of exercise programs during Substance Use Disorder (SUD) treatment is considered a positive coping mechanism, offering individuals healthier ways to manage stress and negative emotions. This study explores the acute effects of cycling exercise in an immersive virtual reality (IVR) environment on the attentional control and self-efficacy expectations of individuals undergoing SUD treatment.

**Method:** A total of 20 male individuals (with a mean age of 37.75 years) enrolled in an SUD treatment program were instructed to complete a single cycling session by permitting them to choose the duration of their cycling performance from 5 to 30 minutes at a certain speed between 15-20 km/h, within the IVR system. The pre- and post-measures of the Self-Efficacy Expectations Scale (Bandura, 2006) and the Stroop Test were assessed, and a semi-structured interview about the participants' experience with the IVR system was conducted.

**Results:** Following the cycling session, pre-post measures indicated a statistically significant improvement in self-efficacy expectations (M1=49.8, SD= 13.19, M2= 56.8, SD= 4.87, t (19) = -2.78, p<.01). In considering attentional control measured with the Stroop test significant effect was observed across all three components of the test: naming, reading and interference (Naming: M1=60.9, SD=13.1, M2= 51.9, SD=7.6, p<.01, Reading: M1=41.9, SD=5.4, M2= 40.2, SD=6.2, p<.01, Interference: M1=94.8, SD=22.9, M2=78.0, SD=14.1, p<.01) Qualitative data revealed that participants not only found the IVR exercise system enjoyable but also expressed a strong intention to utilize it. Additionally, they reported no encounters with technical difficulties or negative emotions.

**Conclusion:** Engaging in a brief period of exercise within a virtual environment can lead to enhanced cognitive factors, heightened self-efficacy expectations, and a motivational approach to increasing physical activity participation among individuals with SUD. Limitations and future steps for relevant studies in the area discussed.

**Keywords:** virtual reality; coping; exercise; substance use disorder; self-efficacy; attention

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## P184

### An Expert Understanding of the Single Session Mindset

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives** - Interest in the viability (Pitt et al., 2015; Pitt et al., 2023) and effectiveness (Bowman & Turner, 2023; Pitt et al., 202) of single-session therapy as an applicable therapeutic approach within sport psychology contexts is growing. This follows a more longstanding acceptance of such approaches in other therapeutic domains such as family therapy, psychotherapy, mental health settings and walk in therapy (see Cambell, 2012; Pitt et al., 2015). One challenge therapist's have remarked upon when adopting single-session methods is how they can jar against practitioner's traditional 'mindset' towards therapy (see Cannistra, 2022). As such, the objective of this research was to explore experienced single-session therapist's mindset to single-session practice and to empirically define the concept of single-session mindset to therapy.

**Methods** - Ten world leading single-session therapists were interviewed about their mindset towards practicing single-session therapy.

**Results** - Reflexive thematic analysis realized a definition of a single-session mindset towards therapy. Nine core beliefs (about people, therapy, and change) and 17 core attitudes were identified as central to a single-session mindset. These beliefs and attitudes were intentionally embraced and enacted by practitioners before and during single-session work.

**Conclusion** - A clear set practitioner beliefs and attitudes appear an essential aspect of single-session work. These beliefs and values may challenge traditionally held beliefs and assumptions associated with some therapeutic models that underpin many forms of practitioner training. Practitioners wishing to adopt single-session methods should reflect upon the fundamental beliefs at the heart of single-session mindset and how this may align with their beliefs about people, therapy, and change (cf. Pockwardowski et al., 2004).

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**P185**

**Perceptions and Experiences of Psychological Readiness When Return to Sport After Injury**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Athletes are often cleared by health professionals to return to sport (RTS) after injury based primarily on physical competencies with limited emphasis on psychological readiness (PR). There is no clear definition of PR consistently used in the literature; therefore, it is imperative to explore perceptions and experiences of PR to understand PR more accurately to aid the rehabilitation and RTS process. Athletes who are not psychologically ready to RTS, despite achieving physical healing and functional progressions, may lack confidence in their abilities (Podlog et al., 2015), experience anxiety or feel depressed (Tracey, 2003), and feel pressure to return (Gomez-Espejo, 2022; Podlog et al. 2021). Some may fear re-injury (Arden et al., 2014), incur further injury (Webster & Hewett 2019), or drop out of sport (Arden et al., 2014).

**Objective/Purpose:** Consider the complexities of PR to gain an understanding of PR from an athlete-centered holistic approach. Explore injured athletes' perceptions and experiences of PR during rehabilitation and after return to competition (RTC: first competition since sustaining injury).

**Methods:** A qualitative phenomenological design employing semi-structured interviews with 15 collegiate student-athletes before and after RTC (30 interviews total) focused on athletes' experiences of PR surrounding the RTS process.

**Results:** Thematic analysis of interviews (Braun & Clarke, 2019) revealed three key themes: focus (emphasizing controllable actions; dissociation from injury), confidence, and realistic expectations. PR emerged as a dynamic construct, characterized by the ability to focus and confidence in meeting realistic expectations in the competitive environment, both pre and post RTC.

**Discussion:** Findings highlight the importance of facilitating an inclusive understanding of PR from an athlete perspective and for researchers and practitioners to consider readiness comprehensively within RTS protocols. Optimal clinical outcomes require a multi-disciplinary team approach: incorporating evidence-based practice and consideration of physical and psychological readiness, may enhance a more effective return to sport.

Arden, C. L., Osterberg, A., Tagesson, S., Gauffin, H., Webster, K. E., & Kvist, J. (2014). The impact of psychological readiness to return to sport and recreational activities after anterior cruciate ligament reconstruction. *British Journal of*

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## P186

### Cultural Humility in Athletic Trainers: The Role of Congruent Perceptions During Sport Injury Rehabilitation

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

The history of inequitable treatment experienced by healthcare patients from marginalized backgrounds is well documented (Picha et al., 2022). This problem requires attention in athletic healthcare as athletic trainer (AT) demographics are homogenous compared to the increasingly diverse college athlete population in the U.S. (Marra et al., 2010). Consequently, ATs may unknowingly neglect minority athletes' social determinants of health. Thus, an ATs cultural humility—defined as one's disposition toward ongoing self-reflection, learning, and consideration of diverse cultural identities—could impact AT-athlete relationships and rehabilitation outcomes (Hook et al., 2013). We aim to provide the first investigation of AT cultural humility by exploring congruence between ATs' and athletes' perceptions of AT cultural humility and if congruence predicts pertinent rehabilitation outcomes.

We will recruit 90 AT and college athlete dyads who worked together. Participants will be university ATs who provide rehabilitation services and college athletes who were injured while competing, spent at least a day absent from sport, and received or are receiving care from an AT.

Participants will complete one of two Qualtrics surveys. ATs will answer demographic questions and respond to items measuring their perceptions of their own cultural humility and their athletes' rehabilitation adherence. Athletes will answer demographic questions and items measuring their perceptions of their AT's cultural humility, reinjury anxiety, rehabilitation overadherence, and working alliance with their AT. We will use polynomial regression to compute unstandardized coefficients based on study relationships and create response surface plots.

Our study will provide the first measurement of both AT and college athletes' beliefs about ATs' cultural humility. Using an innovative analysis approach, we will explore how congruency of cultural humility beliefs relate to athletes' rehabilitation outcomes. Results will inform understanding of the impact of AT cultural humility in athletes' rehabilitation and could indicate important cultural elements to incorporate into AT training.

Hook, J. N., Davis, D. E., Owen, J., Worthington, E. L., & Utsey, S. O. (2013). Cultural humility: Measuring openness to culturally diverse clients. *Journal of Counseling Psychology*, 60(3), 353–366. <https://doi.org/10.1037/a0032595>

Marra, J., Covassin, T., Shingles, R. R., Canady, R. B., & MacKowiak, T. (2010). Assessment of certified athletic trainers' levels of cultural competence in the delivery of health care. *Journal of Athletic Training*, 45(4), 380–385. <https://doi.org/10.4085/1062-6050-45.4.380>

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## P187

### I wish I knew more! Training needs for high school sport stakeholders who teach life skills development and transfer

**Christiane Trottier**<sup>1</sup>, Camille Sabourin<sup>1</sup>, Joey Toupin<sup>1</sup>, Vicky Drapeau<sup>1</sup>, Marc-Antoine Pépin<sup>1</sup>, Claude Goulet<sup>1</sup>, Éric Frenette<sup>1</sup>, William R. Falcão<sup>2</sup>, François Billaut<sup>1</sup>, Stéphane Pelet<sup>1</sup>, Pierre Trudel<sup>3</sup>, Raymond Veillette<sup>1</sup>, Sébastien Lavoie<sup>4</sup>

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

In Canada, high schools are increasingly offering school sport programs, which provide ideal settings for student-athletes to develop personally, academically, and athletically. However, despite these known benefits, participating in sports does not automatically produce positive outcomes. The negative consequences include performance anxiety, injuries, and eating disorders, which may be due to busy schedules, social pressures, the sport context itself, and/or the pivotal period of adolescence. To address these issues, training programs have been developed to equip school stakeholders to teach student-athletes life skills development and transfer. Recent studies suggest that these programs can provide instruction in explicit teaching strategies and engender a philosophy of positive development. However, researchers call for future programs to be designed in consultation with key actors so as to incorporate their perspectives and account for their needs and expectations for program implementation. Accordingly, this study examines the perspectives of school stakeholders on what they need in order to foster life skills development and transfer in student-athletes in school sport programs. We used a qualitative descriptive study design to explore the perspectives of 77 school stakeholders at 10 French-language high school sport programs in the province of Québec, Canada. Data were obtained from 14 focus group interviews and were analysed using thematic analysis. Three main findings emerged. First, regarding program objectives, stakeholders wanted all school stakeholders to collaborate on program design and parents to be involved in student-athletes' training. Second, opinions were mixed on the optimal program format: in-person classes, online courses, or hybrid modes. Third, regarding program content, most stakeholders found it challenging to foster life skills transfer beyond sport and wanted to know more about how to promote overall development. In conclusion, future training programs should be designed with a collaborative approach and should allow for parental involvement and flexible hybrid formats.

**P188**

**The function-specific instruction with Neurofeedback Training changes frontal midline theta and boosts motor performance in novice golfers**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Objectives: Electroencephalography neurofeedback training (EEG-NFT; brain training) is a technique used to train brain activity using real-time feedback. A new approach in EEG-NFT, the function-specific instruction (FSI) approach, provide a more effective way to change frontal midline theta (4-7 Hz at frontal midline; Fm-theta) that is associated with sustained attention and impact motor performance in skilled golfers. However, previous study suggested that the FSI approach in EEG-NFT may not be an effective training approach for novices. To test this assumption, we replicated Chen et al., 2022 study's training protocol for skilled golfers. Methods: To do so, thirty novice golfers were randomly assigned to either the traditional decrease Fm-theta group (T), decrease Fm-theta FSI group (FSI), or control group (C). In addition, we used EEG-NFT to manipulate Fm-theta during a golf putting task (complex visuomotor skill). Results: We mainly found that only the FSI group showed a decrease in Fm-theta and improvement in motor performance after EEG-NFT. Conclusion: We suggest that the function-specific instructional approach is more effective in guiding participants to change their brain activity and performance in EEG-NFT. complex motor skills; theta; precision sports; brain training; attention

**P189**

**Injured and unhappy? Investigating mental distress and well-being in athletes following sports injury**

**Tabea Werner**<sup>1</sup>, Alena Michel-Kröhler<sup>1</sup>, Karolina Grebner<sup>1</sup>, Stefan Berti<sup>1</sup>, Michèle Wessa<sup>1</sup>

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Background Sports injuries appertain to sports (Arderm et al., 2016; Kisser & Bauer, 2012) and can be considered as occupational risk. Yet, they can be major stressors for athletes, and thus, are associated with impaired mental well-being (Abbott et al., 2019; Haugen, 2022; Kuettel & Larsen, 2019). However, most studies investigating sports injuries and mental health have been cross-sectional and longitudinal investigations remain scarce (Gledhill, 2021; Gouttebauge et al., 2019). A clear picture of mental health in (non-)injured athletes as well as factors influencing mental health of athletes can lead to the development and implementation of effective preventive and therapeutic strategies for athletes at risk.

Objectives Therefore, the present study aims to investigate mental distress and well-being in injured compared to non-injured athletes as well as potential moderators (e.g., injury severity, coping behavior) influencing athletes' mental health and well-being. In the long term, this study also aims to explore different trajectories of mental health following sports injuries and their moderators in competitive athletes. However, this is out of the scope of this abstract.

Methods We set-up a longitudinal study over 12 months, beginning in February 2024 with a targeted sample size of 450 athletes at baseline aged between 16 to 40 and regularly competing in their respective sports. The online survey includes questions on demographics (e.g., age), sports- (e.g., training sessions) and injury-related (e.g., injury status) information as well as psychosocial factors (e.g., self-compassion). Non-injured athletes are surveyed bi-weekly over a 48-week period including assessment of injuries. Injured athletes are surveyed weekly over a 12-week period including assessment of well-being and mental distress.

Results Only baseline data will be presented at the conference. Data will be analyzed using R, computing mean comparisons and moderation/ mediation analyses. Based on the results, theoretical and practical implications will be discussed.

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## P190

### Different injury patterns and psychosocial correlates in athletes: A replication and extension

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Background Sports injuries are part of sports (Ardern et al., 2016; Henke et al., 2014) and can have far-reaching consequences for athletes, clubs and society (e.g., health impairment, performance, health costs, career termination; Hägglund et al., 2013; Maffulli et al., 2010; Putukian, 2016; Ristolainen et al., 2012; Wiese-Bjornstal, 2010). A better understanding of the factors that influence the development or maintenance of sports injuries can therefore lead, for example, to the development of effective therapeutic and preventive strategies and improve sports practice. Recent research has shown that athletes can be clustered into different injury patterns and differ in terms of personality (e.g., sense of coherence), history of stressors (e.g., perceived stress) and coping resources (e.g., self-compassion) (Werner et al., 2023).

Objectives The present study aims to investigate whether these findings can be replicated and examine whether (a) cluster structure can be extended and refined with more injury information; and whether (b) clusters differ on further psychosocial factors (e.g., optimism).

Methods Data collection will start in February 2024 with an expected sample size of 450 athletes between 16 and 40 years of age that regularly compete in their respective sports. The online survey includes questions on demographics (e.g., age), sports- (e.g., sports type) and injury-related (e.g., injury status) information as well as psychosocial factors (e.g., self-efficacy). Recruitment of athletes will take place by inviting athletes from various team and individual sports throughout Germany to participate in the study by e-mail via their respective clubs or sports associations as well as social media channels.

Results Data will be analyzed using R, conducting cluster analyses and multivariate analyses of variance.

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## P191

### Testing the Sport Mental Health Assessment Tool 1 (SMHAT-1) in Elite Polish Track and Field Athletes

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Elite sports might drain athletes' physical, but also mental capacities (Larsen et al., 2021) - Gouttebauge et al (2019) report the prevalence of mental health symptoms in elite athletes might be higher than in general population. To build comprehensive models of proper mental health care for elite athletes, a reliable early detection system is needed (Purcell et al., 2019). Thus, in the present study we provide a first test of the prevalence of mental health symptoms in Polish elite athletes, using the IOC Sport Mental Health Assessment Tool 1 (SMHAT-1; Gouttebauge et al., 2020).

SMHAT-1 consists of several psychometric tests screening for mental health symptoms i.e. anxiety, depression, sleep disturbance, alcohol and drug(s) misuse, and disordered eating (Gouttebauge et al., 2020). Data for the present pilot study was collected using SMHAT-1 in Polish elite track and field athletes (N=79) during their routine health check-up at the National Centre for Sports Medicine.

A total of 41 athletes (51,89%) were positively screened for mental health symptoms. Seven athletes were positively screened for anxiety symptoms, 8 for depression symptoms, 20 for sleep disturbances, 18 for alcohol misuse, 5 for drugs misuse, and 16 for eating disorders. In many athletes, several mental health symptoms were observed at the same time with 8 athletes being positively screened for four or more mental health symptoms, 3 for three, and 17 for two. A total of 14 athletes were qualified for a psychiatric or psychotherapeutic consultation, while in case of 12 athletes a brief intervention, or a consultation with a sport psychologist was recommended.

With only a handful of research conducted with SMHAT-1 to date (Anderson et al., 2023; Mountjoy et al., 2022), this study provides important insights into the prevalence of mental health symptoms in a new sociocultural context.

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## P192

### Exploring the Influence of Psychosocial Factors on Knee Function and Quality of Life Two Years Post-ACL Surgery

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Full recovery from ACL surgery, encompassing baseline joint health and function, may take up to two years (Nagelli & Hewett, 2017). Despite our understanding of psychosocial factors in the early post-surgery phase (< 6 months), understanding their impact on outcomes from pre-surgery to 2 years post-surgery is limited. This study addresses this gap, investigating the relationship between psychological factors and recovery outcomes two years after ACL surgery.

This study employed a longitudinal, repeated measures design, wherein 63 participants (40 males, 23 females) from a previous programme of research (Williams et al., 2020) completed measures of optimism, psychosocial factors and rehabilitation adherence at 6- and 12-months post-surgery and perceived knee function and quality of life at 24 months post-surgery. Bayesian structural equation modeling evaluated the hypothesized indirect relationships proposed within the conceptual model.

The indirect effect of optimism at 6 months post-surgery on perceived knee function at 24 months post-surgery were fully mediated by instrumental coping ( $\alpha\beta = 0.42$ , post. SD = 0.24, CI [0.09, 1.02]), efficacy ( $\alpha\beta = 0.52$ , post. SD = 0.24, CI [0.16, 1.09]) and fear appraisals ( $\alpha\beta = 0.21$ , post. SD = 0.13, CI [0.20, 0.53]) at 12 months post-surgery. Furthermore, the indirect effect of fear appraisals and efficacy at 6 months post-surgery on quality of life at 24 months post-surgery, were fully mediated by emotion-focused coping ( $\alpha\beta = -0.34$ , post. SD = 0.21, CI [-0.84, -0.03];  $\alpha\beta = 0.38$ , post. SD = 0.20, CI [0.08, 0.86], respectively).

Collectively, these findings provide additional substantive support for Williams et al.'s (2020) conceptual model, which has the potential to (1) guide future research endeavours within this field, (2) inform individualized treatment recommendations for athletes, and (3) identify individuals at risk of compromised recovery outcomes (failing to return to sport, re-injury risk, compromised quality of life) following ACL surgery.

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**P193**

**Skills of recovery: Describing momentary recovery self-regulation between hard workouts among recreationally competitive cyclists using experience sampling methods.**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

Training for competitive sport at any level involves accumulating stress that must be balanced with corresponding recovery (Kellmann et al., 2018). Elite endurance athletes have described (Wilson & Young, 2023, 2024) and demonstrated (Wilson et al., 2023) using self-regulatory competencies to actively manage their recovery around training. However, it is unclear whether and (if so) to what effect non-elite athletes engage in recovery self-regulation.

**Objectives.** This study aimed to describe how non-elite athletes employ competencies of recovery self-regulation around hard training, in a novel use of experience sampling methods (Larson & Csikszentmihalyi, 1983).

**Methods.** Sixteen recreationally competitive cyclists (11 male, 5 female; M-age = 48.2 yrs) engaged in two structured hard workouts, 48h apart, on the Zwift virtual cycling platform. Between workouts, participants were prompted once randomly per two-hour waking period to rate their current perceived recovery, stress, and use of three recovery self-regulation processes (awareness of, checking-in on, and interpreting one's state) via smartphone application. We described the use of recovery self-regulation through descriptive statistics and multi-level models (responses nested within participants).

**Results.** On average, each athlete completed 75.0% of forms received between workouts (M = 12.4 responses per participant); they reported some use of recovery self-regulation on 79.4-87.5% of completed forms. Athletes made greater use of all three recovery self-regulation processes when experiencing greater physical stress ( $\beta = 0.19 - 0.26, ps < .05$ ), and use decreased over time between the workouts ( $\beta = -0.012 - -0.018, ps < .05$ ). Characteristics of recovery self-regulation were not significantly associated with recovery of performance between workouts.

**Conclusion.** Compared to elite cyclists/triathletes (Wilson et al., 2023), these non-elite cyclists engaged in recovery self-regulation to a similar extent, yet in simpler and more reactive patterns. This study reinforces that recovery may be examined in terms of athlete-centered skills, used by athletes at multiple levels of competition.

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**P195**

**Establishing a cognitive function assessment model through physiological parameters using artificial intelligence algorithms**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Introduction:** Previous studies have shown a correlation between better physical fitness and improved cognitive function (Forbes et al., 2015). Many studies have also demonstrated that regular exercise can enhance cognitive function (Karssemeijer et al., 2017; Northey et al., 2018). Scholars have further explored the mechanisms by which exercise influences cognitive function and found that the decline in cognitive function is related to increased cardiovascular risk. They suggest investigating the relationship between the cardiovascular system and cognitive function by assessing physiological parameters such as heart rate variability (HRV), blood pressure, and cardiac output (Vaynman et al., 2006; Mahinrad et al., 2016).

**Objective:** To establish models for evaluating and predicting cognitive function through physiological assessments using artificial intelligence algorithms.

**Method:** The present study was a cross-sectional study where participants underwent a one-time experiment. Physiological parameters such as physical fitness, physical activity levels, HRV, and cognitive function (2-Back test, trail-making test, dual 2-Back test) data were collected, and their correlations were explored. Subsequently, the evaluation and prediction models were constructed using artificial intelligence algorithms with collected data.

**Results:** A total of 200 participants met the inclusion criteria and completed the study. There were significant correlations between HRV and cardiorespiratory fitness, cognitive function, and physiological parameters. Eight different algorithms were used to establish evaluation models for four different cognitive tests. Among these algorithms, the evaluation model established using the Adaptive Boosting algorithm (AdaBoost) for the trail making test achieved an accuracy of 87.5%. The evaluation models for other cognitive tests also had accuracies of 60-70%.

**Conclusion:** The results indicate that parameters such as age, resting heart rate, maximum heart rate, high-frequency parameters of HRV, cardiac output, body impedance, and cardiorespiratory fitness can be used as the main axes for establishing high-accuracy evaluation and prediction models for cognitive function through artificial intelligence algorithms.

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## P196

### Effects of different stress situations on putting performance, EEG and cerebral blood flow

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Introduction:** Putting is a critical skill in golf that often determines the outcome of a game. Psychological factors, such as anxiety and stress, play a significant role in influencing sports performance, especially during crucial moments. Therefore, exploring sports performance under pressure can further our understanding of how stress affects sports performance. However, emerging brain imaging technologies like functional near-infrared spectroscopy (fNIRS) and electroencephalography (EEG) can effectively record changes in brain regions during physical activity. Additionally, the use of virtual reality (VR) to simulate stressful situations increases ecological validity. Thus, this study aims to investigate the performance of putting under different levels of stress and the changes in neural activation and cerebral blood flow in the brain.

**Methods:** Twenty amateur golf players participated in a VR 3m putting task, completing a total of 90 putts under three conditions: no-pressure, low-pressure, and high-pressure (30 putts each). To induce pressure, methods such as a small audience, environmental noise, varying putt distances, and monetary incentives to increase competitiveness were employed. Brain activity was recorded using fNIRS and EEG during the putting process.

**Results:** The findings indicated a higher prefrontal asymmetry (PFA) in high-pressure conditions compared to low-pressure conditions ( $F=5.19$ ,  $P=.021$ ). Players exhibited the most significant decrease in oxyhemoglobin in the left prefrontal cortex under high-pressure situations ( $F=7.291$ ,  $P=.006$ ), with no significant differences between low-pressure and high-pressure conditions. Additionally, the putt angle and distance from the hole in high-pressure conditions showed significant effects of pressure compared to low-pressure conditions ( $F=6.59$ ,  $P=.011$ ).

**Conclusion:** This study suggests that future research can utilize EEG and fNIRS indicators of PFA to assess athletes' stress responses. Moreover, VR can be employed in Psychological Skills Training to enhance athletes' abilities to cope with pressure.

## P197

### Detecting Deceptive Actions in Football: An event-related potential Study

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

The adoption of deceptive actions is a widely-used strategy in competitive sports, and there has been substantial research on sports deception over the past decade. Nevertheless, the neural mechanisms involved in detecting deception were still not fully understood. With the help of event-related potentials (ERP), we investigated the neurophysiology of deceptive action detection between skilled football player and novices.

Eleven female football players (Mean age = 20.73, SD = 2.33) and 13 female college students (Mean age = 23.73, SD = 2.28) were presented with temporally-occluded video clips of opponents dribbling the ball toward them and then turning to either left- or right-side. Half of the videos depicted non-deceptive actions, whereas the remaining half featured deceptive actions, wherein opponents executed a step-over movement, feigning a directional shift before moving in the opposite direction. Participants were asked to judge the running directions of the videos by pressing the keyboard while the brain activities were simultaneously recorded by a 64-channel EEG system.

Behaviorally, we found a significant interaction effect between expertise and deception on reaction times ( $p < 0.05$ ,  $\eta^2G = 0.013$ ). Participants were faster in the non-deceptive than the deceptive trials, and the time difference was significantly smaller for experts than novices ( $p < 0.05$ , Cohen's  $d = 0.943$ ). Neurophysiologically, we found a larger centro-parietal N1 (time-locked to the deception onset) for experts than novices in both deceptive and non-deceptive trials ( $p < 0.05$ ,  $\eta^2G = 0.133$ ). Moreover, a larger fronto-central N2 component was also found in the deceptive than the non-deceptive trials for both groups ( $p < 0.001$ ,  $\eta^2G = 0.277$ ).

Our results indicate that experts exhibit superior attentional abilities in processing task-relevant scenes, which seems to benefit their detection of deceptive actions.

## P198

### Roles of motor experience in monitoring of action outcome during interactive actions

**Minggang Zhang**<sup>1</sup>, Mengkai Luan<sup>1</sup>, Yingzhi Lu<sup>1</sup>, Xiaochun Wang<sup>1</sup>

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objectives:** Prior research has shown that motor experience is benefit the error monitoring performance in interactive actions. However, motor experience has multiple approaches to facilitate the error monitoring that include internal model activity (i.e., predicted error) and implicitly learned schema (i.e., coping strategy). Empirical investigations often regard motor experience as a single factor, no studies have dissociated these roles of motor experience and systematically their individual contributions to error monitoring in interactive actions. To fill this gap, we aimed to examine the impact of motor experience on action outcome monitoring, focusing specifically on different magnitudes of discrepancies.

**Methods:** 43 table tennis players experts and 33 controls were recruited. We recorded participants' decisions regarding whether the observed ball trajectory (actual outcome) was consistent with the kinematic movement (expected outcome), measuring accuracy and reaction time as indicators of their performance. Using rigorous psychophysics methods, drift diffusion models (DDM) were conducted to simulate the action outcome error monitoring processing, in which evidence from predicted error and coping strategies is accumulated over time.

**Results:** Our study yielded four main results: (1) experts exhibited greater sensitivity in distinguish the outcomes were consistent or inconsistent with the observed kinematics than controls; (2) experts had floating bias with the quality of discrepancy, but controls stayed the constant for the starting point; (3) both experts and controls accumulated the evidence speed differently with the magnitude of discrepancy, more subtle changing was found in the experts; (4) experts exhibited a lower decision threshold compared to controls.

**Conclusion:** Our findings provide evidence for a diffusion process in which the influence of error magnitude is modulated by motor experience in both sensitive to predicted error and subtle coping strategy.

## P199

### Artificial intelligence (AI) evolution in sports performance enhancement: Progress, prospects, and challenges

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

**Objective:** Given the global emphasis on competitive sports and the pursuit of athletic excellence, the integration of AI technology into sports has emerged as a hot spot in sports research worldwide (Laibing Lu et al., 2023). Historically, coaches favored experience over other factors in talent identification and development, while athletes relied on bodily sensations during training, hindering the optimization of sports performance. Furthermore, the advancement of AI technology presents a significant opportunity for enhancing sports performance (Fister et al., 2015).

**Methods:** A literature review approach was employed to assess the application progress of AI in promoting sports performance, focusing on athlete selection, development, and achievements.

**Results:** The opportunities encompassed scope, precision, forecasting, and personalization, along with challenges including data integrity, technology design vulnerabilities, ethical risks, privacy concerns, athlete non-compliance, and regulatory gaps. Additionally, exploration was conducted on integrating and expanding existing digital sports training technologies to develop an AI-supported system for enhancing sports performance, encompassing crucial elements such as identifying latent athletic potential, tailored training regimens, real-time monitoring, injury prevention, participation strategies, and career transition for retired athletes.

**Conclusion:** AI demonstrates the potential to optimize sports performance, opening new avenues for advancing sports performance promotion.

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## P200

### Impact of Music Tempo and Perceived Effort Across Various Metabolic Demands in Both Endurance and High-Intensity Training

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objective-**The utilisation of music during training represents a strategy employed by coaches to motivate individuals to engage in various forms of physical activity. However, the precise influence of music tempo on perceived exertion levels during specific metabolic demands remains uncertain. Thus, this research aims to elucidate the effects of music on heart rate (HR) and the rating of perceived exertion (RPE) during high-intensity (80% of 1 RM) exercise and endurance exercise across four distinct conditions.

**Method-** In this study, 19 active women (aged 26.4 ±2.6 years) were evaluated during high-intensity (80% on 1-RM) and endurance (walking for 10 minutes at 6.5 km/h on a treadmill) exercise under four distinct selected conditions: no music (NM), music at 90–110 bpm (LOW), music at 130–150 bpm (MED), and music at 170–190 bpm (HIGH).

**Result-** In each trial, heart rate (HR) and the rating of perceived effort (RPE) were assessed. Any variations between the four conditions during high- and low-intensity exercise were found using repeated analysis of variance measures. The omnibus test results indicated significant differences between the four conditions ( $F_{13,6} = 99.03$ ;  $p < 0.0001$ ). The univariate analysis showed significant differences concerning all five dependent variables analysed: average heart rate at the time of walking ( $F_{3,54} = 256.08$ ;  $p < 0.0001$ ); peak heart rate at the time of walking ( $F_{3,54} = 43.29$ ;  $p < 0.0001$ ); rating of perceived effort while walking ( $F_{3,54} = 39.06$ ;  $p < 0.0001$ ); 1-RM (leg press) ( $F_{3,54} = 41.57$ ;  $p < 0.0001$ ) and RPE (leg press) ( $F_{3,54} = 15.86$ ;  $p < 0.0001$ ).

**Conclusion-** This study reveals the benefits of music during endurance and high-intensity training. The results suggest that the beneficial effects of music are more likely to be detected in endurance activities, in comparison to low-intensity physical exercise.

**Keywords:** Training and Testing, Evaluating Perceptual Effort, Exercise, RPE, Sport

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## P201

### Mindful Eating Under Pressure: A Case Study

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives:** The purpose of this study was to closely examine the eating behaviors of an adolescent national athlete under pressure 10 days before the national competition. Also, to observe the athlete's eating attitudes under pressure until the competition, to help her keep her weight stable, and to raise awareness about the diet program. Furthermore, it aimed to deeply examine the source of the impulsive eating behaviors experienced.

**Methods :** Before the competition, 10 sessions of mindful eating exercise (each lasting 15 minutes) were applied. Data was collected from two semi-structured interviews and four scales (YTT-26, YBÖ, HYDA, MEQ-30). One interview and four of the scales were administered before the intervention process, and another interview was conducted after the competition. The collected data was analyzed by using the descriptive analysis method.

**Results:** It was stated that in the last 3 weeks of the competition period, she deprived herself of food even if she was hungry, and that she was constantly above her competition weight and forced to remain hungry by her family. For this reason, it was concluded that she engaged in secret eating behaviors and trained intensely because she felt guilty after eating. She also stated that she could not eat anything for the last 3 days of the competition and that if she ate, she constantly wanted to vomit. After the competition, our athlete said the following about mindful eating exercises: "I was comfortable throughout these exercises. Because I thought I could lose weight and it wouldn't stress me out so much on scale day". The athlete stated that he thought less about the match during the intervention and that this supported his well-being and increased his performance.

**Conclusion :** This study may be evidence that mindful eating facilitates weight loss periods under pressure and supports well-being.

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## P202

### Study on the experiences and emotions associated with happiness among high school students

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

The study of happiness focuses on how people perceive their well-being, the ways they seek happiness, and the factors that affect their feelings of happiness, including self-esteem, depression, satisfaction, and the quality of life. Researchers also aim to explore the relationship between happiness, self-esteem, depression, satisfaction, and quality of life, with the goal of assessing people's sense of achievement. Happiness is strongly linked to an individual's sense of achievement and overall life satisfaction.

In this article, we will discuss the findings of a study that examines the feelings of happiness and the factors that influence them among 562 high school students.

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## P203

### Depression, anxiety and stress among older women during the COVID-19 pandemic and the impacts of exercise

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

The COVID-19 pandemic period affected populations around the world, both physically and psychologically, among which one of the most affected was the older adult population. Remote consultations were developed to reduce the indices of depression, stress, and anxiety in this population. A widely used and low-cost alternative in this scenario was the recommendation for home physical exercises (HPE). Our goal with this quasi-experimental study was to analyze the impacts of HPE on depression, anxiety, and stress of older women in social isolation during the COVID-19 pandemic. In this study, the application of an HPE\* protocol was grouped, to include 17 older women, for 8 weeks, with a total of 24 training sessions, of approximately 60 min per day, three times a week. The variables investigated were depression, using the Beck Depression Inventory (BDI), anxiety, using the Beck Anxiety Inventory (BAI), and stress, using the Perceived Stress Scale (PSS). Evaluations were performed before the beginning of the intervention, after 2 weeks of the intervention, to verify the acute effect, immediately after the 8 weeks of intervention, and 15 days after the end of the intervention. The analyses showed reductions in the BDI score from 5.70±5.60 in the pre-intervention period to 4.52±6.28 after 8 weeks, with an intervention effect magnitude of 0.86, considered large. The same was found for the BAI, with scores reducing from 8.50±8.57 to 7.75±9.32, with a good magnitude of effect of 0.68. And also for the PSS, the mean scores showed reductions from 19.47±9.06 to 14.52±10.35, with an intervention effect magnitude of 0.95, considered large. Although the differences observed in the present study were not significant, based on the results and the benefits from these interventions shown in the literature, interventions with an HPE protocol applied remotely to isolated older people during the COVID-19 pandemic, can potentially improve depression, stress and anxiety, even in a chaotic global scenario. New studies with a higher number of participants and different groups, as well as different intensities and times of exercises should be carried out.

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## P204

### Exploring the Predictive Value of the Peak and End Rule on Enjoyment in a Resistance Training Session

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objective:** The peak and end rule (Kahneman et al., 1993) postulates that the most salient affective responses during exercise (i.e., most negative and/or positive peak) and the affect experienced at the end of a session (i.e., end affect) are associated with variables related to exercise adherence, such as enjoyment (Hutchinson et al., 2020). However, this phenomenon remains considerably unexplored in resistance training (RT). This quasi-experimental study aimed to explore the predictive value of the peak and end rule on the enjoyment levels in a commonly prescribed RT session.

**Method:** Forty-three experienced exercisers (Mage = 34.69 ± 6.71 years; Mexperience = 8.32 ± 4.54 years; 21 males) responded to the Feeling Scale (FS) after two aerobic exercise moments and six RT exercises structured to follow a common and evidence-based approach for this exercise mode. Individual and hierarchical regression analyses were applied to test the predictive value of the FS peaks and FS end, as well as the FS slope and FS mean regarding perceptions of enjoyment post- and 24h after enjoyment.

**Results:** FS end was the only variable that, individually, consistently predicted enjoyment post- (15%) and 24h after exercise (11%), while all variables predicted 24h after enjoyment (7% to 15%). The peak and end rule model did not significantly predict post-exercise enjoyment in the hierarchical regressions. Regarding 24h after enjoyment, the peak and end rule model did present significant predictive value (16% explained variance). In both hierarchical regression analyses, the FS slope and mean did not significantly add to the model's predictive power.

**Conclusion:** Overall, the peaks and end affect may be necessary for enjoyment promotion, but only the end affect presented consistent results. Future research should investigate the effect of the peak and end rule in RT on retrospective affective variables and objective exercise behavior to enable exercise adherence strategies.

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## P205

### The Predictive Power of The Peak and End Rule on Reflective Affective Processing: A Randomized Controlled Trial Ancillary Study

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objective:** Contemporary research has highlighted the relevance of reflective affective processing (e.g., enjoyment and remembered/anticipated affect) for exercise adherence. In turn, the peak and end rule postulates that the affective peaks and end of a session may influence these variables. As such, this study aimed to explore the influence of these specific moments on reflective affective variables and exercise frequency.

**Method:** This study was a randomized control trial with two parallel groups. Forty-six non-regular exercisers (Mage = 32.00 years; SD = 8.62; 43.5% male) were recruited and randomly allocated. Both groups participated in three exercise sessions structured according to the Frequency-Intensity-Time-Type (FITT) principles. However, in the experimental group, the intensity was defined through various pleasure-oriented strategies. The Feeling Scale (FS) was used for affective response measurement. Individual regression analyses were applied to test the predictive value of the FS peaks and FS end, as well as the FS mean, FS slope, and FS star towards the remembered affect, next session anticipated affect, enjoyment, and post-intervention exercise frequency (first and last [eighth] week).

**Results:** The experimental group presented an improved anticipated/remembered affect and exercise enjoyment compared to the control group. Generally, the FS peaks, FS end, and FS mean predicted all reflective affective variables but only for the control group. Regarding post-intervention exercise frequency, bar a few exceptions in the experimental group, no significant and identifiable pattern of results favoring any group was found.

**Conclusion:** Present results cast doubt regarding the predictive value of the peak and end rule. Although an identifiable pattern of influence was present in the control group for the anticipated/remembered affect and enjoyment, no evidence emerged for the experimental group, even in the presence of better affective scores. Regarding exercise frequency, a mixed pattern of associations tends to suggest low relevance of this rule on this outcome.

## P206

### Examination of the psychometric properties of the German version of the Coach-Athlete Relationship Maintenance Questionnaire (CARM-Q-D)

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives:** The aim of the present series of studies was to examine the psychometric properties of the German version of the Coach-Athlete Relationship Maintenance Questionnaire (CARM-Q; 28 Items; 7 Factors; Rhind & Jowett, 2012). The CARM-Q-D records seven communication and behavioral strategies (Conflict Management, 5 Items; Openness, 5 Items; Motivational, 4 Items; Preventative, 4 Items; Assurance, 3 Items; Support, 3 Items; Social Network, 4 Items) which are used to maintain and optimize the quality of the coach-athlete relationship. Each item can be answered on a 7-point Likert-type scale ranging from 1 ('strongly disagree') to 7 ('strongly agree').

**Methods:** Two different online samples were used: N = 138 Athletes (MAge = 24.5 ± 7.3 years) participated in the validation study and N = 71 athletes (MAge = 22.7 ± 7.2 years) participated in the reliability study (retest interval: M = 8.7 ± 2.2 days).

**Results:** The scales' internal consistencies, apart from the subscale Openness, were satisfactory (.60 ≤ α ≤ .92). The confirmatory factor analysis revealed an acceptable model fit for the seven-factor model ( $\chi^2(278) = 492.000$ ,  $p < .001$ , CFI = .913, TLI = .898, RMSEA = .075, SRMR = .084). The correlations with the external criteria (CART-QR-D, Schäfer & Ohlert, 2020; FTEK; Ohlert, 2018; LSS-D; Linde et al., 2013) were also in line with the expectations. The reliability of the seven-factor scale was also satisfactory (.69 < rtt < .88).

**Conclusion:** The results indicate that the CARM-Q-D is a reliable and valid instrument for research and practice. Future studies can adopt the CARM-Q-D to analyze the effectiveness of interventions aimed at improving the content and use of communication and behavioral strategies by both coaches and athletes in order to establish and/or strengthen resilient coach-athlete relationships.

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## P207

### Knowledge, Facilitators, and Barriers to Exercise in Individuals with Dysautonomia

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives:** The purpose of the current study was to explore dysautonomic individuals' knowledge, facilitators, and barriers to exercise. Over 70 million people worldwide live with dysautonomia, a dysfunction of the autonomic nervous system resulting in symptoms such as inappropriate tachycardia, fainting, nausea, and cognitive impairments (Dysautonomia International, 2019). Exercise intolerance (e.g., dizziness, headaches) is also common in individuals with dysautonomia (Goldstein et al., 2002). Paradoxically, moderate-intensity exercise helps manage symptoms in conditions where dysautonomia is present, including postural orthostatic tachycardia syndrome (George et al., 2016) and concussion (Grool et al., 2016). **Methods:** The current study was guided by consensual qualitative research methodology (Hill, 2012). Seventeen U.S. participants with dysautonomia (14 female, one demifemale, one nonbinary, one male; 15 Caucasian, one Asian American, one African American) completed semi-structured interviews (M = 97.9 minutes). The interview guide was informed by Emmons' (2000) social-ecological model, which accounts for intrapersonal, interpersonal, and structural dynamics. **Results:** The research team (five primary members, one external auditor) constructed six domains: (a) symptom-related challenges; (b) self-management; (c) transitions (e.g., motherhood, exercise identity); (d) social dynamics and exercise (e.g., masking symptoms); (e) healthcare barriers; and (f) exercise-facilitating resources. **Conclusions:** Multiple barriers (e.g., costly U.S. healthcare system, lack of exercise protocols and groups for dysautonomia, medical gaslighting) exist for individuals with dysautonomia. Nonetheless, there are encouraging facilitators (e.g., work accommodations, access to exercise spaces, social support, mindfulness) that demonstrate potential for informing exercise interventions. The current study addresses calls for exercise psychology professionals to give more attention to the role of environmental factors in contrast to the discipline's historically narrow focus on individual factors regarding exercise behavior (Biddle et al., 2023). Future directions include explorations of exemplar healthcare and fitness professionals working with this population and how intersectional identities (e.g., exercise/sport, gender, ability, social class) are experienced during dysautonomia-related transitions.

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## P208

### Mental health under siege: How to stay in the fight under demanding conditions as a high-level military and sport leader.

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High-level military and sport leaders face similar demanding conditions, high workloads, and stress, leading to mental health issues. Even if mental health issues among leaders have shown deteriorating leadership and high levels of mental health have an increased likelihood of better performance (athletes), it is not clear how mental health is related to high-level military and sports leaders' performance. Based on the prevailing field of knowledge about these leaders' demands and stress, mental health may be a stress-buffer necessary for leader performance. However, research on leaders' mental health and performance has received limited attention, and more research into its possible inseparability is warranted. This study explored similarities in high-level military and sports leaders' experiences of their mental health and leader performance under demanding conditions. Cross-contextual qualitative research can provide a context-transcendent, understanding of mental health and leader performance, guiding future research and the application of leadership coaching. Sixteen in-depth, semi-structured interviews were performed with eight Swedish high-ranking military officers (four men and four women) and eight Swedish sport executives (four men and four women). Their average age was 47.5 years. Through an inductively thematic analysis (TA) of the interviews, the following four themes were generated: (1) mental health under siege—it's still possible to perform; (2) the strength of social support and stable life conditions; (3) keeping physically fit—a strong helper; and (4) self-confidence and mental strategies keep you in the fight. These findings suggest that high-level military and sport leaders are mentally robust under pressure but not immune. Hence, it is advantageous to further enhance the mental strategies they already use for maintaining leader performance under pressure and reduced mental health. It is also valuable to holistically consider their social and physiological well-being in leader development initiatives such as leadership coaching for the sake of their mental health.

## P209

### Me, the Team or the Coach – Who´s the Ugliest Winner? – How Personality and Confederates Predict Winning Ugly Behavior

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Winning Ugly (WU) behavior refers to all intentional actions to influence the opponent in such a way that they cannot reach their maximum performance potential (Lobinger et al., 2023). Three facets of WU behavior can be distinguished: verbal degradation, physical aggression and cheating. All facets are differentiated on a continuum of compliance and non-compliance. So far, the facets have been examined individually and a classification into compliant and non-compliant behavior has not been made. Studies show that professional athletes have higher levels of personality traits associated with WU behavior (Gonzalez-Hernandez et al., 2020). However, interaction with the environment, e.g. coaches, role models, also influences WU behavior (Crawford et al., 2004). In order to develop interventions that reduce WU behavior, an examination from a systemic perspective is needed. Therefore, personality traits and the attitudes of team and coaches were examined to detect associations with WU behavior.

In this cross-sectional and correlative study design, N = 115 athletes (MAge 24.12, SDAge, 6.67, 50.30% male, 49.70% female) answered a self-report online questionnaire. To measure Winning Ugly behavior and personality traits of the participants as well as WU attitudes of team members and coaches, the participants had to rate statements on these constructs on items using Likert-scale.

Multiple hierarchical regressions identified negative relations between conscientiousness, neuroticism and agreeableness to compliant WU behavior. Furthermore, the attitudes team members and the coach incrementally explain variance on WU behavior. In contrast, only significant negative relations with conscientiousness and agreeableness were found for non-compliant WU behavior.

Even if there is a need for intervention methods for all system levels, the personality development of athletes should be focused on. In addition, it is the coach's task to decide whether WU in the team should be tolerated or sanctioned. Consequently, also workshops should be developed for coaches.

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## P210

### Effects of Extended Reality Technology on Affective and Perceptual Responses to Exercise at the Ventilatory Threshold

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Objectives: There is a high incidence of physical inactivity and sedentary behaviour globally (Schultchen et al., 2019). Hence, there is a pressing need to develop evidence-based interventions to promote engagement in regular physical activity among the general population (Stevens et al., 2020). Audio-visual stimuli are frequently employed to enhance the exercise experience (Jones & Zenko, 2021). Nonetheless, there is a paucity of research that examines the qualities of technological devices that are typically used. Using the Embodiment–Presence–Interactivity Cube (Flavián et al., 2019) as a guiding conceptual framework, the aim of the present study was to examine how three dimensions of the cube (i.e., embodiment, presence and interactivity) influenced a range of exercise-related affective and perceptual variables. Methods: A fully counterbalanced within-subjects design was employed with a sample of 24 adult volunteers (Nfemale = 13). Participants were required to attend a laboratory on three separate occasions. The first session entailed an incremental exercise test and measures of heart rate variability were used to ascertain each participant's ventilatory threshold. Subsequently, participants completed 20-min exercise bouts on a cycle ergometer under four conditions (i.e., television, augmented reality, 360° video and virtual reality) across two experimental sessions. Results: Repeated-measures ANOVAs indicated Condition × Timepoint interactions for affective valence, as well as main effects of condition for exercise enjoyment, remembered pleasure and forecasted pleasure. Conclusions: Technologies that combine high levels of embodiment, presence and interactivity (e.g., virtual reality) appear to yield several benefits in terms of in-task (e.g., affective valence) and post-task (e.g., remembered pleasure) responses for exercise conducted at the ventilatory threshold. Accordingly, health and exercise practitioners might consider the use of virtual reality technology as a means by which to assuage the affective decline that is typically observed during moderate-to-heavy intensity exercise.

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## P211

### Experiencing in Competitive and Health Sports - The Development of a German Clutch-Flow-Concern Scale (CFB-S)

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**Objective:** Regarding optimal performance states in sport Csikszentmihalyi's Flow conception (1975) has been widely acclaimed. A second positively connoted state has been introduced recently (Swann et al., 2017). Clutch states share certain overlapping components with Flow, but differ significantly concerning the conscious effort to achieve goals. Our research efforts aimed at developing a German Scale, that could validly measure Clutch, Flow and Concern in Sports (CFB-S), and support sport psychological consultation work.

**Methods:** Two studies with a total of 345 participants, served as the foundation. In Study one 133 Austrian elite athletes (62 females; 71 males) retrospectively analyzed successful and unsuccessful competitions with the help of the CFB-S (18 items). In Study two the Scale served as a reflective tool for exercise sessions with varying intensity levels. 212 recreational athletes (132 females; 80 males), answered the scale immediately after finishing 20 minutes long exercise bouts of moderate respectively higher intensity in their preferred sporting activity via their smartphones.

**Results:** The factor analysis revealed a three-factor structure with good Cronbach's alpha values. Distinct patterns emerged between successful and unsuccessful competitions, with Flow associated with success and Concern with failure. In health sport higher Clutch and Flow values were reported during more intense sessions. Cluster analyses in both studies disclosed different patterns. In competitive sports next to stabile Flow and Clutch patterns, a third so-called Clutch/Concern cluster indicated that, based on competition outcomes, certain athletes significantly increase either Clutch or Concern to cope effectively. Health sports showed a two-cluster solution, with distinct Flow and Clutch patterns.

**Conclusion:** In summary the CFB-Scale is a compact and valid instrument applicable in performance and health sports. With regard to sport psychology consultation the results of the cluster analyses are a promising base to enhance athletes' awareness of their regulatory strategies.

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## P212

### Context matters! Co-creating movement interventions within a rural, northeastern Ontario school community

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**Objectives:** The Canadian 24-Hour Movement Guidelines for Children and Youth are recommendations to encourage an active lifestyle with a daily balance of sleep, sedentary behaviours (SB), and physical activity (PA) that supports healthy development (Tremblay et al., 2016). While schools are an ideal setting to improve children's movement behaviours, school-based interventions have shown limited success as the context (e.g. school setting, sociodemographics) is often overlooked (Jago et al., 2023). This research collaboratively developed an intervention with school administrators, staff, parents, and students in a rural community in northeastern Ontario, Canada to improve children's 24-hour movement behaviours.

**Methods:** The research is guided by the Behaviour Change Wheel (Michie et al., 2011) and supported by theory (e.g., Self-Determination Theory; Ryan & Deci, 2022). Baseline data included three sources; accelerometers, student and parent surveys. Students in junior kindergarten to grade 8 (aged 4-13) wore accelerometers for seven days at two times during the school year (winter and spring, 2023). Accelerometer data was used to describe participation in movement behaviours as a summary measure (e.g. PA, SB minutes/week), but also in specific contexts (e.g. lunch breaks, recesses). Parents self-reported perceptions of children's movement (PA, SB, sleep) and completed the Modified Active PASS questionnaire (Rickwood et al., 2011) to examine school culture and physical factors (e.g. policies, practices) related to PA opportunities.

**Results:** The school community and researchers reviewed baseline data to identify distinct opportunities to promote movement behaviours within the school day in a way that considers their specific contextual factors (e.g., rural area, seasonal variations in weather). Opportunities to intervene within different contexts were ranked by parents, students, and staff from the school administration to inform the co-creation and evaluation of the on-going theory-based intervention.

**Conclusion:** This research highlights the importance of using a context-specific approach when designing school-based initiatives targeting movement behaviours.

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## P213

### Physical activity counselling to support behaviour change in patients pursuing metabolic and bariatric surgery: A multicentre feasibility trial

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<sup>6</sup>Université Laval, Québec city, Québec, Canada <sup>7</sup>Université du Québec à Chicoutimi, Chicoutimi, Québec, Canada <sup>8</sup>Université de Sherbrooke, Sherbrooke, Québec, Canada  
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Objectives: Patients awaiting metabolic and bariatric surgery report individual physical activity barriers (e.g., low motivation and self-efficacy) that contribute to insufficient physical activity. Physical activity counselling may help patients overcome barriers to initiate and sustain physical activity. Few studies examined physical activity counselling for patients awaiting metabolic and bariatric surgery, and existing interventions typically lack theoretical underpinnings. The TELE-BariACTIV trial aimed to develop and pilot-test a Self-Determination Theory and Social Cognitive Theory-driven physical activity counselling intervention to increase physical activity among patients awaiting metabolic and bariatric surgery. This study assessed feasibility and acceptability of the TELE-BariACTIV methods and intervention, and estimated intervention effects on physical activity. Methods: A multicentre, multiple baseline single-case experimental trial employing mixed-methods was conducted with 12 patients awaiting metabolic and bariatric surgery in Quebec (Canada). Participants received 6 weekly 45-minute counselling sessions via videoconferencing. Repeated measures were collected via staff tracking, online surveys, interviews, and accelerometers. Results: 7 themes were identified from the interviews using content analysis; 4 reflect factors positively impacting feasibility and acceptability (i.e., methods and intervention likes, anticipated and experienced benefits), 2 reflect factors negatively impacting feasibility and acceptability (i.e., methods and intervention dislikes), and 1 offers recommendations to enhance feasibility and acceptability. Quantitative analyses provided additional evidence of methods and intervention feasibility and acceptability. Nonparametric analysis of group data showed that physical activity increased pre- to post-intervention [ $\text{Tau-U}=0.32(0.11;0.51)$ ]. Conclusions: Results support the feasibility, acceptability, and preliminary efficacy of the TELE-BariACTIV methods and intervention for promoting physical activity before metabolic and bariatric surgery. Additional intervention refinement and testing to determine effects on physical activity and health outcomes in a larger, definitive trial is warranted.

## P214

### Effects of physical activity behaviors on planetary health: a scoping review

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This scoping review aims to scrutinize existing literature, elucidate concepts, investigate methodologies, and identify knowledge gaps pertaining to physical activity behavior within the context of planetary health. A systematic search across PsycINFO, WoS, and SCOPUS, guided by PRISMA-ScR guidelines, yielded 62 relevant studies. These studies substantiate the designation of this research domain as “Planetary Health Physical Activity” and/or “Planetary Health Sport”. The results outline four main areas: i) individuals’ attitudes toward the environment and nature, ii) promotion of active lifestyles, including active commuting, iii) event organization, and iv) direct consequences of physical activity and sports on the natural world. Findings indicate that adopting an active lifestyle contributes to reducing air pollution, yet engaging in physical activity and sports in natural settings may have adverse effects on ecosystems. This underscores the urgency for more experimental designs to establish causal relationships between physical activity and its ecological consequences on planetary health. Moreover, the findings emphasize the intricate relationship between attitudes, active lifestyles, sports events, and activities in natural settings and their impact on planetary health. While many positive outcomes are associated with engaging in sustainable physical activities, there is also a need for increased awareness and responsible behaviors to mitigate the negative ecological consequences. Global warming seems mainly caused by human-related activities, and despite governmental efforts across economic sectors to reduce environmental impact, policies are not enough to achieve the agreements established in specific meetings between countries. All economic sectors are implementing policies to reduce its environmental impact. However, in the field of sports and physical activity there is no consensus regarding the impact of human behavior related to physical activity on the environment and the planetary health. Thus, this review aims to contribute to the development of an understanding of these issues and the promotion of sustainable practices.

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## P215

### Effect of Focus of Attention on Counter Movement Jump Performance and Surface Electromyographic Analysis

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**Objective:** The purpose of this paper is to study the changes in surface electromyographic indexes of the main muscles involved in the counter movement jump (CMJ) under different focus of attention, and to explore the working characteristics of the main muscles under different focus of attention. The maximum height of the CMJ was analyzed to study the effects of different focus of attention on it.

**Method:** Using a within-participant design, trained male college student subjects (n =20) performed CMJ following 3 different sets of verbal instructions (each separated by 1 week of rest) after collecting the height and sEMG indexes of the uninstructed CMJ from each subject. One set of instructions was designed to focus attention externally near the body (EXN); another set of instructions directed attention externally to a target farther from the body (EXF); the last set of instructions directed attention on muscles (IF). CMJ height as well as sEMG data were collected and analyzed in each experiment. **Results:** (1) The IF of attention had a significant effect on the RMS of the rectus femoris, medial femoris, and lateral gastrocnemius in CMJ (P<0.05).

(2) EXF and EXN of attention had no significant effect (P>0.05) on the RMS of the main muscles in CMJ.

(3) Maximum CMJ height under EXF commands was significantly higher than IF commands (P<0.05). **Conclusion:** (1) EXF of attention has a significant effect on enhance CMJ height, whereas IF is more conducive to increase muscle activity.

(2) There was no significant difference in the height of CMJ between the EXN of attention and the EXF of attention commands, nor was there a significant difference in muscle activity between the two.

**Keywords:** Focus of attentional; Counter movement jump; Surface electromyography

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## P216

### Performing under pressure: Role of others' presence in sport performance

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**Objectives:** The presence of others (e.g., opponents, audience, staff, etc.) is inevitable in sport and can have beneficial effects on performance (social facilitation; Bond & Titus, 1983). However, it can also have detrimental effects (social inhibition; Strauss, 2002) and even be perceived as a source of pressure (choking under pressure; Baumeister, 1984; Bartura et al., 2023).

Nevertheless, most studies are laboratory experimental and few are conducted in an ecological context, which limits the transferability of knowledge to the field (van Meurs et al., 2022). Therefore, the main aim of our study is to examine the relationships between the characteristics of the presence of others and sports performance in an ecological context.

**Methods:** 581 athletes of all levels and ages practicing an individual sport competitively participated. The Evaluation Tool of Others' Presence in the Sports Context (ETOP-CS; in validation), which measures characteristics of the presence of others (i.e., Sex, Age, Status, Types, Familiarity, Support), was used. One item was a measure of performance ("After this training or competition, I am satisfied with my performance") and the other was a measure of satisfaction with performance ("After this training or competition, I have succeeded in achieving my goals").

Simple and multiple polynomial regressions and latent profile analyses were performed using R.

**Results:** The results of the polynomial regressions (order 2) revealed a significant effect of familiarity with the presence of others and perceived support on the performance item. For the satisfaction with performance item (order 3), the results indicated a significant effect of the type of action performed by the presence of others.

LPA with six characteristics revealed 5 different profiles of the presence of others.

**Conclusion:** Three of the four presence characteristics had a significant effect on one of the performance measures, and five profiles could be distinguished for six presence characteristics.

## P217

### Leveraging non-formal and informal learning in sport: An action research goal-setting intervention for elite youth swimmers

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In recent years, growing attention has been paid to goal setting within sport as a method for enhancing performance among athletes. However, meta-analyses indicate that demonstrated effects vary. Interestingly, much of the focus within these studies has been on the effect of goal setting, with a notable gap involving attention to the learning process through which athletes learn to set and use goals. As such, we undertook an action research approach to explore this learning process over a 3 month period. This research process involved the collaborative creation and implementation of non-formal and informal learning initiatives into a 3-week goal setting program within a high performing youth swim club in Denmark. A total of 28 swimmers of both genders (aged 13 to 17 years) and their head coach were involved in the study. The non-formal initiatives included two workshops, group goal reflection activities, and the display of athletes' goals (i.e., on their water bottles), while the informal involved frequent unscheduled conversations between athletes and the first author. Throughout the program, the first author conducted participant observation to observe the athletes' engagement with the learning initiatives and to explore the athlete's and coach's experiences. In addition, based on a heterogeneous sampling strategy, eight post-program semi-structured interviews were conducted with athletes that displayed varying levels of engagement throughout the program. Through reflexive thematic analysis, we found that the informal initiatives were experienced as an additional benefit to the non-formal initiatives, as they allowed for discussions of specific topics that the athletes were having trouble with during practice. Our findings have the potential to inform future work by practitioners and researchers in relation to how they can best incorporate several learning strategies, including non-formal and informal approaches, within interventions using mental skills such as goal setting as a method for enhancing performance.

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## P218

### An exploration of Psycho-Behavioural Traits and Characteristics Among UK Special Forces Operators.

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Deployed special forces operators are exposed to a broad spectrum of chronic and acute stressors, including environmental factors (e.g., exposure to elements, extreme climates), mission demands (e.g., sleep restrictions, fatigue, threat of injury and bodily harm), and being separated for extended periods of time from their family. As a result, it is reasonable to assume that experienced special forces operators may have developed more advanced capabilities and coping skills when compared to less experienced operators to manage these stressors and psychological challenges.

Developing a better understanding of the psychological traits, skills, and characteristics that help special forces operators to perform in these stressful conditions and environments could be used to positively impact upon both the training and support offered to these operators. As a result, the aim of this study was to explore what ex-special forces operators felt were the crucial psycho-behavioural characteristics, skills and attributes required to excel in the special forces.

Participants in this study were 20 former United Kingdom (UK) Special Forces operators, each having transitioned from active service to civilian life within the preceding five years. Data gained from the focus groups were analysed using thematic analysis. The analysis of these data resulted in the emergence of nine primary themes: resilience and hardiness, adaptability, self-belief, perseverance, emotional regulation, humility, drive, self-control, and stubbornness. The results in this study suggest a distinctive psycho-behavioural profile for SF operators that underpins their availability to cope. Another important outcome was the highlighting of the essential role of a supportive environment, particularly the bonds of camaraderie and brotherhood, in enhancing individual and collective resilience.

## P219

### Regulatory Focus Profiles in Relation to Ice Hockey Playing Positions

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Objectives: Previous sport research has identified a relation between playing positions and regulatory chronic focus profiles. That is, athletes in attacking positions show rather promotion profiles whereas those in defensive positions show rather prevention profiles (Unkelbach et al., 2009). The present study examined playing positions and chronic regulatory focus profiles in ice-hockey. It was hypothesized that players developing in defensive positions would show prevention profiles, whereas players developing in offensive positions would show promotion profiles.

Methods: Eighty-six ice hockey players (22.9 ± 2.8 years of age) from Sweden (n = 63), USA (n = 9), Australia (n = 6) and other countries (n = 9) participated in a cross-sectional study. Demographics, level of play, and ice-hockey playing positions were gathered. Depending on the playing position, participants were first divided into those playing in rather defensive positions (goaltenders and defenders) and those playing in rather offensive positions (centers and forwards). Given ice-hockey characteristics, a further group categorization considered "extreme" defensive (goaltenders) and "extreme" offensive (penalty shooters) playing positions. Participants also answered the Modified Regulatory Focus Questionnaire (Semin et al., 2005) to assess chronic regulatory focus profiles.

Results: Findings showed partial support of previous findings regarding playing positions and regulatory focus profiles. Whilst no association was found between playing positions and promotion, such an association appeared between playing positions and prevention. More precisely, goalkeepers (who perceived themselves as defensive players) scored significantly higher in prevention than penalty taking forwards (who considered themselves as offensive players).

Conclusion: Within an ice hockey team, knowledge about teammates regulatory focus profiles may contribute to a better optimization of team performance. Further applied research shall examine more in detail 'extreme' playing positions such as goaltenders, as the most prevention role played in ice-hockey, and the provision of training programmes to players in such a critical playing position.

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## P220

### A Yoga Intervention to Help Reduce Symptoms of Insomnia in Children with Autism Spectrum Disorder

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Keyword: Autism spectrum disorder, sleep disorder, sleep problems, yoga, insomnia.

Introduction: Autism spectrum disorder (ASD) is associated with co-occurring problems, such as sleep-related difficulties. Insomnia is the most common among this population and symptoms can include fatigue, delay in falling asleep and sleep fragmented by nocturnal awakenings. Yoga has positive effects on psychological and physical health, including improvements in sleep quality.

Objective: The aim of this study is to explore the effect of a yoga exercise intervention on insomnia symptoms of children with autism spectrum disorder.

Methods: 10 children, aged between 7 and 12 years old, participated in a yoga exercise intervention, given by a professional instructor, for 8 weeks (3 times a week; once in school and two times at home with a recording). The parents completed the Children Sleep Habits Questionnaire before and after the 8-week yoga exercise intervention.

Results: T-tests were used to compare sleep habits before and after the 8-week yoga intervention. Our results show that children were less resistant in going to sleep ( $p=0.004$ ), were less anxious in going to sleep ( $p=0.002$ ) and took fewer minutes to fall asleep ( $p=0.049$ ). No difference was found for the number of nocturnal awakenings ( $p=0.363$ ).

Conclusion: These findings suggest that yoga could be a good physical activity to help reduce some insomnia symptoms in children with autism spectrum disorder. These preliminary but novel findings further our understanding on how to intervene on sleep difficulties in children with ASD using physical activity. Future studies should include a larger sample and a control group.

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## P221

### Beyond the Finish Line: Exploring Intrinsic Motivation in Singaporean Handcycling Athletes

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Introduction: The unique struggles faced by disabled athletes, often overlooked, demand a closer examination. This study focuses on Singaporean handcyclists, a niche group in disability sport, to unravel the complex interplay between motivation, elite sports culture, and the athletes' lived experiences.

Theoretical Framework: This research aims to shed light on how the sports environment in Singapore influences and is interpreted by local disabled athletes, using self-determination theory (SDT) as a guiding framework. The study employs a narrative inquiry approach, exploring individual stories to bridge the gap between theory and the reality of disabled athletes' experiences.

Problem Statement: This study delves into the motivation and experiences of four international handcyclists, uncovering a profound intrinsic motivation that stems from the desire to feel normal and connected to a community. The narratives highlight the therapeutic aspect of sport in healing both physical and mental aspects, making it more rewarding than external rewards. The athletes' journey involves accepting themselves, forging new identities as athletes rather than being defined by their disabilities.

Methodology: A narrative design was chosen to capture the nuanced perspectives of four Singaporean international handcyclists. Through in-depth semi-structured interviews, participants shared their lived experiences, allowing for a constructivist interpretation of their narratives.

Results Summary: The stories unveil a complex interplay of social factors shaping the athletes' motivations and attitudes towards sport. The findings highlight the cultural nuances between Asian and Western expectations, emphasizing the need for a tailored and holistic approach in sports organizations' decision-making processes.

Implications: The participants' experiences emphasize the significance of inclusion and integration in fostering a sense of normality for disabled athletes. Acknowledging and celebrating the accomplishments of disabled athletes can contribute to raising awareness and dispelling societal ignorance. By embracing intrinsic rewards, both athletes and organizations can benefit, promoting a more sustainable and fulfilling sports experience.



**P222**

**The physical activity and sports behaviour of adolescents with mental illness - correlations with physical self-concept, motivation and anxiety**

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COVID-19 has led to an increased prevalence of mental illness among school students (Reiß et al., 2023). Students with mental illness have a high prevalence of physical inactivity and could therefore particularly benefit from the health-promoting potential of physical activity promotion (PA). Among other things, PA can increase well-being, represent a coping strategy and protect against comorbidities (Radovic et al., 2017). To date, there is little research on PA and predictors of PA in students with mental illness. Although much research exists on motivation, enjoyment of sport and physical self-concept for healthy populations, this does not apply to negative emotions such as sports anxiety. As part of an interdisciplinary project funded by the NRW State Chancellery, 38 adolescents (MAge=15.53, SD=1.2; in particular depressive episodes, gender identity disorder) who were admitted as inpatients to a child and adolescent psychiatry clinic were asked about PA as well as their motivation, self-concept, social anxiety and sports anxiety. On average, the adolescents fulfil the WHO recommendations for PA on 3.8 (SD=1.6) days. The size of the standard deviation indicates a high degree of heterogeneity. They tend more towards self-determined forms of organization, are more intrinsically motivated (M=3.93, SD=.82) than extrinsically motivated (M=2.87, SD=.95), and have a significantly higher level of anxiety about physical education (Mcog. anxiety =3.18, SD=1.39; Msom. anxiety=3.35, SD=1.35; 5-point Likert scale). General anxiety correlates negatively with self-esteem (r=-.67, p<.001) and physical self-concept (sportiness: r=-.51 and attractiveness: r=-.60, p<.001) and positively with social anxiety (r=.63, p<.001). The findings show that it is necessary to record constructs such as negative emotions in order to gain a better understanding of participation conditions and to align interventions accordingly. The next step will be to compare the results with other groups of school students.

**P223**

**Effects of A Blended Indoor and Outdoor Structured Exercise Program on Depressive Symptoms in Hong Kong Elderly: A Study Protocol**

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**Objectives:** Evidence showed that structured exercise programs (aerobic, muscle strength and balance training) in older adults with depressive symptoms were mainly conducted in the lab or indoor environment (Catalan-Matamoros et al., 2016). Research indicated that connectedness to nature (CN) is a key predictor of mental health (Wolsko & Lindberg, 2013). This proposed study aims to examine the effects of a blended indoor and outdoor structured exercise program on depressive symptoms in Hong Kong older adults, and to assess the mediating role of CN in the relationship between outdoor exercise and depressive symptoms.

**Methods:** 144 community-dwelling older adults (60-74 years) with depressive symptoms will be randomized to one of three groups including a blended indoor and outdoor exercise group, an indoor exercise group and a control group. For exercise groups, participants will attend a 16-week (2 sessions/week, 90 min/session) structured exercise program but under two respective conditions (indoor + outdoor, indoor-only). For control group, participants will attend the bi-weekly telephone interviews during the 16-week. Depressive symptoms will be measured by salivary cortisol and Geriatric Depression Scale. Physical fitness will be measured by Senior Fitness Test Battery. Physical activity (PA) enjoyment and CN will be measured by self-reported questionnaires. All measured data will be collected at the pre-intervention, post-intervention, and 3-month follow up stages. Generalized linear mixed models and structural equation modeling will be used to evaluate the intervention effects and to identify the mediating role of CN.

**Results:** It is expected that the blended indoor and outdoor exercise group would have greater improvement in depressive symptoms, physical fitness, PA enjoyment than the indoor-only exercise group and the control group. The CN would mediate the intervention effects on depression.

**Conclusion:** The research findings may inform the noticeable treatment value of blended indoor and outdoor exercise for older adults with depressive symptoms.

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## P224

### Professional Cricketer Mental Health and the Role of Alcohol: A Longitudinal Examination

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**Objective:** Mental health has become an important topic in sport (Reardon et al., 2019) and cricket specifically (Schurring et al., 2017). Anecdotally, there have been high profile cases of mental illness within the game but minimal research of adequate quality regarding the population as a whole (McCabe et al., 2021). Our aim was to monitor the mental health of professional cricketers longitudinally and to explore the impact of alcohol on cricketer mental health.

**Methods:** We used an online survey at 9 time points (pre-season, mid-season and off-season) across 3 seasons to measure aspects of mental health and associated factors. An online survey allowed us to invite every men's professional cricketer in England and Wales to take part. Study 1 analysed mental health markers across 3 seasons using repeated measures analysis of variance. Study 2 used Random Intercept Cross-Lagged Panel Modelling (RICLPM) to explore whether alcohol was a cause of poor mental health.

**Results:** When compared to the UK general population, cricketer levels of anxiety and depression were low, wellbeing was high, and alcohol consumption was similar (although still unhealthy). Repeated measures ANOVAs identified significant differences in depression levels and alcohol consumption across the 9 time points whilst levels of anxiety and wellbeing remained stable across time. Pairwise comparisons found the mid-season to have significantly higher rates of depression and the off-season to have significantly higher levels of alcohol consumption. RICLPM found that in some instances, increased alcohol consumption was associated with improved mental health at the next time point.

**Discussion:** Cricketer mental health is not overtly dissimilar to that of the general population. However, there are periods within the 12-month cricketing cycle where depression and alcohol consumption deviate from the norm. Additionally, the relationship with alcohol is complex with it potentially being used as a short-term coping mechanism.

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## P225

### Adapted physical activity as complementary treatment to alleviate the symptoms of endometriosis? Results from the CRESCENDO program pilot study

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One of the most common symptoms of endometriosis (chronic disease which affects 200 million women worldwide (Adamson et al. 2010) is pelvic chronic pain. This disease have an impact on fatigue and quality of life. In 2019, INSERM highlights the beneficial effects of adapted physical activity (APA) on chronic diseases, thus may be also in endometriosis context. However, studies questioning the link between PA and symptoms of endometriosis are rare and their results are inconsistent (Tennfjord, et al. 2021). A randomized controlled trials (RCT) are needed to test the effects of (A) PA on the symptoms of endometriosis. The CRESECNDO program was built to this purpose. The aim of this communication is to present the effects of the CRESECNDO program pilot study.

Methods: 6 participants were invited to take part in 60-minute supervised video-conference physical activity sessions in a small group setting once to twice a week. The program lasted 3 months. The program contained different types of structured activities: mobility and stretching sessions (including those based on yoga-inspired movements), muscle-strengthening sessions (including those based on Pilates and yoga sequences designed to build endurance and muscular strength), interval cardio fitness sessions, and mixed muscle-strengthening, cardio and stretching sessions. The sessions were designed by the instructor to be of low, moderate and/or vigorous intensity.

Results: The test of the adequacy of the statistical sequences with the uniform distribution on different modalities using a  $\chi^2$  test to investigate the potential effect of the intervention showed an effect of the intervention on pain an fatigue but not on QOL. Mixed activities reduced fatigue; and mobility/stretching and mixed activities reduced pain.

Conclusion: APA could reduce symptoms due to endometriosis however, the type of activity proposed matter. Specific activities could be proposed regarding the patients symptoms.

## P226

### Amotivation and needs thwarting among students in Physical Education. Do intellectual disabilities and contact with individuals with intellectual disabilities matter?

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Objectives: The present research aims to achieve two objectives: a) to analyse differences in basic psychological needs (BPN) thwarting and amotivation in physical education (PE) between students with and without disabilities; and b) to examine differences in the same variables among students without disabilities who have had contact with peers with disabilities and those who have not.

Methods: A total of 699 Secondary Education students (368 female, Mage= 13.81; SDage=1.37) participated in the study, of which 96.28% (n = 673) did not have any type of disability; and 30.76% (n = 207) had contact with peers with disabilities. The BPN Satisfaction Scale (Deci & Ryan, 2000; Gagné, 2003) and its adapted version (Frielink, Schuengel & Embregts, 2019) were administered, as well as the Perceived Locus of Causality Scale (Goudas, Biddle, & Fox, 1994) and its adapted version (Frielink, Schuengel & Embregts, 2021). Two independent samples t-tests were conducted to assess differences.

Results: The results demonstrate that students with disabilities exhibited higher levels of autonomy (SwithDisability = 3.18 vs. SwithoutDisability = 2.48), competence (SwithDisability = 3.03 vs. SwithoutDisability = 2.42), and relatedness thwarting (SwithDisability = 2.49 vs. SwithoutDisability = 2.06) than students without disabilities. On the other hand, students who did not have contact with peers with disabilities exhibited higher levels in the studied variables, with significant differences found in autonomy thwarting (SwithContact = 2.37 vs. SwithoutContact t = 2.57) and amotivation (SwithContact = 2.09 vs. SwithoutContact= 2.26).

Conclusion: Students with intellectual disabilities seem to display higher level of BPN thwarting, which might be due to the lack of inclusive practices in the physical education contact. On the other hand, prior contact with students with disabilities appears to benefit students without disabilities, who feel less frustrated and amotivated than other students who have not had contact with peers with intellectual disabilities.

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## P227

### A “springboard” in the study of burnout in artistic gymnasts

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Objectives: Burnout in athletes is defined as a syndrome referring to emotional and physical exhaustion, a reduced sense of accomplishment, and sport devaluation (Raedeke & Smith, 2009). Burnout tends to be associated with reduced performance, and sport dropout (Gustafsson et al., 2014). Literature recommended to frame the phenomenon of burnout in clear theoretical terms (Self-Determination Theory, SDT, Ryan and Deci, 2000; Quested et al., 2013), taking also into account personality factors, such as perfectionism (Gustafsson et al., 2017). Noteworthy, there exists a gap of burnout research in artistic gymnastics. We broadly followed the model of Quested and colleagues (2013) and hypothesized a model integrating the SDT with perfectionistic strivings and concerns. In particular, support for autonomy, rather than pressure from coaches, influenced the two forms of perfectionism which, in turn, influenced athletes' basic psychological needs (i.e., BNSS, autonomy, competence, and relatedness). Further, athletes' enjoyment mediated the effects of these factors on athletes' burnout. Method: Almost the entire number of elite female artistic gymnasts from Rome and province (N = 71; Mage = 13.4, SD = 1.63) provided data. Results: Structural equation models indicated that support autonomy predicted perfectionistic strivings positively ( $\beta = 0.15$ ,  $p = 0.01$ ) and concerns negatively ( $\beta = -0.24$ ,  $p = 0.01$ ). Pressure from coaches instead contributed positively to athletes' level of concerns ( $\beta = 0.33$ ,  $p < 0.001$ ). In line with De Maria and colleagues' findings (2023), perfectionistic strivings and concerns predicted BNSS in opposite ways ( $\beta = 0.39$ ,  $\beta = -0.31$ ,  $p < 0.001$ , respectively). Finally, as expected, BNSS significantly predicted athletes' enjoyment ( $\beta = 0.60$ ,  $p < 0.001$ ), and this latter finding seemed to represent a protective factor for athletes' burnout ( $\beta = -0.78$ ,  $p < 0.001$ ). Conclusion: Findings might stand as a “springboard” for potential interventions designed to prevent burnout in artistic gymnasts.

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## P228

### Validity and feasibility of four standardized cardiorespiratory fitness tests in patients with depression: A cross-sectional study

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**Objectives:** Physical activity (PA) and cardiorespiratory fitness (CRF) are important factors in the context of major depressive disorders (MDD) (Kandola et al., 2019; Schuch et al., 2018). Despite the relevance of CRF in MDD, it is unclear which method is best suited to measure it. Therefore, the objective of this study was to examine the validity and feasibility of four standardized fitness tests in patients with MDD.

**Methods:** All subjects performed one maximal cardiopulmonary exercise test (CPET) on a bicycle ergometer. Spirometry was used to measure VO<sub>2</sub>peak. In addition, three submaximal tests (Astrand/Rhyming bicycle ergometer test (ART), Physical work capacity test (PWC), and 6-min walk test (6MWT)) were performed within two weeks.

Estimated VO<sub>2</sub>max from the submaximal tests was compared to the measured VO<sub>2</sub>peak from CPET using rANOVAs, Bland-Altman plots, and correlation analyses. Feasibility outcomes (e.g., perceived exertion, discomfort, intelligibility, pretest anxiety, etc.) were compared via rANOVAs.

**Results:** VO<sub>2</sub>max estimated submaximally via ART and PWC did not differ from the spirometry-based VO<sub>2</sub>peak (CPET). This also applied to VO<sub>2</sub>max estimated via 6MWT, but only when a specific formula (Mänttari) was used. During spirometry, only 56% achieved a primary or secondary criterion of maximum (physiological) exertion. VO<sub>2</sub>peak/max values determined with the different tests showed a sufficient degree of agreement ( $r \geq .54$ , ICCs  $\geq 0.66$ ,  $p < .001$ ).

**Conclusion:** All four CRF tests proved to be feasible and could be integrated into everyday therapy with MDD patients. Pragmatic aspects (cost, time, required expertise), a deterioration in affective valence during CPET, as well as the fact that maximum (physiological) exertion is difficult to achieve in MDD patients, speak in favor of submaximal CRF tests, in particular the PWC. Further insights are needed into which factors influence the ability of MDD patients to achieve maximal physiological exertion during spirometry.

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**P229**

**Navigating Performance Under Pressure Research: Practical Recommendations with iVR and AV**

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Research in sport and performance psychology necessitates the accurate observation of general behaviours and specific movements within their natural contexts. While traditional methodologies have predominantly relied on self-report data obtained from controlled laboratory settings, recent advancements in immersive virtual reality (iVR) and augmented virtuality (AV) present promising avenues for reintroducing genuine behaviour into research paradigms (Gerwann et al., under review). This presentation gives an overview of the potential and limitations of iVR and AV technologies in examining authentic behaviours within laboratory environments, and discusses specific, recent examples drawn from both sport and performance psychology research (e.g., Baetzner et al., 2022; Harris et al., 2021). Specifically, the presentation will highlight the role iVR and AV technologies can play in extending our understanding of performance under pressure in ethical, naturalistic research settings.

Further, we provide practical recommendations to facilitate the integration of iVR and AV technologies into research protocols (Gerwann et al., under review). Considerations include hardware and software selection, ensuring compatibility with research objectives and methodological requirements. Furthermore, this presentation will explore characteristics of virtual environments used to simulate naturalistic scenarios, e.g., incorporating sport-specific tactile feedback to enhance user experience. Finally, we will discuss best scientific practices in study design and implementation specific to iVR and AV studies. An ongoing, preregistered study (Gerwann et al., in preparation) using AV to examine stress behaviour in a high-risk sport scenario is presented throughout the presentation as a concrete example.

Taken together, this presentation seeks to inspire both scholars and practitioners to adopt iVR and AV technologies, while also encouraging critical examination of their applications.

Baetzner, A. S., Wespi, R., Hill, Y., Gyllencreutz, L., Sauter, T. C., Saveman, B.-I., Mohr, S., Regal, G., Wrzus, C., & Frenkel, M. O. (2022). Preparing medical first responders for crises: A systematic literature review of disaster training programs and their effectiveness. *Scandinavian journal of trauma, resuscitation and emergency medicine*, 30 (1), 1-23. <https://doi.org/10.1186/s13049-022-01056-8>

Gerwann, S., Baetzner, A.S. Hill, Y. (under review). Immersive virtual reality and augmented virtuality in sport and performance psychology: opportunities, current limitations and practical

guidelines. *Sport, Exercise, and Performance Psychology*

Gerwann, S., Mertens, A., Domes, G., von Dawans, B., Frenkel, M. O. (in preparation). Context-dependency of extreme athletes' coping strategies

Harris, D. J., Buckingham, G., Wilson, M. R., Brookes, J., Mushtaq, F., Mon-Williams, M., & Vine, S. J. (2021). Exploring sensorimotor performance and user experience within a virtual reality golf putting simulator. *Virtual Reality*, 25, 647-654. <https://doi.org/10.1007/s10055-020-00480-4>



## P230

### Sport Climate, Mental Strength, Motivation, and Flow State in Argentinian Archery Athletes

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Archery is a precision sport characterized by the principles of focus, control, and repetition. For this reason, archers should be skilled at mastering their own body and emotions, through the proper physical training and the motor and cognitive skills that allow them to have greater control over their thoughts, emotions, and ideas, which may influence their performance, both during training and competitions. This research explores the relationship between various factors such as Sports Climate, Motivation, Flow State, and Mental Strength in Argentinian archers. The study involved 80 archers with an average age of 37 (SD = 8.69), who completed several assessments including the Flow State Scale, Sport Motivation Scale, Learning Climate Questionnaire, and the Mental Toughness Index, after giving informed consent. The sample was taken from archery clubs in Argentina, where participants should have been practicing archery for a period greater than 3 months. A bivariate correlation analysis revealed a significant link between internal motivation and sports climate ( $r = .267, p < .05$ ), as well as a strong correlation with all aspects of the flow state. These aspects include balance between skills and challenges ( $r = .513, p < .001$ ), time perception distortion ( $r = .537, p < .001$ ), clarity of goals ( $r = .485, p < .001$ ), direct feedback ( $r = .437, p < .001$ ), task-focused concentration ( $r = .430, p < .001$ ), control ( $r = .369, p < .001$ ), loss of self-consciousness ( $r = .369, p < .001$ ), autotelic experience ( $r = .416, p < .001$ ), and action-awareness merging ( $r = .262, p < .05$ ). The findings underscore the significant roles of sports climate and motivation in achieving a flow state, which in turn affects the archers' performance and results. Future directions will be discussed with previous research.

## P231

### Help seeking behavior in elite sport: Barriers and facilitators

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Mental health problems of athletes are currently receiving increased media attention due to public self-reports of athletes. Studies have shown that competing athletes have a similar risk to suffer from psychological symptoms or disorders compared to the general population (Goutteborge et al., 2019). However, athletes show lower rates of help-seeking behavior (Cosh et al., 2024) which is defined as a form of coping that involves the active seeking of help from others (Rickwood et al., 2005). Since early intervention is important regarding the course of mental impairments and the risk of developing chronic mental health problems, it is important to understand barriers and facilitators of help-seeking behavior in elite athletes. In this paper, two approaches were used to address this question, i.e. a scoping review based on PRISMA-ScR and a quantitative survey. The scoping review revealed that internalized and public stigma were the greatest barriers to help-seeking. Further factors like low mental health literacy, the fear to show weakness and the fear of career consequences were also found to hinder help-seeking behavior. In contrast, mental health literacy among athletes and coaches, in particular, supports help-seeking and conversations with close caregivers that create an open and less stigmatizing environment. Based on the methodological limitations of the studies underlying the scoping review (e.g., gender bias, diverse operationalization of mental health literacy, mainly qualitative data) we set up a quantitative survey with the aim to investigate help-seeking behavior, stigmatization, and mental health literacy in a large, more gender-balanced population across different sports. As this survey is still ongoing, results are not yet available but will be presented at the conference. Future research should also investigate the link between barriers and facilitators and help-seeking behavior in longitudinal surveys to develop target group-specific interventions.

Cosh, S. M., McNeil, D. G., Jeffreys, A., Clark, L., & Tully, P. J. (2024). Athlete mental health help-seeking: A systematic review and meta-analysis of rates, barriers and facilitators. *Psychology of Sport and Exercise*, 71, 102586. <https://doi.org/10.1016/j.psychsport.2023.102586>

Goutteborge, V., Castaldelli-Maia, J. M., Gorczynski, P., Hainline, B., Hitchcock, M. E., Kerkhoffs, G. M., Rice, S. M., & Reardon, C. L. (2019). Occurrence of mental health symptoms and disorders in current and former elite athletes: A systematic review and meta-analysis. *British Journal of Sports Medicine*, 53(11), 700–706. <https://doi.org/10.1136/bjsports-2019-100671>

Rickwood, D., Deane, F. P., Wilson, C. J., & Ciarrochi, J. (2005). Young people's help-seeking for mental health problems. *Australian e-Journal for the Advancement of Mental Health*, 4(3), Article 3. <https://doi.org/10.5172/jamh.4.3.218>

## P232

### Barriers and facilitators to adherence to a mindfulness program in elite sport: a qualitative investigation

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**OBJECTIVE:** Previous research on mindfulness programs has highlighted important benefits for sports performance. Adherence has been identified as a variable that influences the effectiveness of mindfulness programs (Tebourski et al., 2022; Scott-Hamilton & Schutte, 2016). While it has been broadly studied in the health context (Marks et al., 2022), little research has been conducted on athletes' adherence to mindfulness programs in the specific context of sport performance. This study aims to explore the barriers and facilitators to adherence to a mindfulness program in elite sport.

**METHOD:** Semi-structured interviews were conducted with 11 elite fencers (Mage = 25,5 ; SDage = 4,61) from the Men and Women national teams who had participated in a mindfulness program over a four-month period. Deductive and inductive analyses were used to categorize the 407 meaning units into emerging themes and subthemes.

**Results:** Six main themes emerged: motivation, personal resources, intervention, social context, elite sports environment, and research context. The results indicate that the main barriers to fencers' adherence to the mindfulness program are related to differences in mental training background, the lack of individualization, the influence of the group during collective sessions, the time between modules, and the difficulty of practicing autonomously. Facilitators to adherence include the expected or observed effects of the program, the various tools offered in the intervention, the intervention of experts, the intervener's posture, individualization, and integration into fencing training.

**Conclusion:** The results provide both research and applied perspectives, emphasizing the importance of an individualized practice that considers current and past experience. Various accessible and relevant tools are necessary, and self-regulatory skill appears to be crucial in promoting commitment to practice. Some interpersonal factors also warrant attention in the implementation of a mindfulness program.

Marks, E., Moghaddam, N., De Boos, D., & Malins, S. (2023). A systematic review of the barriers and facilitators to adherence to mindfulness-based cognitive therapy for those with chronic conditions. *British Journal of Health Psychology*, 28(2), 338-365.

Scott-Hamilton, J., & Schutte, N. S. (2016). The role of adherence in the effects of a mindfulness intervention for competitive athletes: Changes in mindfulness, flow, pessimism, and anxiety. *Journal of Clinical Sport Psychology*, 10(2), 99-117.

Tebourski, K., Bernier, M., Ben Salha, M., Souissi, N., & Fournier, J. F. (2022). Effects of mindfulness for performance programme on actual performance in ecological sport context: two studies in basketball and table tennis. *International Journal of Environmental Research and Public Health*, 19(19), 12950.

## P233

### Preliminary psychometric analysis of the Perceived Locus of Causality (PLOC) scale in Czech high school students.

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The Perceived Locus of Causality (PLOC) scale (1) is a widely used instrument that assesses motivational regulations proposed by the Self-determination theory (SDT) in a specific context of school PE. The PLOC scale has been thoroughly validated in multiple cultures (2), however, empirical evidence of its psychometric properties within the Czech population is still lacking. In this study we therefore set out to examine the reliability and construct validity of the PLOC in a sample of Czech high-school students.

The PLOC was administered online as a part of a larger test battery to a sample of N=2967 Czech high school students (mean age = 16.6 years, SD = 1.12; 53.6% girls). We examined the dimensionality of each PLOC subscale using nonparametric IRT approach. We calculated scalability coefficients (Mokken's model), for each item within all five PLOC subscales. We then tested the hypothesized five-factor structure of the PLOC using CFA. Pearson's correlation coefficient was used to express associations between factors and outcome measures.

Inconsistent/unacceptable H coefficients were observed in 4 out of 20 PLOC items. These 4 items violating a unidimensionality requirement were excluded from the subsequent CFA. The 5-factor CFA model for PLOC fit the observed data well,  $\chi^2(94) = 1275.5$ ,  $p < 0.001$ , RMSEA = 0.065, TLI = 0.95, CFI = 0.96, SRMR = 0.05. The standardized factor loadings varied from a low of .53 to a high of .87. The strongest inter-factor correlation was observed between scales measuring intrinsic motivation and identified regulation ( $r = .84$ ) suggesting these scales might tap very similar underlying latent constructs. Correlations between PLOC subscales and outcome measures supported a simplex-like pattern.

In conclusion, the findings of the present study provided support for the latent structure and factor validity of the Czech version of the PLOC scale when applied to high-school students.

[1] Goudas, M., Biddle, S., & Fox, K. (1994). Perceived locus of causality, goal orientations and perceived competence in school physical education classes. *British Journal of Educational Psychology*, 64, 453-463.

[2] Vlachopoulos et al. (2011). The revised perceived locus of causality in physical education scale: Psychometric evaluation among youth. *Psychology of Sport and Exercise* 12 (2011) 583-592.

This work was created within the institutional support at Faculty of Physical Education and Sport, Charles University – Cooperatio, and with the financial support of projects GAČR 23-05873S and GAUK 106024.

## P234

### High-risk sports – identifying incentives instead of motives

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High-risk sports (HRS), encompassing outdoor sports like climbing, surfing, or skydiving, have become increasingly popular. As an inherent part of these activities, there is the danger of serious injury or even death when something goes wrong. Sports psychology research explores the underlying motivation to understand and explain the behavior of persons engaging in such activities.

Motivated behavior results from the interaction of person-related motives and the incentives a given situation offers (Rheinberg, 2012). According to several quantitative studies, different HRS satisfy different motives; e.g. sensation seeking is linked to skydiving, whereas emotion regulation and agency dominate mountaineering (Barlow et al., 2013). Furthermore, recent qualitative studies showed a range of diverse motives like freedom, challenge, or nature across various high-risk sports (Frühauf et al., 2022), revealing ambiguous findings. However, there are few studies investigating the incentives of different HRS (Beier, 2001, Venetz, 2012), so the situational factor appears to have been neglected so far.

As a result, this research project aims to investigate the incentives in different high-risk sports that typically take place in a natural environment, such as on land, in the air, or on water (Cohen et al., 2018; Pomfret, 2006). Determined by the interaction of the task and the environment (Immonen et al., 2018), HRS like mountaineering, hang gliding or diving offer different experience opportunities thus also providing different incentive structures. However, some commonalities can be found across all of them (Rheinberg, 2012). Hence, the goal is to identify and cluster incentives across several high-risk sports. For this purpose, an explorative study with a cross-sectional design is to be carried out.

Barlow, M., Woodman, T., & Hardy, L. (2013). Great expectations: different high-risk activities satisfy different motives. *Journal of Personality and Social Psychology*, 105(3), 458–475. <https://doi.org/10.1037/a0033542>

Beier, K. (2001). *Anreizstrukturen in Outdoorsportarten*. Schorndorf: Verlag Karl Hofman.

Cohen, R., Baluch, B., Duffy, L. J. (2018). Defining Extreme Sport: Conceptions and Misconceptions. *Frontiers in Psychology*, 9, 1974. doi:10.3389/fpsyg.2018.01974

Frühauf, A., Houge Mackenzie, S., Boudreau, P., Hodge, K., & Kopp, M. (2022). Multiple motives for adventure sport revisited: A multi-activity investigation. *Leisure Science*. doi: 10.1080/01490400.2022.2126910

Immonen, T., Brymer, E., Davids, K., Liukkonen, J., & Jaakkola, T. (2018). An ecological conceptualization of extreme sports. *Frontiers in Psychology*, 9, 1274. <https://doi.org/10.3389/fpsyg.2018.01274>

Pomfret, G. (2006). Mountaineering adventure tourists: a conceptual framework for research. *Tourism Management*, 27, 113–123. doi:10.1016/j.tourman.2004.08.003

Rheinberg, F. (2012). *Motivation*. Stuttgart: Kohlhammer.

Venetz, M. (2012). *Persönlichkeit und subjektive Bedeutung tätigkeitsbezogener Anreize. Variablen- und personorientierte Analysen zum Phänomen Felsklettern*. Münster: Waxmann.

## P235

### Changes in Academy Soccer Players' Psychological Demands and Resources are Related to Changes in their Mental Health

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The Theory of Challenge and Threat States in Athletes (TCTSA; Jones et al., 2009; Meijen et al., 2020) outlines psychophysiological predictors of sporting performance and has received considerable support (Behnke & Kaczmarek, 2018). The TCTSA could be extended to predict athlete mental health; more empirical support is needed to sustain this claim (Hobson et al., 2023).

**Objectives:** This study extends previous TCTSA research in ecologically valid youth sport settings (e.g., Davies et al., 2023; Dixon et al., 2019), by exploring how changes in psychological demands and resources relate to changes in mental health in youth academy soccer players.

**Methods:** Psychometric measures of challenge and threat, basic psychological needs, approach and avoidance goals, and mental health (anxiety, depression, general mental health) were collected from youth soccer players signed at a category one academy in the UK, on six occasions; towards the start and end of three consecutive seasons. Unstandardized residualised change scores were calculated for each variable for season one (S1, n=130, Mage=11.75), season two (S2, n=126, Mage=12.25) and season three (S3, n=150, Mage=12.55); multiple linear regression analyses were conducted using these scores.

**Results:** The proportion of variance explained for change in anxiety was 24.3% in S1, 14% in S2, and 16.8% in S3, for change in depression; 14.7% in S1, 30.6% in S2, and 23% in S3, and for change in general mental health; 17.1% in S1, 28.1% in S2, and 31.5% in S3. Significant contributors to the model varied but included changes in challenge and threat, basic psychological needs, and avoidance goals.

**Conclusion:** The TCTSA can explain changes in youth academy soccer players' mental health. Applied practitioners seeking to support athlete mental health should target the development of perceived resources (i.e., challenge states) and basic psychological needs, and dissuade the pursuit of avoidance goals (e.g., Hobson & Dixon, 2023).

## P236

### Online-based mental training for student-athletes: A qualitative investigation of stakeholder experiences

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**Objectives:** Elite athletes face numerous psychological challenges that can increase their risk of developing mental health problems. Therefore, interventions to promote the mental health of athletes are crucial. Many coaches and sports psychologists use mindfulness and acceptance-based methods to enhance athletes' performance and well-being. This study examined the experiences of elite student-athletes who participated in an online-based mental training programme. The aim was to understand how these students perceive online mental training, identify challenges and opportunities, and assess their impact on coping with challenges and self-reflection.

**Methods:** A qualitative research design was employed, using semi-structured interviews to capture participants' experiences. Data were analysed using reflexive thematic analysis (Braun & Clarke, 2022). Twenty students from two sports high schools in Sweden completed an online mental training programme based on Gardner and Moore's (2007) Mindfulness-Acceptance-Commitment programme. Ten students participated in semi-structured interviews with four girls and six boys aged 17-19.

**Results:** Our research yielded four themes: (1) mental training can quickly become demanding, (2) I need to share with someone to develop myself, (3) it can be difficult to talk about the mental aspects, and (4) I now approach the world differently.

**In conclusion,** coaches and sports psychologists can improve online mental training through personalised feedback, increased interactivity and engagement, the creation of support and community, continuity and regularity, and integration of different methods and techniques in daily activities and practice. Considering these factors, we can adapt online mental training to meet student-athletes needs and optimise their experiences.

Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, 9(1), 3–26. <https://doi.org/10.1037/qap0000196>

Gardner, F. L., & Moore, Z. E. (2007). *The psychology of enhancing human performance: The Mindfulness-Acceptance-Commitment (MAC) approach* (pp. xxii, 289). Springer Publishing Co.

## P237

### Positive thinking and its relationship to the personal characteristics of eyeball players

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research objectives are summarized in the following points:

\_ Identifying the degrees of positive thinking and personal traits of eyeball players.

- Identifying the relationship between positive thinking and personal traits of eyeball players.

The researchers used the descriptive approach using the survey method to measure positive thinking and personal traits. The research population was composed of (60) players, using a comprehensive inventory method, representing eyeball players in Iraq. As for the research tools, the researchers used the positive thinking scale prepared by (Al-Houri, and Al-Zubaidi, 2019). He also used the Freiburg Personality Scale that was originally developed by (Juken Barenberg, Herbert Selig, and Reins Hummel) from Germany. Dell at the University of Giessen, Germany, designed a miniature version of it, translated it into Arabic by Muhammad Hassan Allawi, and modified it for the Iraqi environment (Al-Houri and Al-Qaisi, 2020).

In light of the research results and their discussion, and within the limits of the sample, the researchers concluded the following:

-Iraqi football players in Iraq are characterized by a high degree of positive thinking.

Al-Ain football players in Iraq are characterized by a high degree of personality traits.

-There is a positive, statistically significant correlation between positive thinking and personal traits among eyeball players.

In light of the conclusions reached by the researchers, they recommend the following:

- Urging eyeball coaches to select eyeball players on the basis of the variables of positive thinking and personal traits, in addition to the physical and skill variables when selecting the players who represent Iraq.

- Conducting more studies related to positive thinking and personal traits and on sports samples other than those covered in this study,such as junior and youth teams and Olympic teams in various games.

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- Conducting more studies related to positive thinking and personal traits and on sports samples other than those covered in this study,such as junior and youth teams and Olympic teams in various games.



## P239

### The Relationship between Muscle Fitness and Cognitive Performance in Adults with Attention-Deficit/Hyperactivity Disorder: An Event-Related Potentials Perspective

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Attention-deficit/hyperactivity disorder (ADHD) is a common developmental disorder that often persists into adulthood. Recent research has increasingly focused on the impact of exercise on ADHD symptoms and cognitive function. While resistance training has shown promise in enhancing physiological, biochemical, and cognitive functions in adults and older individuals (Mavros et al., 2017; Choi & Lee, 2019), its specific effects on executive function in adults with ADHD remain unexplored. Objectives: This study investigates the relationship between maximal strength and executive function (cognitive flexibility) in adults diagnosed with ADHD. Methods: Adults diagnosed with ADHD participated in maximal strength tests and task-switching exercises. Behavioral measures and neuroelectric indices, particularly the P300 component during a task-switching paradigm, were analyzed with muscular strength assessment in this population. Results: The results indicated that there were no significant associations between muscular strength scores and behavioral response time and accuracy, as well as ERP P3 amplitude and latency. Conclusion: These preliminary findings suggest that there is no significant relationship between muscular strength and cognitive flexibility, especially in executive functions, among adults with ADHD. This lack of correlation may be attributed to the small sample size. However, further research is warranted to delve deeper into these findings. Investigating resistance training customized for individuals with ADHD could provide valuable insights for clinicians and researchers working with this population.

Mavros, Y., Gates, N., Wilson, G. C., Jain, N., Meiklejohn, J., Brodaty, H., Wen, W., Singh, N., Baune, B. T., & Suo, C. (2017). Mediation of cognitive function improvements by strength gains after resistance training in older adults with mild cognitive impairment: outcomes of the study of mental and resistance training. *Journal of the American Geriatrics Society*, 65(3), 550-559.

Choi, W., & Lee, S. (2019). The effects of virtual kayak paddling exercise on postural balance, muscle performance, and cognitive function in older adults with mild cognitive impairment: A randomized controlled trial. *Journal of Aging and Physical Activity*, 27(6), 861-870.

## P240

### Dyadic Motive Fit: Does Personality Predict Team Performance?

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Objectives: Both in team sports (e.g., beach volleyball) and in everyday life (e.g., setting up a tent together) many situations require to coordinate one's own actions with those of others to perform successfully. While joint action research traditionally manipulates situational (task) constraints such as access to visual information to predict joint motor performance (e.g., Eils et al., 2017), research on person-related factors that affect performance mostly targets individual performance (Müller & Cañal-Bruland, 2020). However, a recent study by Hüttner et al. (2023) suggests that congruence between partners' motives (i.e., preferences for specific types of incentives) and situations predicts joint performance. The current study sought to replicate and extend this initial finding.

Methods: To this end, 62 same-sex dyads played a game where they had to navigate a virtual ball through a labyrinth as fast as possible, with each participant controlling one movement direction of the ball with a joystick. Following a baseline phase, dyads competed for a high score in an ostensible rank list. Partners' previously assessed implicit (PSE) and explicit (UMS) motives served to predict joint performance using Response Surface Analyses (RSA). Additionally, we examined the role of communication intensity using actor-partner interdependence models.

Results: Similar to Hüttner et al. (2023), higher levels of congruent explicit affiliation and power motives were associated with increased joint performance (i.e., faster best times). In contrast, there was no impact of implicit motives on performance (i.e., best and mean round times). Results did not show a relationship between communication intensity and motives.

Conclusion: Together, the results are in line with the idea that dyadic motive fit proves fruitful to explain more variance in joint action performance. We discuss the processes that possibly moderate or mediate the relationship and outline future research perspectives.

Eils, E., Cañal-Bruland, R., Sieverding, L., de Lussanet, M. H. E., & Zentgraf, K. (2017). Vision adds to haptics when dyads perform a whole-body joint balance task. *Experimental Brain Research*, 235(7), 2089-2102. <https://doi.org/10.1007/s00221-017-4952-1>

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## P241

### Personal characteristics of athletes and musicians. What they can learn from each other?

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Music and sports are similar, in terms of aspects like time of expertise, high-performance, environment and pressure of competition. The aim of the study was to explore the relationship between mental toughness, personality and imagery in two unique groups. A sample consisted of: a group of athletes (N=163, 82 females and 82 males) and musicians (N=97, 61 females and 36 males), aged between 13 and 46 (M=23.65; Median=21), with different years of experience. Participants filled in: The Imagination in Sports Questionnaire, The Short Scale of Mental Toughness in Sport Questionnaire -19 and Big Five Inventory—Short. Results indicated significant differences between the two groups. We found that musicians presented the lower level of mental toughness and, compared to athletes, presented the lower level of conscientiousness, but the higher level of neuroticism and openness to experience. It turned out that in the group of musicians, mental toughness was associated with: lower extraversion, neuroticism, higher levels of agreeableness but also the lower level of physiological feelings in imagery. Mentally tough athletes characterized by the lower neuroticism and the higher situational and general imagery. Personality explained mental toughness in 15% but in the musicians group in 28%. Neuroticism was the main predictor in both groups. Imagery predicted mental toughness only in the athletes group. The comparison of unique groups, which is a valuable insight to the mentioned topic, brings a fresh perspective on theoretical and practical work.

## P242

### The Effect of Personality and Training on the Tactical Performance and Stress Response of Non-Specialized and Special Forces

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**Objective:** This investigation examined the effect of a compact Close Quarters Battle (CQB) training on the tactical performance and the physiological stress response of police special forces and soldiers.

**Background:** CQB represents a highly challenging and relevant ability due to the rising number of urban operations. Assessing CQB training effects on performance facets and the stress response facilitates training methodologies and group-specific adaptations.

**Method:** A sample of N = 35 participants (n = 18 police special forces) conducted a CQB training and a pre and post CQB performance test (standardized eye-tracking and video-based evaluation by two experts). The stress response was measured during (heart rate), before and after CQB (salivary Alpha-amylase and cortisol).

**Results:** The training enhanced the performance of specialized and non-specialized forces, particular evident in tactical behavior, while response time, and gaze behavior did not improve. The stress response decreased following the training and the anticipatory stress response was positively associated with the CQB pre-training performance. Further extraversion negatively predicted the CQB performance ( $\beta = -.40$ ,  $p = .035$ ), and the mean 2D:4D ratio was strongly associated with gaze behavior ( $r = .45$ ,  $p = .007$ ), tactical behavior ( $r = .41$ ,  $p = .019$ ), and attentional ability ( $\eta^2 = .57$ ,  $p < .001$ ).

**Conclusion:** A CQB compact training proves effective in performance enhancement and stress reduction, with gaze behavior indicating in-depth CQB expertise. Moreover, the results indicate a heightened anticipatory stress response enhances performance and extraversion and 2D:4D function as predictors for aptitude diagnostics.

**Application:** Potential applications lie in establishing CQB compact courses adapted for novices and experts by use of the performance facets tactical behavior, weapon handling, gaze behavior, and response time as a practical evaluation template. Gaze behavior emerges as a valid indicator of CQB mastery, and can be utilized for personnel selection, and training evaluation.

## P243

### The Perceived Physical Literacy Questionnaire (PPLQ): A Novel Tool in German Language for Measuring Physical Literacy in Adults

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**Objectives:** In the field of Physical Literacy (PL), there exists a notable gap in assessment tools specifically tailored for the adult population, particularly within the German-speaking community. This study introduces the Perceived Physical Literacy Questionnaire (PPLQ), especially designed to bridge this gap by offering a comprehensive measure of PL that encapsulates its multifaceted nature, by including the key domains: motivation, confidence, physical competence, knowledge, understanding, and physical activity behavior.

**Methods:** The development of the PPLQ involved a multistage process, beginning with the generation of a large item pool from established questionnaires across six defined PL domains. An initial 51-item instrument, derived from exploratory analyses of an online survey (N = 506) and refined through expert panel reviews, was condensed through exploratory factor analyses, cognitive interviews (N = 7), and a language certification process ensuring A2 comprehension level. The factor structure, reliability, and convergent validity with the Physical Activity-related Health Competence (PAHCO) questionnaire were then tested in a second independent sample (N = 417).

**Results:** The final 24-item PPLQ demonstrated in confirmatory factor analyses an acceptable fit to the data, supporting a six-dimension structure of PL ( $\chi^2_{247} = 450.70$ ,  $\chi^2/df = 1.83$ , CFIrobust = 0.895, RMSEARobust = 0.074 [CI<sub>90</sub> = 0.063–0.085], SRMR = 0.064). The questionnaire showed satisfactory factor loadings, composite reliability, and discriminant validity. While convergent validity was acceptable for the overall PL score and three domains, areas for improvement were identified, particularly in the knowledge domain.

**Conclusion:** The PPLQ represents a significant advancement in PL assessment for adults, particularly within German-speaking populations. It offers a comprehensive and accessible tool that reflects the multifaceted nature of PL. Despite its strengths, further research is recommended to refine specific items and extend the questionnaire's application across different languages and cultural contexts, enhancing its utility in both academic and practical settings.

## P244

### The relationship between situational interests in physical education classes, extracurricular sports enjoyment, and extracurricular exercise behaviors in college students

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**Purposes:** Situational interests refer to the attraction of the characteristics of an activity or learning task to an individual, thus stimulating immediate positive motivation. Extracurricular sports enjoyment is regarded as the feeling of happiness or excitement experienced during sports activities outside of class. Many studies have focused on improving college students' physical activity. However, whether situational interests in physical education classes can promote extracurricular physical activity of college students is still unknown. Grounded in the trans-contextual model, the present study examined the relationship between situational interests in physical education classes, extracurricular sports enjoyment, and extracurricular exercise behaviors among college students.

**Methods:** 682 college students from Shanghai Jiao Tong University in Shanghai, China, participated in this study. Participants were remotely administered the Physical Education Classroom Situational Interest Scale, Sports Enjoyment Scale, and the International Physical Activity Questionnaire (IPAQ). Mediation analysis was employed to investigate the mediating role of extracurricular sports enjoyment between situational interests in physical education classes and extracurricular exercise behaviors.

**Results:** Situational interests in physical education classes positively predicted extracurricular sports enjoyment ( $\beta=0.318$ ,  $p<0.01$ ) and extracurricular exercise behavior ( $\beta=0.186$ ,  $p<0.01$ ). Extracurricular sports enjoyment positively predicted extracurricular exercise behaviors ( $\beta=0.326$ ,  $p<0.01$ ). Extracurricular sports enjoyment partially mediated the positive effect of situational interests in physical education classes on extracurricular exercise behaviors, with the mediating effect accounting for 57% of the total effect.

**Conclusions:** Situational interests in physical education classes among college students not only exerts a direct positive influence on extracurricular exercise behaviors but also indirectly fosters such behaviors through the mediating role of extracurricular sports enjoyment.

## P245

### Understanding Motivations for Physical Activity Participation: Insights from the Croatian Adult Population

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**Objectives:** Although there is substantial scientific evidence highlighting the health benefits of participating in physical activity, a significant proportion of the population remains inactive (Guthold et al., 2020). Understanding the primary motives for physical activity participation among various population groups is crucial for devising effective intervention strategies to promote physical activity. The main objective of the study was to assess the main motives for physical activity participation among adults in Croatia and to determine difference in primary motives between genders and age groups.

**Methods:** The sample comprise 861 randomly selected Croatian citizens (442 female), aged between 20 and 65 years. Motives for participating in physical activity were assessed using a questionnaire consisting of 7 items: weight loss, fitness improvement, increased muscle mass, relaxation, improvement of physical appearance, socialization, and reduction of specific health problems. Participants ranked these motives according to their perceived importance on a scale from 1 (most important) to 7 (least important).

**Results:** Male participants identified general fitness improvement, increased muscle mass, improvement in physical appearance, and socialization as the most important motives for physical activity. In contrast, female participants reported regulating body weight and alleviating specific health problems to be their primary motives. Additionally, young adults placed greater importance on improving their physical appearance, while middle-aged adults prioritized relaxation and health improvement.

**Conclusion:** Our findings support the hypothesis that physical activity promotion strategies should apply different approaches for men and women, as well as for different age groups. Understanding differences in motives for physical activity participation can inform the development of targeted interventions tailored to the specific needs and preferences of various demographic groups within the population.

Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1.6 million participants. *The Lancet. Child & adolescent health*, 4(1), 23–35. [https://doi.org/10.1016/S2352-4642\(19\)30323-2](https://doi.org/10.1016/S2352-4642(19)30323-2)

## P246

### Purposeless Walking: Effects of brief mindfulness-inspired non-striving manipulation on walking speed and sentiment

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Purposeless walking refers to the act of walking without purpose, i.e. non-striving motivationally. In this exploratory study, we examined participants' walking behaviour after being exposed to a seemingly futile mindfulness-inspired non-striving manipulation (Brief Strange Loop Task: Kee et al., 2019). Would they decrease their effort, but report more enjoyable experience as they focus on the task without striving goal expectations? 63 participants were randomly assigned to two conditions. The experimental condition involved participants scooping water over a string within a container for six minutes. The control condition involved scooping water from one container to another for six minutes. Before being asked to walk, participants were asked to recall the experience of the manipulation as they walk, that of being purposeless or purposeful, according to the condition assigned. They were then asked to walk within a 3.3 m by 5.95 m rectangular boundary marked within a room and were told that they could stop if they wish after 2 minutes, or they could continue for as long as they wish for the following 10 minutes. Distance covered and duration were recorded in order to derive speed as a proxy of effort. Participants filled in questionnaire items at the end of study, including Physical Activity Enjoyment Scale (PACES: Kendzierski & DeCarlo, 1991), and an open-ended item which asked them about the experience of their walk. Results from the Wilcoxon rank sum test suggest that those in the experimental group (Mdn = 0.816m/s) had significantly lower speed compared to the control group (Mdn = 0.948m/s),  $p = .040$ . Sentiment analysis conducted on the open-ended text suggests that those in the experimental group reported significantly less positive experience compared to the control group. Overall, the findings suggest that the mindfulness-inspired non-striving manipulation slowed down the walking speed but the experience also seems less positive.

Kee, Y. H., Aye, K. M., Ferozd, R., & Li, C. (2019). Effects of a Brief Strange Loop Task on Immediate Word Length Comparison: A Mindfulness Study on Non-striving. *Frontiers in Psychology*, 10, 2314.

Kendzierski, D., & DeCarlo, K. J. (1991). Physical Activity Enjoyment Scale: Two validation studies. *Journal of Sport & Exercise Psychology*, 13(1), 50–64. <https://doi.org/10.1123/jsep.13.1.50>

## P247

### Parents, peers or teachers – who matters when it comes to basic psychological needs satisfaction in Physical Education (PE)?

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**Objectives:** Psychological needs satisfaction constitutes the core of Self-Determination Theory, which asserts that humans have three basic psychological needs (autonomy, competence, and relatedness) and that environments which promote the satisfaction of these needs are more likely to facilitate the internalization of motivation (Vansteenkiste et al., 2020). Evidence shows that needs satisfaction is associated with intrinsic motivation and consequently it leads to a variety of adaptive outcomes. In this study we explored concurrent effects of parents-, peers- and teachers-created motivational climate on need satisfaction in school PE.

**Methods:** Self-report instruments, measuring basic psychological needs satisfaction in PE (autonomy  $\alpha=.84$ , competence  $\alpha=.89$ , relatedness  $\alpha=.90$ ) and empowering motivational climates created/initiated in PE by different social agents (parents  $\alpha=.86$ , peers  $\alpha=.86$ , teachers  $\alpha=.91$ ), were administered online to a sample of N=2537 Czech high school students. Correlation and regression analyses were used to assess the effects of motivational climates on basic psychological needs satisfaction.

**Results:** Bivariate analysis has shown that empowering motivational climates created by all tested social agents were significantly correlated with satisfaction of all basic psychological needs ( $r = 0.21$  to  $0.58$ ,  $p < 0.001$ ). Multiple regression analysis has revealed only one non-significant effect in the model for relatedness satisfaction (PE teacher-created climate  $\beta=.03$ ,  $p=.089$ ). Although all other effects were significant, relatedness satisfaction was predominantly predicted by peers-created climate ( $\beta=.55$ ), autonomy satisfaction by teacher-created climate ( $\beta=.38$ ) and competence satisfaction was similarly influenced by both teacher-created ( $\beta=.18$ ) and parents-initiated ( $\beta=.15$ ) climates. These results remained stable even after adjusting the models for gender (males vs females), age (1st-2nd vs 3rd-4th grade), and family status (nuclear family vs others).

**Conclusion:** In conclusion, we have demonstrated that all tested social agents including parents, peers and teachers are important in promoting social environments that foster basic psychological needs satisfaction in the context of school PE.

Vansteenkiste, M., Ryan, R.M. & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion* 44, 1-31. <https://doi.org/10.1007/s11031-019-09818-1>

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## P248

### The Interaction between Experience and Motivation: How Unified Partners Fuel Motivation for Sustained Engagement in Unified Sports?

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Unified Sports (US), within the current wave of promoting social inclusion, has established a platform where individuals with intellectual disabilities (referred to as Athletes) collaborate with those without disabilities (Unified Partners: UP; Hassan et al., 2012). Despite UP actively engaging alongside Athletes in practices and assuming equal roles in games, there is limited attention to understanding their motivation for sustained engagement. In previous studies, UP's motivations were primarily thematically listed, emphasizing UP's altruistic characteristics distinct from Athletes (Nanavati & Haas, 2015). However, the formation and interaction of these motivations with their US experiences remain underexplored, warranting a deeper investigation of the dynamics between UP's motivations and their engagement in Unified Sports.

This study employed semi-structured interviews and a triangulation approach, gathering insights from 16 participants, including eight UP, six coaches, and two delegation members. Data from the interviews were analyzed using a phenomenological approach.

The study identifies two attributes, positive affect and personal development, embedded in UP's experiences in US, forming the basis for sustained engagement motivation. A reciprocal framework illustrates two pathways originating from experiences that contribute to motivation. Participants highlighted experiences related to competitions, atmosphere, and interactions with athletes. The first pathway is anchored in the positive affect generated by experiences, including Enjoyment, Honor, Social Connectedness, and Compassionate Fulfillment, amplifying the emotional dimension of motivation. The second pathway relies on the learning process in US, with changes in perspective and personality being commonly identified experiences perceived as rewarding to UP.

The study underscores the significance of experience in shaping UP's motivation, suggesting that managing experiences based on influential aspects could strengthen their motivation for sustained engagement. Future US practitioners are encouraged to design projects aimed at retaining UP, considering the formation of their motivation.

**Keywords:** Unified Partners, Motivation, Sustained Engagement

Hassan, D., Dowling, S., McConkey, R. & Menke, S. (2012). The inclusion of people with intellectual disabilities in team sports: Lessons from the Youth Unified Sports programme of Special Olympics. *Sport in Society*, 15(9), 1275-1290. <https://doi.org/10.1080/17430437.2012.695348>

Nanavati, J. & Haas, K. (2015). Unified Sports Evaluation Report.

Orr, K., Evans, M. B., Tamminen, K. A. & Arbour-Nicitopoulos, K. P. (2020). A Scoping Review of Recreational Sport Programs for Disabled Emerging Adults. *Research Quarterly for Exercise and Sport*, 91(1), 142-157. <https://doi.org/10.1080/02701367.2019.1653432>

## P249

### Human values and physical activity in Chinese college students

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**Purposes.** Physical activity is associated with positive health. Social ecological model views physical activity as a complex system of relationships affected by multiple levels of the surrounding environment, from immediate family and school settings to broad cultural values and customs. The present study aims to get a better understanding of the correlation between human value and physical activity. We focus on human values, because they are the core of the cultures and they act as powerful motives to understand human behaviors. Specifically, we use Schwartz's model of values, because it is currently the most psychometrically validated values theory in psychology and be widely tested in cross-cultural context.

**Methods.** In total of 308 college athletes completed (Mage=19.14, SDage=1.06; MBMI=22.33, SDBMI=4.85) the short International Physical Activity Questionnaire (IPAQ short, Craig et al., 2003) and the Portrait Values Questionnaire (Schwartz et al., 2012; PVQ-RR). Moderate regression analysis was used to test the predictions of personal values on physical activity under the control of gender, age, BMI.

**Results.** (1) In Chinese college athletes, Self-enhancement value, Power value, Power of dominance value, Power of rule value and Stimulation value positively predict vigorous physical activity. (2) Self-transcendence value, Universalism value, Universalism-care value and Universalism-tolerance value positively predicts moderate physical activity. (3) Conformity value and Conformity-interpersonal value negatively predicts walk physical activity. (4) Universalism-tolerance value positively predicts global physical activity.

**Discussion.** Our results point that vigorous physical activity engaging might be driven by competition need satisfaction in college athletes. Moderate physical activity, walk and global physical activity is connected with needs of social interaction. The body concepts in Confucian and Taoism have a deep influence on physical activity engaging in Chinese college athletes in the perspective of culture.

## P250

### Virtual Reality vs. Traditional Exercise: A Comparative Study on Enjoyment, Motivation, and Psychological Responses among College Students

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**Objectives:** The integration of Virtual Reality (VR) technology in exercise settings has shown potential to enhance physical activity levels by improving exercise engagement and psychological responses. However, empirical evidence detailing the specific impacts of VR exercise on psychological outcomes among college students remains sparse. The purpose of this study was to evaluate and compare the effects of VR exercise against traditional exercise on college students' enjoyment, situational interest, motivation and emotional responses.

**Methods:** In a crossover study design, 77 participants (32 females; Mage = 20.6, SD = 2.7) were randomized to engage in both 20-minute VR and traditional exercise sessions. Participants' heart rates were measured during each exercise session. Participants' enjoyment, situational interest, situational motivation, and exercise-induced feeling were assessed after each exercise session. The paired-sample t-test was used to examine the outcome differences between VR and traditional exercise.

**Results:** Overall, both VR (MHR = 127.4, SD = 17.2) and traditional (MHR = 136.6, SD = 15.2) exercise sessions reached moderate intensity. Participants in the VR exercise demonstrated significantly higher enjoyment (MD = 22.6,  $p < 0.001$ , Cohen's  $d = 1.04$ ), situational interest (novelty: MD = 9.00,  $p < 0.001$ , Cohen's  $d = 2.3$ ; total interest: MD = 7.39,  $p < 0.001$ , Cohen's  $d = 1.7$ , intrinsic motivation (MD = 2.66,  $p < 0.001$ , Cohen's  $d = 1.02$ ) and positive feelings including revitalization (MD = 2.77,  $p < 0.001$ , Cohen's  $d = 0.92$ ) and tranquility (MD = 1.06,  $p = 0.001$ , Cohen's  $d = 0.38$ ) compared to traditional exercise. Traditional exercise led to higher physical exhaustion (MD = -3.27,  $p < 0.001$ , Cohen's  $d = -1.15$ ).

**Conclusion:** VR exercise offers a more enjoyable, interesting, and motivating experience than traditional exercise, alongside better mood enhancements. The findings suggest that VR could be an effective alternative to traditional exercise modalities.



**P251**

**Mental health of elite athletes: The importance of coaches' social identity leadership and athletes' satisfaction with sport performance**

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**Objective:** Pursuing an elite athlete sport career is more encompassing than training and competing at the highest level (Arnold & Fletcher, 2012). Effective coach leadership can help athletes in navigating these challenges (Mallett & Lara-Bercial, 2016). How high-performance coaches lead in this context has been found to be influential on both athlete performance and well-being. Recent research has shown the importance of leadership, which is framed within the social identity approach (e.g., Fransen et al., 2016, 2020a, 2020b). Research on the social identity approach to leadership and health and well-being has been limited in elite sport contexts. The notion of coaches as leaders is worthy of investigation in this highly performative and emotional context. Therefore, in this study we sought to delve into the empirical links between coach leadership, sport performance satisfaction, and wellbeing from a social identity approach.

**Methods:** One hundred and forty-five elite athletes (62.1% female) participated in this study (Mage = 20.6 years; SD=4.1; Range = 13-32 years) and answered questionnaires pertaining coach social identity leadership (Steffens et al., 2014), sport performance satisfaction (Riemer & Chelladurai, 1998), and mental health (Goldberg et al., 1997).

**Results:** The SEM model explained 36% and 19% of the variance in athlete well-being and ill-being, respectively. There was a positive association between perceived coach social identity leadership and sport performance satisfaction, explaining 10% of its variance. Coach social identity leadership predicted well-being but not ill-being. The sport performance satisfaction positively influenced well-being and negatively impacted ill-being.

**Conclusion:** Fostering a sense of “we” and “us” within elite sport training groups is instrumental in promoting sport performance satisfaction and, consequently, enhancing the mental health of athletes.

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## P252

### Examining the moderating role of physical activity in the relationship between negative weight commentary and body image among young adults

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**Objectives:** Negative weight commentary is a pervasive social norm that is associated with poorer body image (Wu & Berry, 2018). Theoretical tenets suggest physical activity may prevent poor body image among those who experience negative weight commentary, by promoting a functional focus toward the body and sense of competence as opposed to focusing on weight/appearance (Calogero, 2012). This longitudinal study examined whether physical activity moderates the associations between negative weight commentary and body image indicators (negative self-conscious emotions, positive self-conscious emotions, internalized weight bias).

**Methods:** Canadian young adults (N = 616, Mage = 30.52 (1.02), 59.0% women) completed self-report surveys in the 2018 (T1) and 2022 (T2) cycles of the Nicotine Dependence in Teens study. Sex-stratified moderations were tested (Hayes, 2022) to assess whether moderate-to-vigorous physical activity (minutes per week; T1) moderated the relationship between T1 negative weight commentary and T2 body image in separate models for negative emotions, positive emotions, and internalized weight bias.

**Results:** Half (52.7%) the sample experienced negative weight commentary. After controlling for age, weight perception, income, and ethnicity, negative weight commentary was associated with higher negative body emotions for women [R2 = .11, b = .66 (.30)] and men [R2 = .09, b = 1.01 (.32)], and internalized weight bias for women [R2 = .15, b = .38 (.14)] and men [R2 = .15, b = .46 (.13)]. The model testing positive body emotions was not significant, and physical activity did not moderate any association.

**Conclusions:** These findings highlight the importance of implementing system/policy-related changes that reduce negative weight commentary to disrupt the potential impacts on negative body image. They also suggest physical activity does not mitigate the effects of negative weight commentary; understanding whether this differs based on physical activity motivation (i.e., appearance manipulation vs. functionality) is an important consideration in future research.

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## P253

### Longitudinal trajectories of cognitive bias, stress appraisals, emotional regulation and risk behaviours across process communication model personality profiles among firefighters

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Introduction:** Based on a multidimensional and multilevel approach, this study focused on the perceptions, feelings, thinking patterns and coping strategies of firefighters (undergoing physical, mental load and time pressure) over a period of 10 weeks. In particular, the objective was to explore whether firefighters with different personality profiles (based on the process communication model (PCM)) experienced different trajectories within five constructs: workload, cognitive biases of risk-taking, stress appraisals, emotional regulation and risky behaviors (escape and compensation).

**Methods:** A total of 74 firefighters (8 females and 66 males; Mage = 42.17, SD = 8.17) voluntarily participated to the study. They completed once a week for 10 weeks an online logbook assessing the aforementioned variables using a single-item methodological approach.

**Results:** Results from multilevel growth curve analyzes (MGCA) demonstrated distinct trajectories of the aforementioned study variables across the harmonizer, persister, and thinker personality profiles. For the harmonizer profiles, MCGA showed a significant linear increase in time pressure, as well as a significant and negative quadratic evolution of challenge and benefits appraisals and compensation behavior. For the persister profile, MCGA showed a significant linear increase in workload, a significant and positive quadratic evolution with a slight decrease over time for the illusion of control bias, the optimism bias and the escalation of commitment bias. For the thinker profile, MCGA showed a significant linear increase in the illusion of control bias, a significant linear decrease in distraction and a significant, negative quadratic parameter for positive reappraisal.

**Conclusion:** These results highlighted specific and significant changes over time of workload, cognitive biases of risk-taking, stress appraisals, emotional regulation and risky behaviors of firefighters through three PCM personality profiles. Considering PCM personality profiles could help limiting the impact of stressful or physically impacting situations on the psychological state of firefighters and their potential risk-taking.

**P254**

**Validity of ultra-short term heart rate variability derived from femoral arterial pulse waveform in a British military cohort**

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives:** Various non-electrocardiogram (ECG) based methods have been shown to be reliable sources of heart rate variability (HRV) measurement (Flatt & Esco, 2013; Munoz et al., 2015). However, the validity of ultra-short recording of the femoral arterial waveform as a surrogate of the gold-standard ECG-based 300s HRV has never been investigated before and was the aim of this study.

**Methods:** A validity study was conducted using the first follow-up data from the ArmeD serVices trAuma rehabilitatioN outComE (ADVANCE) study, UK. The participants were adult (>18 years) servicemen (n=50 injured and 50 uninjured) who were similar in age, rank, and deployment period (Afghanistan 2003-2014). The femoral arterial waveforms (14s) from the pulse wave velocity (PWV) assessment and ECG (300s) were recorded simultaneously at rest in the supine position using Vicorder™ and Bittium Faros™ devices, respectively. Recordings were analysed using Kubios Premium for the measurement of heart rate (HR) and root mean square of successive differences (RMSSD). Correlation coefficients and the Bland-Altman percent plots were constructed to study the agreement in HRV between the new method 'PWV' and the gold-standard 'ECG'.

**Results:** The injured servicemen's mean time from injury to assessment was approximately 11 years. Signal quality was excellent (<0.5% artefact) for both methods. Both PWV-derived HR and RMSSD showed a strong correlation with their 300s ECG counterparts (HR r: 0.94, RMSSD rs: 0.82; p<0.001). The mean difference in PWV versus ECG was insignificant for RMSSD (0.47±16.40ms; p=0.77) and significant for HR (-7.48±2.60 beats/minute; p<0.001). On the Bland-Altman analysis, the agreement between the methods was found to be good for RMSSD (mean bias -4.45±36.53%; 95%CI: -11.78%, 2.86%) but poor for HR (mean bias: -13.34±4.56%; 95% CI: -14.25%, -12.43%).

**Conclusion:** RMSSD sourced via PWV (14s) appears to be a reliable and valid surrogate for gold-standard 300s ECG-based RMSSD in our sample.

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## P255

### Motivational profiles for exercise and well-being in young Japanese women

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**Objectives:** Physical activity is associated with improved mental health and quality of life (Penedo & Dahn, 2005). A recent Japanese national health survey demonstrated that only 12.9% of young women exercise regularly despite these benefits (Ministry of Health, Labour and Welfare, 2020). Grounded in self-determination theory (SDT; Deci & Ryan, 2002; Ryan & Deci, 2017), this study examined the relationship between motivational profiles for exercise and psychological well-being in young Japanese women.

**Methods:** A total of 1266 young Japanese women participated in the survey. Firstly, to understand the motivational profiles, the cluster analysis using k-means was conducted by setting 3-5 clusters. Subsequently, chi-square tests were conducted by making cross-tabulations to study the relationship between motivational profiles, life satisfaction, and subjective health perception.

**Results:** In the first analysis, cluster analysis identified four meaningful clusters in exercise motivational profiles. The first cluster was labeled the 'amotivation profile' as the participants in this cluster had the highest scores in amotivation. The second was the 'low motivation profile' with low scores on all measured motivational variables. The third was the 'autonomous motivation profile' as subjects in this group demonstrated higher autonomous motivation than controlled motivation. The last cluster was the 'controlled motivation profile' as subjects in this group demonstrated higher controlled motivation than autonomous motivation. The second analysis explored how motivational profiles are related to life satisfaction and subjective health perception. Participants with the autonomous motivation profile were most likely to be classified in the satisfied life satisfaction and the good subjective health group.

**Conclusions:** This study emphasizes the evident influence of autonomous exercise motivation on the psychological well-being of young women in Japan.

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## P256

### Bridging the 'know-do' gap: Engaging in co-production to design and implement the '1616' sport-based youth development program

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

Given the negative outcomes emanating from adult-centric, professionalized youth sport models (e.g., financial cost, burnout; Erdal, 2018), sport researchers and practitioners must actively rise to the challenge of developing and providing programming that prioritizes positive youth development (PYD). To ensure that programming satisfies the developmental needs of youth, it is necessary to engage with invested partners from the outset of program creation. **Objectives:** The purpose of this presentation is to discuss: (a) the process of co-producing the '1616' story-based PYD program for ice hockey players, (b) its current state after three iterations of implementation and evaluation, and (c) key considerations for adopting such an approach within sport programming. **Methods:** Using an Integrated Knowledge Translation approach—a form of co-production (Smith et al., 2023)—the research team worked with program partners to create, implement, and evaluate the 1616 program. In total, 300 teams and over 3300 youth, 3700 parents, and 700 coaches have participated in the program. **Results:** Through a collaborative decision-making process, the theoretical underpinnings, content, and mode of delivery for 1616 were finalized. Across the first and second iterations, both process and outcome assessments were conducted using a mixed-methods approach (e.g., focus groups, pretest-posttest questionnaires). Key facilitators (e.g., free of cost) and barriers (e.g., time constraints) have been identified, all contributing to the most recent iteration of 1616. Spanning 10 weeks, professional/elite ice hockey role models engage in story-telling through online interactive videos, discussing their connection to that week's PYD concept. Reflection questions and activities are also provided to athletes, their parents, and coaches to reinforce their understanding of PYD. **Conclusion:** Co-production is a useful approach to ensure that sport programming is evidence-informed and grounded in the needs of target knowledge users. As a result, impactful and relevant programs can be developed that enable youth athletes to thrive.

Integrated knowledge translation; Youth sport; Intervention; Program evaluation

## P257

### Enhanced Risk of Disordered Eating in Female Athletes: Exploring the contribution of Sport Types and Competitive Levels

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

This study addresses a crucial gap in the literature by investigating the frequency of attitudes and behaviors characteristic of eating disorders, along with the self-regulation of eating attitudes in sport (SREAS), among women engaged in three types of sport (artistic, endurance, and combat) at recreational or competitive level, considered at-risk for disordered eating. The 135 voluntary participants recruited in sports clubs were asked to complete the EAT-26 (Eating Attitudes Test; 2), the SREAS Scale (3) and to self-report their current and ideal weights. General linear models (GLM) showed different main effects of the type of sport on EAT scores ( $F=45.27$ ;  $p<.001$ ;  $\eta^2=.41$ ), continuous SREAS scores ( $F=30.25$ ;  $p<.01$ ;  $\eta^2=.32$ ), but not on the  $\Delta$  weight values (the difference between current and ideal weight). GLM revealed a significant main effect of the level of sport participation on EAT scores ( $F=45.27$ ;  $p<.001$ ;  $\eta^2=.04$ ) and on  $\Delta$  weight values ( $F=6.11$ ;  $p=.01$ ;  $\eta^2=.06$ ). There was no significant effect found on continuous SREAS scores. There was no evidence of an interaction effect of the type and the level of sport participation on EAT and continuous SREAS scores. But a significant interaction effect was observed for  $\Delta$  weight values ( $F=3.63$ ;  $p=.02$ ;  $\eta^2=.05$ ). The endurance group showed the greatest frequency of disrupted eating attitudes and behaviors compared to the artistic endurance (Mean Difference = 11.87;  $p<.001$ ) and the combat group (Mean Difference = 12.44;  $p<.001$ ). The highest proportion (41.5%) of participants who obtained a score indicating poor SREAS (<19 or >24) (4) was practicing a combat sport.

The specific characteristics of each sport may be related to disordered eating and regulation of eating attitudes in exercising women. Competitive settings could enhance the likelihood of disordered eating development. Additional research is necessary to identify protective factors and implement preventive measures in vulnerable sports.

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## P258

### Psychological Intervention during an Exercise Adherence Program: Effect in Perceived Autonomy

**Daniela Miranda-Rochín**<sup>2</sup>, Jeanette M. López-Walle<sup>1</sup>, Abril Cantú-Berrueto<sup>1</sup>, José L. Tristán-Rodríguez<sup>1</sup>, Yago Ramis<sup>3</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Organización Deportiva, México, Nuevo León, México, <sup>2</sup>Universidad Autónoma de Barcelona, Facultad de Psicología, Barcelona, Spain, <sup>3</sup>Institut de Recerca de l'Esport; Departament de Psicologia Bàsica, Evolutiva i de l'Educació, UAB, Barcelona, Spain Psychological Intervention during an Exercise Adherence Program: Effect in Perceived Autonomy

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Objectives. To evaluate the effect of a psychological intervention program for exercise adherence on participants' satisfaction of basic psychological needs (BPN). Method. The PsicoFit psychological intervention program is grounded in Self-Determination Theory (SDT), involving psychoeducational talks, modelling, and group dynamics. It consisted of 12 weekly face-to-face sessions, with each session lasting 30 minutes. Sessions were conducted by professionals with a solid academic background in psychology and applied psychology to sports and physical exercise. A total of 29 sedentary soccer fans from the TIGREFIT program participated (51.7% women; 48.2% men). Initial and final assessments were conducted using the Perceived Autonomy in Sport Scale, Sport Competence Scale, and the Relationship Need Satisfaction subscale (López-Walle et al., 2012). Results. The Wilcoxon signed-rank test indicated a significant difference in perceived autonomy ( $W = 16.50$ ;  $z = -3.15$ ;  $p < .05$ ;  $rpb = -.826$ ) and relationship need ( $W = .00$ ;  $z = -2.201$   $p < .05$ ;  $rpb = -1.00$ ). Post hoc statistical power calculation for perceived autonomy was  $(1-\beta) = .97$  and for relationship need  $(1-\beta) = .78$ . When analysing by quartiles based on session attendance, higher means were identified in the final assessment of perceived autonomy in those who attended 10 to 12 sessions ( $n = 9$ ); it was confirmed that the number of sessions moderated the relationship between BPNS initial and BPNS final. Conclusion. Greater adherence to the intervention program may be associated with more pronounced benefits in satisfying the need for autonomy. Discussion. The results of this study support the effectiveness of exercise adherence programs incorporating psychological intervention centred on self-determination. Considering that when individuals experience satisfaction in their need for autonomy, they benefit holistically, and this contributes to high-quality motivation. Considering self-determination when designing interventions aimed at improving exercise adherence is emphasized, to obtain physical and psychological benefits in participants.

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## P260

### Biomarkers of athlete burnout: A novel investigation with student-athlete rowers

**Lee Moore**<sup>1</sup>, Rachel Arnold<sup>1</sup>, Matt Dobson<sup>2</sup>, Sandrine Isoard-Gauthier<sup>3</sup>, Henrik Gustafsson<sup>4</sup>, Mark Wetherell<sup>5</sup>

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**Objectives:** Athlete burnout is a growing problem and has negative ramifications (e.g., poor health; Glandorf et al., 2023). It is therefore vital to effectively monitor burnout to aid intervention efforts. While self-report measures exist (Raedeke & Smith, 2001), the biases associated with these measures (e.g., social desirability) means that objective biomarkers are needed. However, little is known about the psychophysiology of athlete burnout (Madigan et al., 2019). Thus, this project investigated cortisol, dehydroepiandrosterone-sulphate (DHEA-S), and testosterone as potential burnout biomarkers.

**Methods:** Using data (i.e., "I felt burned out by my sport") from the Recovery-Stress-Questionnaire-for-Athletes (RESTQ-Sport-36; Kallus & Kellman, 2016), 14 (50% female) university-level rowers were classified as experiencing high, moderate, or low burnout. Saliva samples were provided on one rest-day (i.e., waking, waking+30-minutes, 10am, 11am) and two training-days (i.e., waking, waking+30-minutes, pre-exercise, post-exercise, post-exercise+30-minutes). Between-group differences in cortisol, DHEA-S, and testosterone were examined across the timepoints on rest- and training-days using 3 (group) x 4/5 (time) mixed-model ANOVAs.

**Results:** For rest-day cortisol, there were main effects for group ( $F(2,9) = 4.49, p = .044$ ) and time ( $F(1.36,12.29) = 5.39, p = .030$ ). Across all timepoints, the high-burnout group had lower cortisol than moderate- and low-burnout groups ( $ps = .065$  and  $.016$ ). Moreover, across all groups, cortisol was lowest at 11am ( $ps < .030$ ). Similar effects were found for training-day cortisol, where the low-burnout group had higher cortisol than moderate- and high-burnout groups ( $ps = .042$  and  $.036$ ), and cortisol was lowest pre-exercise ( $ps < .041$ ). Typical diurnal changes were observed for DHEA-S and testosterone; however, there were no between-group differences.

**Conclusion:** This original investigation highlights hypocortisolism as a potential biomarker of athlete burnout. Further research with larger sample sizes is therefore warranted to evaluate the role of cortisol alongside other potential burnout biomarkers (e.g., vagally-mediated heart rate variability).

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**P261**

**Mental Health Prevalence in Olympic Athletes: Implementing the Romanian Version of IOC Sports Mental Health Assessment Tool 1 (SMHAT-1)**

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Recognizing the mental health cost of winning medals is crucial for fostering a healthy sports culture (Smaranda et al., 2021). Extant research suggests that approximately 34% of elite athletes exhibit some form of mental health symptoms (Goutteberge et al., 2020). This study deployed the Romanian version of SMHAT-1 (Reardon et al., 2019), to assess mental health prevalence among elite athletes. We collected data from 410 active elite athletes registered within Romanian Olympic and Sports Committee (COSR). Participants completed the SMHAT-1 screener Athletes' Form-1 followed by the questionnaires for anxiety, depression, eating disorders, etc. All participants completed both Athletes' Form-1 and remaining measures. We assessed the sensitivity and specificity of the Athletes' Form-1 in accounting for scores above the conventional cut-off values for the remaining measures or mental health included in SMHAT-1. To this end we conducted a Receiver Operating Characteristics (ROC) analysis (Wyshak et al., 1991). In respect to the General Anxiety Disorder-7 the area under the curve (AUC) was .72 AUC (95% C.I. .66 - .75) with 38 cases identified; for depression assessed with the Patient Health Questionnaire-9 the AUC was .71 (95% C.I. .66 - .75) with 48 cases above the cut-off scores; for Athlete Sleep Screening Questionnaire exhibited a AUC was .67 (95% C.I. .62 - .72) with 66 cases above the thresholds; for the Alcohol Use Disorder Identification Test Consumption AUC was .65 (95% C.I. .54 - .75) with 23 cases; lastly, for the Brief Eating Disorder in Athletes Questionnaire AUC was .55 (95% C.I. .47 - .63) with 365 cases. SMHAT-1 demonstrates moderate degree of differentiation between cases identifying depression and anxiety symptoms among Romanian elite athletes. However, its effectiveness in assessing sleep disturbance and alcohol misuse is suboptimal, although still within acceptable limits. Additionally, its efficacy in measuring disordered eating was less than optimal.

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## P262

### Can Meditator Athletes Counteract the Detrimental Effect of Mental Fatigue on Endurance Performance and Neurocognitive Functions? A Randomized Crossover Study

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives:** The current study aimed to examine whether compared with athletes without meditation experience, athletes with meditation experience could better counteract the decline in endurance performance and inhibitory control-relevant neurocognitive functions caused by mental fatigue. **Methods:** Twenty-four meditator athletes and twenty-five non-meditator athletes participated in this randomized, crossover study. The participants underwent a 30-minute 100% incongruent Stroop test in the mental fatigue condition (MF) and a 30-minute 100% congruent Stroop test in the control condition (CON) in a randomized, counterbalanced order. Following the Stroop test, inhibitory control-relevant neurocognitive functions were assessed using the Flanker task and event-related potentials, followed by endurance performance was assessed by treadmill-based endurance task. Additionally, visual analogue scale for mental fatigue (VAS-MF) was used to evaluate the perceived mental fatigue before (T1) and after Stroop test (T2), after Flanker task (T3), and then visual analogue scale for motivation (VAS-M) was also used to evaluate task motivation in Flanker task and endurance task. **Results:** Compared to the CON, participants in MF reported higher VAS-MF score at T2 and T3, and showed lower accuracy and smaller N2 amplitude in Flanker task, shorter time to exhaustion and lower motivation in endurance task. However, these mental fatigue-related impairments were specific to non-meditator athletes, but not to meditator athletes. **Conclusion:** Current findings suggest that meditator athletes could better attenuate the reduction in endurance performance and inhibitory control-relevant neurocognitive functions caused by mental fatigue.

## P263

### Advancing the conceptualisation and practice of achieving flow in performance settings

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

Research on psychological flow is well established, although criticisms remain regarding conceptual and measurement issues associated with the construct. Further, no consistent or broadly applicable intervention to promote flow experiences has existed. To advance a cohesive conceptualisation of flow, a scoping review, mapping flow-related research across scientific disciplines, examined the conceptualisation, measurement instruments, and outcomes of flow. Across 236 peer reviewed sources that discussed the conceptualisation of flow, a common set of overarching antecedent constructs included “optimal challenge” and “high motivation,” and recurring characteristics of the flow experience itself included “absorption,” “effort-less control,” and “intrinsic reward.” We contextualise the findings of the review relative to important work on flow that has recently emerged (following the review period), and address inconsistencies and concerns of practical application that characterise some contemporary flow-related models and studies. The review was recently published in the Psychological Bulletin. Guided by CONSORT guidelines for feasibility trials, a single-group, non-randomized feasibility trial of an educational flow training program (N = 26) was conducted to understand the process and effects of training flow intentionally. We assessed participant retention, perceptions about and experiences of the program, perceptions about the flow education training, and preliminary assessments of flow as an outcome. Results broadly supported program feasibility, and participants reported positive experiences in, and perceptions of, program components; noteworthy change pre-to-post-program in flow (d = 0.84), performance (d = 0.81), ability to handle stress (d = 0.74), and anxiety (d = -0.86) was observed. These results provide preliminary evidence that it may be possible to ‘train’ flow in line with recent perspectives on a core three-dimensional flow experience. The study has developed a research foundation for flow intervention “curriculum” and quality standards, and for measuring results. The study was recently published in the International Journal of Applied Positive Psychology.

## P264

### Exploring Parent-Initiated Motivational Climate in Physical Education: Differences Between Gender, Age and Family Status

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Concepts of mastery- and ego-oriented motivational climates, rooted in the Achievement Goal Theory, tap social environment influences, comprised of communicated values and reinforcement contingencies created by significant others. These concepts were extensively studied in the context of sport and physical education (PE) and it has to be noted, that much of the previous research has focused on the motivational climate within athletic settings (sport context) and initiated by the coach. Even though parents are acknowledged as an essential socialization agent in children, the concept of parent-initiated motivational climate (PIMC) has received far less attention. This is even more evident in the context of school PE, where previous studies focus almost exclusively on the motivational climate initiated by a teacher [1, 2]. In this study we therefore focused on potential gender (males vs females), age (1st-2nd vs 3rd-4th grade), and family status (nuclear family vs others) differences in PIMC within the context of school PE.

The research sample consisted of N=2537 Czech high school students. The mastery PIMC was measured by a set of N=5 items, which were developed by the research team and further subjected to factor structure and composite reliability ( $\alpha=0.86$ ) tests. Between group differences were assessed by the 3-way (gender x age x family status) ANOVA with follow-up 1-way ANOVAs for the main effects.

Significant main effects for all three grouping variables were observed after removing non-significant 3- and 2-way interactions from the ANOVA model. Specifically, we observed higher levels of mastery PIMC in boys ( $M=2.82$ ,  $M=2.68$ ), 3rd-4th graders ( $M=2.82$ ,  $M=2.58$ ), and students from nuclear families ( $M=2.77$ ,  $M=2.66$ ).

The presented findings contribute to our understanding of differences in perceived parental support among high school students in the context of PE.

1. Harwood, C. G., Caglar, E., Thrower, S. N., & Smith, J. M. J. (2019). Development and Validation of the Parent-Initiated Motivational Climate in Individual Sport Competition Questionnaire. *Frontiers in psychology*, 10, 128. <https://doi.org/10.3389/fpsyg.2019.00128>

2. Murcia, J. A. M., Gimeno, E. C., & Coll, D. G. (2008). Relationships among Goal Orientations, Motivational Climate and Flow in Adolescent Athletes: Differences by Gender. *The Spanish Journal of Psychology*, 11(1), 181-191. <https://doi.org/10.1017/s1138741600004224>

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## P265

### Tests and questionnaires in Physical Activity and Sports Psychology in Spanish: A Systematic Review

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**Introduction:** Since the formalization of sports psychology in Spain and in Spanish-speaking nations in the past century, a collection of psychometric instruments (tests and questionnaires) has been developed but has not been systematically collected or updated (Roffé, 1999; 2009). Therefore, it loses its capacity for use and application, both in the academic (research) and professional ways (evaluation). Faced with this reality, this work aims to carry out a systematic review that is as extensive and broad as possible of these instruments, as well as their classification with respect to their psychometric indices, and the conceptual frameworks in which they are framed.

**Methodology:** The PRISMA method (Moher et al., 2009) will be used to a) select the databases in which the search will be carried out; b) selection of relevant keywords; c) inclusion criteria for the articles found, and d) exclusion criteria for the articles found.

All these steps will be carried out using the Delphi method with a panel of experts in a) methodology and psychometrics, and b) sports psychology, both academics and professionals.

Finally, the NVivo system will be used to classify and categorize the instruments found based on the objectives of the study.

**Expected results:** The main result is the updated compilation of reliable and valid instruments in the field of physical activity and sports psychology (Ostrow, 1996; Tenenbaum et al., 2012), with their quality indicators, as well as their academic and professional application indications. As a complementary result, the aim is to obtain a “map” of the coverage of the scientific field in question from the point of view of the evaluation capacity using psychometric instruments.

Tenenbaum, R.C. Eklund, & A. Kamata (Eds.)(2012), *Measurement in sport and exercise psychology* (pp. 349-357). Champaign, IL: Human Kinetics.

Ostrow, A.C. (Ed.) (1996). *Directory of psychological tests in the sport and exercise sciences* (2nd ed.). Morgantown, WV: Fitness Information Technology.

Moher D, Liberati A, Tetzlaff J, Altman DG; PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med*. 2009 Jul 21;6(7):e1000097. doi: 10.1371/journal.pmed.1000097

Roffé, M. (2009). *Evaluación psicodeportológica. 30 Test psicométricos y proyectivos*. Buenos Aires: Lugar Editorial.

Roffé, M. (1999) *Psicología del jugador de fútbol. Con la cabeza hecha pelota*.

Buenos Aires: Lugar editorial.

## P266

### Female Academy Cricketers' Experiences and Perceptions of Mental Health and Mental Health Support: A Qualitative Exploration

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**Objectives:** A growing evidence base within cricket (Ogden et al., 2022) and elite sport (Grey-Thompson, 2017; Vella et al., 2021) has highlighted that academies are important and opportune settings to provide evidence-based mental health support. Following the professionalisation of UK women's domestic cricket in 2020, regional academies were created by the England and Wales cricket board to form an elite developmental pathway, yet presently, this context has been neglected in the research. Therefore, this study aimed to explore UK female academy cricketers' mental health experiences and identify psychological considerations for effective, context-specific support.

**Methods:** We used an interpretive descriptive methodology through which we undertook 10 semi-structured interviews with UK female academy cricketers (41 to 79 minutes; mean 59 minutes). Participants were aged between 16 and 20 (mean 18) and represented 4 of the 8 regions. Participants were recruited through purposive snowball sampling whereby personal contacts were initially approached. The data was analysed using thematic analysis.

**Results:** Findings revealed the following themes to negative impact upon female academy cricketers' mental health and their perceptions of support: (1) Challenges of communicating female-specific needs, (2) balancing external commitments with a strong cricketer identity, (3) high-performance expectations.

**Conclusion:** This study highlighted aspects of the academy environment that have the potential to impact upon female academy cricketers' mental health and offers important practical recommendations for organisations and sport psychologists to help protect and support mental health during female cricketers' time in academies and beyond. For example, data highlighted the importance of sport psychologists collaborating with other practitioners to facilitate education to players and staff in relation to the impacts of contraception and maintaining healthy habits. Moreover, academies should consider providing players with access to a female member of staff or senior player mentor, trained performance lifestyle advisor and move towards a whole person approach.

Grey-Thompson, T. (2017). Duty of Care in Sport Independent Report to Government. In GOV.UK. <https://www.gov.uk/government/publications/duty-of-care-in-sport-review>

Ogden, D. J., Coates, J. K., Plateau, C. R., & Barker, J. B. (2022). UK professional male cricketers' mental health and support experiences: A qualitative exploration. *Journal of Applied Sport Psychology*, 1–20. <https://doi.org/10.1080/10413200.2022.2040652>

Vella, S. A., Schweickle, M. J., Sutcliffe, J. T., & Swann, C. (2021). A systematic review and meta-synthesis of mental health position statements in sport: Scope, quality and future directions. *Psychology of Sport and Exercise*, 55, 101946. <https://doi.org/10.1016/j.psychsport.2021.101946>

## P267

### Not just bad news: A Systematic Review on Well-being, personality, and positive emotions impact on sport performance

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**Introduction:** Research in psychology of sport and physical exercise has focused its objectives during the last decades on the analysis of psychological variables that could have a detrimental role, including emotions considered "negative". The study of "positive" emotions such as happiness or, more broadly, psychological well-being, has been postponed. The concept of Eudaimonic Well-being (Ryff, 1989), which is linked to the development of intrinsic motivation, not only in its aspect of enjoyment but also in its relationship with the perception of competition, overcoming and achieving goals. As McCarthy (2011) indicates, positive emotions (hedonically pleasant) can be the catalysts for excellence in sport and deserve a space in our research and in professional intervention to raise the level of performance of athletes. The objective of this study was to carry out a systematic review regarding the relationship between positive psychological factors and sports performance.

**Methodology:** This study, carried out through a systematic review using PRISMA method used to a) select the databases in which the search will be carried out; b) selection of relevant keywords, and c) inclusion and exclusion criteria for the articles found. All these steps will be carried out using the Delphi method with a panel of experts, in methodology, psychometrics, and sport psychology, in order to assure the quality of the different phases of the PRISMA method. They supervise every step of the process

**Results:** The results found that the main positive psychological factors related with performance are: Psychological well-being, self-compassion, satisfaction with life, Approach-achievement goals, and perceived social support. Clear recognition that acting on intrinsic motivation continues to be the best and most effective way to motivate oneself to obtain the highest levels of performance, a good perception of competence and a source of personal satisfaction.

McCarthy, P. (2011). Positive emotion in sport performance: current status and future directions. *Int Rev Sport Exerc Psychol*. 4(1), 50–69.

Moher D, Liberati A, Tetzlaff J, Altman DG; PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med*. 2009 Jul 21;6(7):e1000097. doi: 10.1371/journal.pmed.1000097

Ryff, C.D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *J Pers Soc Psychol*. 57(6), 1069–81.

## P268

### Psychological Well-being and Dependence on Physical Exercise in Amateur Runners

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This objective of this study is to verify the existence of an inverse relationship between the physical dependency variables, measured with the Exercise Dependency Scale (EDS-R) of Downs et al. (2004), and Psychological Well-being evaluated with the Ryff's scale (1989) and its possible differential effect depending on sex and age. There was a sample of 316 runners (170 men and 146 women), with an average age of 38.4 years (S.D.: 9.8). The results show a negative correlation between exercise dependence (abstinence, continuation and reduction of activity factors) and Psychological Well-being. In addition, women obtain a higher score in Psychological Well-being and abstinence (EDS-R) than men. The Exercise Dependency factors (+tolerance, -reduction of activity, +time spent and -desired effects) represent 13.9% of the explained variance of Psychological Well-being. Age is also a relevant factor, the older you are, the greater the negative effect of dependency. It is concluded that when sports practice exceeds an intensity and becomes addictive, it generates a negative effect on well-being, this effect being especially relevant in the case of men, and the older they are, the greater the risk.

Díaz, D., Rodríguez-Carvajal, R., Blanco, A., Moreno-Jiménez, B., Gallardo, I., Valle, C. y Van-Dierendonck, D. (2006). Adaptación española de las escalas de bienestar psicológico de Ryff. *Psicothema*, 18, 572-577.

Downs, D.S., Hausenblas, H.A. y Nigg, C.R. (2004). Factorial validity and psychometric examination of the Exercise Dependence Scale-Revised. *Measurement in Physical Education and Exercise Science*, 8(4), 183-201. [https://doi.org/10.1207/s15327841mpee0804\\_1](https://doi.org/10.1207/s15327841mpee0804_1)

Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1069-1081. <https://doi.org/10.1037/0022-3514.57.6.1069>

Sicilia, Á. y González-Cutre, D. (2011). Dependence and Physical Exercise: Spanish Validation of the Exercise Dependence Scale-Revised (EDS-R). *The Spanish Journal of Psychology*, 14(01), 421-431. [https://doi.org/10.5209/rev\\_sjop.2011.v14.n1.38](https://doi.org/10.5209/rev_sjop.2011.v14.n1.38)

## P269

### Case study: Psychological intervention with an athlete coming out of an injury, applying the “Canton’s Giraffe” motivational coaching model

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A unique case study is presented in which the “Canton Giraffe” motivational coaching model is applied, oriented from the paradigm of positive psychology and solidly based on evidence-based motivational theories. The intervention model is structured in four parts, using metaphorical names for better understanding and use: the “head” or the goal; the “neck” or expectations/value; the “body” with its three elements of confidence, self-esteem and self-concept; and the four “legs” of the base (direct experience, indirect experience, psychophysiological symptoms and verbal persuasion). The subject is a 22-year-old young man, who practices different sports, especially skiing, surfing and soccer, and who had an injury, breaking the anterior cruciate ligament. Its main objective is to recover the sporting activity that leads him to reach the physical state he had before the injury. The intervention consisted of six sessions (one of identification, where the athlete’s condition in relation to the model, four for change or intervention itself, in which the parts of the model are worked on, and another for follow-up, after the intervention and to assess the consolidation of progress). For the pre-post evaluation, two quantitative questionnaires were used : the Ryff Psychological Well-being scales and the Baessler and Schwarzer Self-efficacy scale; while a pre-post qualitative analysis table was used in relation to the parts of the model. The results show an improvement in post-test scores, as well as qualitative impressions based on the model and the intervention carried out. The results are in line with previous similar studies.

Cantón, E. (2014). ‘Cantón’s Giraffe’: A motivational strategy model applied from the perspective of coaching. *The Coaching Psychologist*, 10 (1), 26-34.

Cantón, E. y Peris-Delcampo, D. (2017, July). Psychological intervention in sport from the motivational coaching perspective. 14th World ISSP Congress of Sport Psychology. Seville, Spain.

Peris-Delcampo, D. y Cantón, E. (2022). La Jirafa de Cantón: optimización del protocolo de intervención y su eficacia [The Canton’s Giraffe: optimization of the intervention protocol and its effectiveness]. Ed. Ángeles Carrillo Baeza.

## P270

### Experiences and influences on wellbeing among elite UK para-athletes

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**Objectives:** Para-athlete wellbeing has been under-researched compared to the Olympic domain, and the nuances and complexities of experience that may contribute to or inhibit wellbeing in this population are still poorly understood. Our study explored elite UK para-athlete experiences of wellbeing and sought to understand the unique aspects of the elite para-athlete environment that may impact upon their wellbeing.

**Methods:** Twenty-one current elite para-athletes (aged 22-47 years; median 28.8yrs) took part in semi-structured interviews. The sample included 13 Paralympians and eight internationally competitive para-athletes, from 12 different summer para-sports.

**Results:** Four themes were developed via inductive thematic analysis processes: (1) Understanding of para-athlete wellbeing, (2) A need for specialised support; (3) Navigating conflicting identities; (4) Access to (some) opportunities. A need for more specific, tailored support from within the elite sport context was highlighted, with current systems and support mechanisms negatively impacting on para-athlete wellbeing. Classification was deemed to be highly stressful, for which para-athletes felt insufficiently prepared. Para-athletes struggled to manage their identity as an elite sports person, fighting against media 'superhuman' discourses and system-wide pressures that failed to acknowledge them as 'person first, athlete second'.

**Conclusions:** Our study emphasises the importance of the provision of tailored support to protect and enhance wellbeing in this specific population. The study highlights the importance of engaging with the para-athlete community in shaping and informing future support provision, and in enhancing training and education opportunities for athlete support personnel working in the paralympic context.

## P272

### The impact of voluntarily mindful sighing on motor performance, brain waves, motivation, and efficacy beliefs

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**Objectives:** Applied sport psychology focuses on intervention techniques to enhance performance (Lochbaum et al., 2022). However, many interventions are delivered outside of the performance environment, potentially lacking transferable evidence (Fleddermann et al., 2019). The concept of "on the fly sessions" as single interactions between stops in play could be an alternative for performance optimization during competition (Arthur-Cameselle & Giges, 2020). Additionally, techniques that help cultivate mindfulness have shown promise in promoting athletic performance (Wang et al., 2023). Therefore, the purpose of this study was to examine the impact of a brief mindfulness exercise on performance and psychophysiology during a precision motor task (corn hole).

**Methods:** Fifteen people (M age = 28.13, SD = 7.05; 73% female) participated in this study. They were taught the mindful sigh, followed by exercising it between 15 trials. Participants had their heartrate recorded using a Polar H10, and their brainwaves measured using a mobile EEG (Enchanted Wave) headband. They completed single item measures on self-efficacy, mindfulness, and situational motivation between the trials.

**Results:** The sigh intervention led to a significant effect of large magnitude on self-efficacy ( $p = .001$ ;  $d = 1.03$ ), and a significant effect of moderate magnitude on performance outcome ( $p = 0.32$ ;  $d = .61$ ). No significant effects were observed for the brain waves, heart rate, and motivation data.

**Conclusion:** A voluntary mindful sigh can lead to increases in performance and self-efficacy, possibly by down-regulating somatic anxiety (Vlemincx et al., 2022). Thus, a mindful sigh can be applied in situations during ("on the fly") a performance due to its short duration (Balban et al., 2023). Notably, we will continue to advance this study through a randomized control trial, and we encourage other scholars to replicate and expand brief mindful interventions to different tasks and sport populations.

Arthur-Cameselle, J., & Giges, B. (2020). Brief consultations in sport and performance psychology. In *Applied Sport, Exercise, and Performance Psychology* (pp. 129-147). Routledge.

Balban, M. Y., Neri, E., Kogon, M. M., Weed, L., Nouriani, B., Jo, B., Holl, G., Zeitzer, J. M.,

Spiegel, D., & Huberman, A. D. (2023). Brief structured respiration practices enhance mood and reduce physiological arousal. *Cell Reports Medicine*, 4(1), 100895. <https://doi.org/10.1016/j.celrep.2023.100895>



xcrm.2022.100895

Fleddermann, M. T., Heppe, H., & Zentgraf, K. (2019). Off-court generic perceptual-cognitive training in elite volleyball athletes: Task-specific effects and levels of transfer. *Frontiers in Psychology*, 10, 1599. <https://doi.org/10.3389/fpsyg.2019.01599>

Lochbaum, M., Stoner, E., Hefner, T., Cooper, S., Lane, A. M., & Terry, P. C. (2022). Sport psychology and performance meta-analyses: A systematic review of the literature. *PLoS One*, 17(2), e0263408. <https://doi.org/10.1371/journal.pone.0263408>

Vlemincx, E., Severs, L., & Ramirez, J. M. (2022). The psychophysiology of the sigh: II: The sigh from the psychological perspective. *Biological Psychology*, 108386. <https://doi.org/10.1016/j.biopsycho.2022.108386>

Wang, Y., Lei, S. M., & Fan, J. (2023). Effects of Mindfulness-Based Interventions on Promoting Athletic Performance and Related Factors among Athletes: A Systematic Review and Meta-Analysis of Randomized Controlled Trial. *International Journal of Environmental Research and Public Health*, 20(3), 2038. <https://doi.org/10.3390/ijerph20032038>

## P273

### Validating the 3x2 Achievement Goal Questionnaire - Sports: Assessing Achievement Goals among Indian Sport Players

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**Objectives:** This study evaluates the reliability and validity of the 3x2 Achievement Goal Questionnaire-Sports (3x2 AGQ-Sports) within the Indian population.

**Methods:** A sample comprising 402 players (205 males and 191 females) aged 18 to 35 participated in the study. These athletes engaged in a variety of sports, including individual disciplines like wrestling, boxing, judo, fencing, as well as team sports such as basketball, cricket, football, hockey, and volleyball. To validate the questionnaire, the Anxiety, Depression, and Stress Scale and the Achievement Motivation Scale were utilized.

**Results:** The 6-factor model was the most suitable fit for the 3x2 AGQ-Sports. Measurement invariance was assessed across gender and athlete categories (high-performance versus recreational). The overall scale exhibited strong internal consistency with a Cronbach's alpha ( $\alpha$ ) coefficient of 0.95, while subscale alphas ranged from 0.88 to 0.92. Test-retest reliability was satisfactory, with Intraclass Correlation Coefficients (ICC) of 0.88. Moderate positive correlations were observed between Self-approach goals (3x2 AGQ-S) and the Achievement Motivation Scale, while weak correlations were found for other goal dimensions. In terms of anxiety, depression, and stress, these factors showed weak negative correlations with all subscales of the 3x2 AGQ-Sports.

Additionally, significant differences were detected through ANOVA, indicating that achievement goal variables varied across levels of sports involvement (high-performance versus recreational). High-performance athletes demonstrated higher mean scores in achievement goals compared to recreational athletes, except for the task-avoidance goal (TAV). Significant differences were observed between individual and team sports, particularly regarding other-approach goals (OAp), with team sports exhibiting higher mean values.

**Conclusion:** This study contributes valuable insights to the literature on achievement goals and validates the 3x2 framework within the sports domain among the Indian population. The findings suggest that recreational athletes tend to lean towards task-avoidance goals, while athletes participating in team sports demonstrate a greater inclination towards other-approach goals.



## P274

### Stigma as a Predictor of Teammate Help-Seeking Intentions: A Comparison of Male and Female Student-Athletes

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**Objectives.** The purpose of this study was to determine (1) whether perceived public stigma and personal stigma function as predictors of student-athletes' intentions to seek help from their teammates, (2) whether gender moderates the relationship between stigma and help-seeking intentions, and (3) whether there is a discrepancy between topics male and female student-athletes would address with their teammates. **Methods.** A total of 102 (74 females, 28 males) Division I student-athletes completed an online survey measuring perceived public stigma and personal stigma levels using a modified version of the Depression Stigma Scale, teammate help-seeking intentions, and the types of concerns athletes would discuss with their teammates. **Results.** Results showed personal but not perceived public stigma was a significant predictor of help-seeking intentions. Although males exhibited significantly higher levels of stigma, their intentions to seek help did not differ significantly. Therefore, gender did not have a moderating effect on student athletes' intentions to seek help. Gender differences regarding the topics student-athletes would discuss with their teammates were prominent. Specifically, female participants were more likely to discuss thoughts of self-harm and suicide with their teammates than male participants. The overall willingness to share personal struggles with one's teammates was also higher among female participants. **Conclusion.** The findings of this study uniquely contribute to the current literature by emphasizing the need to examine how gender stereotypes impact student athletes' intentions to seek help from teammates. They further highlight the importance of developing anti-stigma campaigns that address these differences to increase the use of teammates as informal sources of help-seeking.

**Keywords:** Help-seeking, mental health, student-athletes, gender stereotypes

## P275

### Acceptability, Feasibility, and Initial Efficacy for Exercise in Commercially Available Virtual Reality to Enhance Psychological and Physical Wellbeing

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**Objectives:** Exercise is a powerful tool for disease prevention and rehabilitation. Commercially available virtual reality (VR) offers an immersive platform to make enjoyable and interactive exercise available in the home. This has potential to enhance engagement with exercise and increase the physiological and psychological benefits. Previous research has demonstrated the favorable outcomes of employing virtual reality (VR) compared to conventional exercise for short-term exercise sessions conducted in controlled laboratory environments (Barbour et al., 2024). However, there exists a scarcity of studies exploring the acceptability, feasibility, and preliminary efficacy of VR applications for enhancing both physical and psychological well-being across extended training durations within real-world settings.

**Methods:** 20 healthy participants (male=10, female=10), completed an eight week, four session per week, VR exercise programme involving boxing, high intensity interval training, and dance, using the VR exercise app FitXR™ in a Meta Quest 2. Each participant completed four weeks of autonomous training at home and four weeks of organized training on campus in a crossover design. Adherence was measured throughout, and psychological and physical measures were taken before, at the mid-point, and post training. Measures included self-reported physical activity measures, VO2 max tests for cardiovascular fitness, and scales for exercise self-efficacy, depression, anxiety, and stress.

**Results:** Participants recorded higher completion rates in organised sessions (79%) compared to at home (51%). Across the eight weeks, participants displayed significant increases in leisure time activity and VO2 max ( $p < 0.05$ ) and these improvements were coupled with significant decreases in anxiety ( $p < 0.05$ ).

**Conclusion:** Exercising using a commercially available VR fitness apps may offer an alternative gateway into exercise that is feasible and acceptable for use in the home or in organised exercise settings. VR exercise shows initial benefits for health, but future research should compare these technologies to matched groups engaging in other forms of exercise.

Barbour, B., Sefton, L., Bruce, R. M., Valmaggia, L., & Runswick O. R. (2024). Acute psychological and physiological benefits of exercising with virtual reality. Pre-print available from SportRxiv. <https://doi.org/10.51224/SRXIV.368>

**P276**

**Exploratory Examination of the Chain Mediating Relationships between Presenteeism and Physical and Psychological Health**

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**Objectives:** In the context of sports, presenteeism is defined as “training or competing despite having a health problem” (Mayer and Thiel., 2018, p51-52). It has been highlighted that presenteeism can result in physical and psychological problems (Mayer et al., 2020); however, no longitudinal empirical studies proving this hypothesis have been conducted. Additionally, the impact of presenteeism on physical and psychological health outcomes may be indirect as well as direct. The present study investigated the impact of athletes’ presenteeism on their physical and psychological health, and explored the chain mediating relationships between these.

**Methods:** A longitudinal study involving 343 high school and college athletes (17.37±2.02 years old; Male: 269, Female: 72; No Response:2) was conducted at two time points (Time 1 and Time 2), with a three-month interval between assessments. A cross-lag model was used to explore the relationships between presenteeism, somatic symptoms, burnout, and subjective performance decrement. In the cross-lag model, the full model was employed in a exploratory fashion to identify mediating factors between presenteeism and outcomes (Law et al, 2016).

**Results:** The results of the cross-lag model revealed that the presenteeism at Time 1 influences somatic symptoms at Time 2( $\beta=.13$ ), and somatic symptoms at Time 1 impact both burnout and subjective performance decrement at Time 2( $\beta=.11, .33$ ). Burnout at Time 1, in turn, affects subjective performance decrement at Time 2( $\beta=.11$ ). These exploratory study findings suggest that presenteeism is related to both burnout and subjective performance decrement, and is mediated by somatic symptoms.

**Conclusion:** In this study, we observed a chain mediating impact of presenteeism on outcomes. Future studies should empirically test the hypotheses derived from this study’s findings using different samples and assess the model’s goodness of fit. Moreover, to explore the cyclical relationship between presenteeism and outcomes, a three-wave study should be performed.

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**P277**

**Enhancing Healthy Lifestyle Habits, Exercise Self-Efficacy, and Mental Health in Israeli College Students: An Educational Intervention Approach**

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Poster Session II, Juli 17, 2024, 09:30 - 10:30

This study examines the impact of an educational intervention on promoting healthy lifestyles among Israeli students amidst academic pressures and security threats. The intervention targeted self-efficacy, exercise motivation, stress levels, and overall mental health using a quantitative approach. Over 12 weeks, 65 diverse students, encompassing Jews, Arabs, and other religious groups, participated in a “Healthy Lifestyle Promotion” curriculum, completing questionnaires before and after the intervention. The intervention program emphasized various behavior change techniques drawn from existing literature (e.g., Nigg & Riebe, 2002; Webb et al., 2010), promoting positive attitudes towards exercise, employing motivation strategies (e.g., Kwan & Bryan, 2010), and elucidating the detrimental effects of sedentary behaviors (Nigg et al., 2019).

Analysis of research findings utilizing a Paired T-Test revealed a statistically significant overall positive effect of the intervention on students’ adoption of healthy lifestyle habits ( $t(64) = 3.3, p<.001$ ), with improvements observed from pre-intervention ( $M = 2.6; SD = .45$ ) to post-intervention ( $M = 2.75; SD = .53$ ). Specifically, enhancements were noted in stress perception ( $t(64) = -3.2, p<.001$ ), social relations ( $t(64) = 1.7, p<.05$ ), and nutrition habits ( $t(64) = 1.68, p<.05$ ). Furthermore, a significant enhancement was observed in students’ exercise engagement (i.e., TTM Prochaska et al., 2008;  $t(64) = 1.11, p<.001$ ) from pre-intervention ( $M = 3.92; SD = 1.03$ ) to post-intervention ( $M = 4.05; SD = 1.2$ ). These changes were accompanied by increased self-efficacy ( $t(64) = -.3, p<.001$ ) and improved mental well-being ( $t(64) = -1.76, p<.001$ ).

These findings underscore the importance of educational interventions that prioritize healthy lifestyle promotion as a valuable means of fostering healthy choices and their potential positive effects on students’ mental health. The results offer insights into enhancing well-being among college students.

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## P278

### Burnout in academic contexts: Testing the predictor value of stress and cognitive appraisal

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives:** Entering university involves adapting the student to the academic environment, which can be a critical period in a student's life until a point that can precipitate the onset of mental health problems (King et al., 2021). Students' prolonged exposure to stressors can trigger the development of mental health problems (Pedrelli et al., 2015), such as anxiety, depression (Duffy et al., 2020), and burnout (Jiménez-Ortiz et al., 2019). The central purpose of this paper is to provide an integrated understanding of stress adaptation in university students by addressing the relationship between the potential stressors of the academic environment, the cognitive appraisal processes involved, and the relationship with the emergence of burnout.

**Methods:** This study analyzed the experience of students' burnout across time, considering stress and cognitive appraisal as predictors of burnout and the possibility of mediation of cognitive appraisal in the relationship between stress and burnout. The study included 175 students aged between 17 and 42 years old (M = 21.19 years; SD = 3.95), of which 155 were female (89%) and 18 male (10%). Data were collected in three different moments (Mt): Mt1 included the Sociodemographic Questionnaire, the Student Stress Questionnaire, the Cognitive Appraisal Scale, and the Reduced COPE inventory; Mt2 and Mt3 included the Shirom-Melamed Burnout Measure. **Results:** Structural equation modeling analyses showed that the partial mediation model obtained the best adjustment fit. These data indicated that stress and cognitive appraisal were predictors of burnout, obtaining a better predictive value when cognitive appraisal mediated the relationship between stress and burnout. Burnout at Mt2 impacted its increase at Mt3. **Conclusion:** Students should be aware of academic stressors and how to cope with them to control burnout. Universities should consider students' stress, burnout, and cognitive appraisal patterns when planning curricula, providing students with resources for managing stress throughout their courses.

**P279**

**The Impact of Smartwatch Use on Motivation, Self-Regulation, Health and Performance: A 12-Month Longitudinal Investigation.**

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

Objectives: Smartwatch devices provide the opportunity for individuals to monitor and improve their health-related behaviour. A large volume of research has demonstrated positive increases in health-related metrics as a consequence of smartwatch use (e.g., Brickwood, Watson, O'Brien & Williams, 2019). However, a limitation of the existing literature is that most studies are conducted over relatively short time frames (Steel, 2023). Therefore, little is known about the long-term effects of smartwatch use on health behaviour change or the implications for real-world performance. Furthermore, smartwatches are ostensibly devices that improve motivation and self-regulation. However, very few studies have investigated these processes in relation to smartwatch use (e.g., Kerner & Goodyear, 2017). The aim of this study was to examine the longitudinal associations between smartwatch use and physical/mental health, student attainment, and how motivation and self-regulation underpin these processes.

Methods: Sixty-five student participants (Mean age = 20.92) based in the United Kingdom were provided with a smartwatch for a period of twelve months. Questionnaires measuring well-being, sleep, exercise motivation and self-regulation were administered monthly. In addition, body composition was measured at baseline and at the conclusion of the study. Data collected from the smartwatches included stress, physical activity, and sleep.

Results: Preliminary analysis of the questionnaire data revealed smartwatch use was associated with improved sleep patterns; improved muscle mass; and increased external, identified, and integrated exercise motivation. Improvements in health and wellbeing were associated with better academic performance. When exploring seasonal variation, mental health was lowest in spring, and self-regulation was highest in November.

Conclusion: The present study observed improvements in body composition, healthy behaviour, and increased motivation in smartwatch users. Further investigation of the data will explore the behavioural implications associated with increases in both controlled and autonomous motivation and the mechanisms driving the association between improved wellbeing and academic performance.

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Steel, R. P. (2023). The longitudinal associations between wearable technology, physical activity and self-determined motivation. *International Journal of Sport and Exercise Psychology*, 1-18. <https://doi.org/10.1080/1612197X.2023.2180067>

**P280**

**Mindfulness Knowledge Transfer For Elite Athletes Using N-of-1 Trials**

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives:** Transfer a mindfulness training program (Si et al., 2014) tailored for Chinese athletes to elite athletes in Gymnastics, Wushu in Guangdong. Evaluate impacts of three key mindfulness skills on training quality.

**Theoretical background:** The Mindfulness-Acceptance-Insight-Commitment (MAIC) program is developed for Chinese athletes, integrating adversity coping strategies and concepts from Chinese Zen philosophy (Si et al., 2014; Su et al., 2019). Demonstrated effective for university students and elite athletes, MAIC enhances mindfulness, acceptance, commitment, and performance (Si et al., 2016; Zhang et al., 2016). However, research often overlooks individual program components, prompting a need to explore their specific influences on athletes' outcomes for better understanding and knowledge transfer in mindfulness interventions.

**Methods:** Twelve elite athletes (8 male, 4 female; age M = 18.25, SD = 3.49) from Gymnastics, Wushu participated in a 12-week mindfulness intervention. Training years ranged from 9 to 18 (M = 11.92, SD = 3.09), with national or international event experience. Athletes received weekly one-to-one sessions practicing mindfulness techniques (meditation, love-kindness, body scan) and assessed their mindfulness, mood, and training satisfaction. Measures included the Athlete Mindfulness Questionnaire, Decentering Scale for Sports, Training and Competition Well-being Scale, Brunel Mood Scale-Chinese, and Acceptance and Action Questionnaire-II. Training Quality was assessed based on sports criteria. Multi-level analyses were used for data analysis.

**Results and discussion:** (a) Mindfulness techniques had varied impacts on athletes' experiences; (b) Love-kindness meditation significantly enhanced athletes' engagement, self-discipline, and training attitude compared to other techniques; (c) Time had notable effects, particularly on rumination; (d) 12-week interventions improved psychological aspects, except love-kindness meditation had less impact on certain variables like rumination and experiential avoidance. The MAIC program, integrating Zen philosophy, enhances mindfulness for athletes. Love-kindness meditation notably improves engagement, discipline, and training attitude. Further exploration of specific program components is essential for optimal mindfulness intervention outcomes.

Si, G. Y., Zhang, G. Z., Su, N., Zhang, C. Q., Jiang, X. B., & Li, H. Y. (2014). Mindfulness training manual for athletes. Beijing: Beijing Sport University Press. (in Chinese)

Si, G., Lo, C.-H., & Zhang, C.-Q. (2016). Mindfulness training program for Chinese athletes and its effectiveness. In A. Baltzell (Ed.), *The Cambridge Companion to Mindfulness and Performance* (pp. 235-267). New York, NY: Cambridge University Press.

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Zhang, C. Q., Si, G. Y., Duan, Y. P., Lyu, Y. J., Keatley, D. A., & Chan K. C. (2016). The effects of mindfulness training on beginners' skill acquisition in dart throwing: A randomized controlled trial. *Psychology of Sport and Exercise*, 22, 279-285.

## P282

### Choking Hazards: A Scoping Review on Choking Susceptibility

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

Choking susceptibility is the likelihood or propensity to choke under pressure (Mesagno et al., 2008). Many factors can contribute to an individual choking under pressure (i.e., anxiety, perfectionism, fear of failure; e.g., Frost & Henderson, 1991; Wilson, 2008). To date, no review has been conducted outlining and comprising the research completed on choking susceptibility.

**Objectives:** The purpose of this scoping review was to examine the existing literature on choking susceptibility and identify any gaps in the literature.

**Methods:** The following four electronic databases were used in the search: Ovid Medline, SportDiscus, PsycInfo, and Web of Science. The search strategy yielded 1663 titles and abstracts, of which 46 articles met our inclusion criteria. Among these, most used cross-sectional designs. Roughly five studies had mixed-method designs and only two studies that used qualitative data.

**Results:** Research on choking susceptibility was scant with most research focusing on creating stress or pressure and examining how it affects performance. Few studies specifically commented on or defined choking susceptibility. Additionally, multiple protocols were used to determine choking susceptibility with limited justification for the measures chosen. Most research used self-report measures pertaining to anxiety, self-consciousness, and coping styles with the Sport Anxiety Scale (Smith et al., 1990), Competitive State Anxiety Inventory-2 (Cox et al., 2003; Martens et al., 1990), Self-Consciousness Scale (Fenigstein et al., 1975) and Coping Style Inventory for Athletes (Anshel & Kaissidis, 1997) being used the most. Participants consisted mostly of athletes or undergraduate university students.

**Conclusion:** This is the first review on choking susceptibility. Future research should determine a communal definition of choking susceptibility and identify a robust protocol that can accurately predict choking under pressure. Additionally, qualitative and mixed-method designs should be fulfilled. The comprehensive phenomenon can inform the development of interventions and strategies to enhance performance in high-pressure situations across diverse contexts.

Anshel, M. H., & Kaissidis, A. N. (1997). Coping style and situational appraisals as predictors of coping strategies following stressful events in sport as a function of gender and skill level. *British Journal of Psychology*, 88, 263-276. <http://dx.doi.org/10.1111/j.2044-8295.1997.tb02634.x>

Cox, R. H., Martens, M. P., & Russell, W. D. (2003). Measuring anxiety in athletics: The revised Competitive State Anxiety Inventory-2. *Journal of Sport and Exercise Psychology*, 25, 519-533. <https://doi.org/10.1123/jsep.25.4.519>

Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: Assess-

ment and theory. *Journal of Consulting and Clinical Psychology*, 43(4), 522-527. <https://dx.doi.org/10.1037/h0076760>

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Mesagno, C., Marchant, D., & Morris, T. (2008). A pre-performance routine to alleviate choking in "choking-susceptible" athletes. *The Sport Psychologists*, 22, 439-457. doi:10.1123/tsp.22.4.439

Smith, R. E., Smoll, F. L., & Schultz, R. W. (1990). Measurement and correlates of sport specific cognitive and somatic trait anxiety: The Sport Anxiety Scale. *Anxiety Research*, 2, 263-280. <https://doi.org/10.1080/08917779008248733>

Wilson, M. (2008). From processing efficiency to attentional control: A mechanistic account of the anxiety-performance relationship. *International Review of Sport and Exercise Psychology*, 1, 184-201. doi: 10.1080/17509840802400787



## P283

### The effectiveness of mental health literacy interventions in young people: a meta-analysis

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

Mental health literacy (MHL) is a construct related to the understanding how to obtain and maintain positive mental health; and understanding mental disorders and their treatments; decreasing stigma related to mental disorders; and enhancing help-seeking efficacy (Kutcher et al., 2015). Adolescence and young adulthood are recognised as a critical time for developing mental health literacy (MHL). This study aims to analyse the effectiveness of current MHL interventions across domains with the purpose to guide future MHL interventions.

A meta-analysis adopting the PRISMA framework was adopted. Three authors independently reviewed studies and extrapolated key data for analysis. Only interventions where the main primary outcome variable focused on improving MHL were included. Reviewers excluded studies where MHL was a secondary outcome or mediating variable. A robust random-effects model with adjustments for small study biases was conducted to establish the effect sizes of all included MHL interventions. Moderator analysis was conducted to examine the effects of intervention length in MHL.

A total of 11 intervention studies were identified and analysed, resulting in a medium to large pooled effect size of 0.62 (95% CI: 0.28; 0.96). Moderator analysis found that short interventions had an estimated standard mean difference (SMD) effect size of 0.9220 (95% CI: -1.1555; 2.9995). This was greater than the medium length interventions, with an estimated SMD effect size of 0.4967 (95% CI: 0.0452; 0.9483), and long interventions, with an estimated SMD effect size of 0.5628 (95% CI: -0.2726; 1.3983).

Accordingly, MHL interventions are proficient in improving young adults' MHL, with shorter interventions (45–50min) having the largest effect size. This study further highlights several inconsistencies in methodological rigour and reporting from studies in this area.

Kutcher, S., Bagnell, A. and Wei, Y. (2015), "Mental health literacy in secondary schools", *Child and Adolescent Psychiatric Clinics of North America*, Vol. 24 No. 2, pp. 233-244, doi: 10.1016/j.chc.2014.11.007.

## P284

### The Strength Behind the Uniform: Knowledge and Applications of Mental Skills with Military Families

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

Mental skills are a construct used in a variety of populations, stemming traditionally from applications within sport and performance. Mental skills have also been demonstrated for their success within a variety of high performing artists, business professionals, public safety personnel, and military personnel (Anton et al, 2017; Clark & Williamon, 2011). Regardless of the population, mental skills usage revolves around key principles of systematic, goal-oriented practices aiming to enhance performance and increase enjoyment (Birrer & Morgan, 2010). Less is known about families of military personnel who are key to the functioning and performance of the serving member. Military families are commonly referred to as the strength behind the uniform, a phrase denoting the unique challenges they face (e.g., deployment, relocation, injury of a loved one) (Manser, 2018).

**Objective:** Explore mental skills knowledge and applications for families of military personnel in the Canadian Armed Forces from their perspective and those of professionals working with military families.

**Design:** A qualitative design with 11 family members of serving military personnel (3 groups of 3; 1 group of 2) who participated in focus group interviews and 5 professionals interviewed individually to gather information pertaining to current knowledge, opinions, and usage surrounding mental skills.

**Results and Conclusion:** Using a constant comparison analysis method (Strauss & Corbin, 1998), themes were produced from interviews centered on awareness, direct and indirect use, and value of mental skills. Participants identified varied understanding of mental skills (e.g., goal setting, imagery, self-talk, coping, resilience). Participants expressed clear applications of mental skills within their daily lives as a necessity, and as a means of maintaining overall functioning and well-being for themselves and their serving member. Implications highlight the need for understanding the unique context of the military and the applicability of mental skills outside of their traditionally understood applications within sport populations.

Anton, N. E., Bean, E. A., & Hammonds, S. C. (2017). Application of mental skills training in surgery: A review of its effectiveness and proposed next steps. *Journal of Laparoendoscopic & Advanced Surgical Techniques*, 27(5), 459–469. <https://doi.org/doi.org/10.1089/lap.2016.0656>

Clark, T., & Williamon, A. (2011). Evaluation of a mental skills training program for musicians. *Journal of Applied Sport Psychology*, 23(3), 342–359. <https://doi.org/10.1080/10413200.2011.574676>

Birrer, D., & Morgan, G. (2010). Psychological skills training as a way to enhance an athlete's performance in high-intensity sports. *Scandinavian Journal of Medicine and Science in Sports*, 20(SUP-PL. 2), 78–87. <https://doi.org/10.1111/j.1600-0838.2010.01188.x>

Manser, L. (2020). The state of military families in Canada: A scoping review. *Journal of Military, Veteran, and Family Health*, 6(2), 120-128. doi:10.3138/jmvfh-2019-0001

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. SAGE Publications Inc.

## P285

### Impact of Passive and Exercise-Induced Heat Stress on Fatigue, Vitality, and Thermal Perception

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

Heat stress can accumulate to unmanageable levels during physical activity and passive heat exposure. Protective clothing worn by firefighters accelerates this process. The objective of this study was to examine the effects of heat accumulation during passive heat stress or in conjunction with walking on fatigue, vitality, thermal sensation (TS), and comfort (TC), as well as body core and skin temperature. A sample of 36 healthy male (age: M=26.94, SD=3.25) underwent a repeated-measures between-groups design with one control group (cg), and two experimental groups (eg1, eg2). In eg1 heat stress was induced by sauna exposure (30min, 60°C; 40% relative humidity) with a subsequent sitting phase, eg2 had after the sauna two additional subsequent walks on a treadmill (à 20min). Eg's wore protective firefighter clothing. Cg was watching a documentary. Subjective and objective parameters were recorded pre, three times during and post heat exposure. Significant group (TS:  $p < .001$ , TC:  $p < .001$ , fatigue:  $p = .015$ , vitality:  $p = .053$ ), time (TS:  $p < .001$ , TC:  $p < .001$ , fatigue:  $p < .001$ , vitality:  $p = .056$ ) and interaction effects (TS:  $p < .001$ , TC:  $p < .001$ , fatigue:  $p < .001$ ) were found. Post hoc tests revealed significant differences between eg1 and eg2 compared to cg (TS:  $p < .001$ , TC:  $p < .001$ , fatigue:  $p < .001$ ). Skin temperature showed moderate correlations with TS ( $r = .68$ ) and fatigue ( $r = .50$ ). This study highlights the significance of fatigue, TS, and TC as sensitive indicators of passive and passive plus metabolic heat stress. The moderate correlations observed between skin temperature and fatigue/TS, suggest a substantial role of thermal receptors in the skin to perceive heat stressors. Performing strenuous exercise in hot conditions, firefighters and athletes can benefit from heat awareness training, to identify signs of heat stress.

## P286

### Exploring UK Paralympic athletes' perceptions of mental health, well-being, and associated support services following the Tokyo 2021 Paralympic Games

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

Elite disabled athletes are reportedly at high-risk of experiencing mental health issues, which have the capacity to impair quality of life and athletic performance. Evidence and interventions have emerged regarding mental health in non-disability sport, however, the specific challenges to Paralympic athlete mental health and well-being and accompanying support are poorly understood. Accordingly, the purpose of this study was to qualitatively explore UK Paralympic athletes' perceptions of mental health, well-being, and associated support services.

Purposive sampling was used to recruit five UK Paralympic athletes across three sporting organisations. Participants took part in a single semi-structured interview. Overall, interviews lasted between 37 and 62 minutes (Total = 212 minutes, M = 47 minutes). Thematic analysis was used to establish key themes in relation to Paralympic athlete mental health.

Interpretive data analysis revealed three higher order themes: The role of professional mental healthcare; Facilitators and barriers to engaging with mental health and well-being support; and mental healthcare needs. A further 11 lower order themes were identified across each of these higher order themes.

Overall, participants acknowledged the perceived importance of mental health and well-being support for elite Paralympic athletes, and the factors that influenced para-athletes' likelihood to seek out or engage with preventative and therapeutic mental healthcare. Participants called for an increase in current care provision, and identified characteristics that facilitated the efficacy of mental health support. These findings inform practical recommendations for enhancing access to, engagement with, and the effectiveness of mental health and well-being support for elite Paralympic athletes.

## P287

### The characteristics of sleep quality and sleep beliefs in college students with obesity

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives:** Obesity not only leads to adverse physical conditions but also sleep quality (Delgado-Floody et al., 2022). A robust correlation between sleep attitudes and sleep quality has been observed (Zhou et al., 2020). However, the characteristics of sleep quality and associated attitudes among obese college students remain unclear. Thus, this research aimed to explore the characteristics of sleep quality and beliefs among college students with different body fat percentages, alongside investigating the correlation with body fat percentage.

**Methods:** We recruited 798 college students (M =19.77, SD= 0.96 years) and classified into three groups based on body fat percentage (Frisancho, 1996): obese (OB, N=245), normal body fat (NF, N=371), and low body fat group (LF, N=182). Sleep-related beliefs and sleep quality were measured by the Sleep Dysfunction Belief and Attitude Scale and Pittsburgh Sleep Quality Index Questionnaire, respectively. One-way ANOVA and correlation analysis were performed.

**Results:** The sleep quality was significantly lower in OB and NF compared to LF (p = 0.02, p < 0.01), with a higher sleep disturbance than LF (p=0.03, p=0.01). Additionally, the sleep efficiency of OB was higher than that of the NF (p = 0.02). The sleep beliefs of the NF were lower than those of the LF (p = 0.03), and concerns about insomnia were higher than those of the LF (p < 0.01). Body fat percentage was positively correlated with sleep disturbances (r = 0.08, p = 0.03) and negatively correlated with sleep efficiency (r = - 0.08, p = 0.02).

**Conclusion:** The sleep quality and sleep beliefs of college students with obesity was poorer than lower body fat percentages, accompanied by a higher frequency of sleep disturbances. Moreover, body fat percentage demonstrates a positive correlation with sleep disturbances and a negative correlation with sleep efficiency.

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**P288**

**The Relationship Between Appearance-Based Exercise Motivation and Exercise Dependence in College Students: A Moderated Mediation Model**

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives:** Due to nationwide fitness initiatives, sports participation has surged, leading to an increase in exercise dependence. Prior research links exercise motivation, notably appearance motivation, to this dependence. Individuals driven by appearance motivation may experience emotions leading to negative self-perceptions and potential addictive behaviors. However, limited research has explored emotions and individual traits' impact on appearance motivation and exercise dependence. This study aims to investigate the relationship between appearance motivation, stress, grit, and exercise dependence in undergraduates.

**Methods:** 1107 Chinese college students (males = 842 (76.1%), age =18.94 ± 1.04 years) completed self-reported questionnaires: Exercise Dependence Scale, Motivation for Physical Activity Measure Scale (MPAM-R), Depression, Anxiety, and Stress Scale-21 (DASS-21), and 12-Item Grit Scale. Each scale demonstrated commendable reliability and validity. The mediating and moderating effects were tested using PROCESS macro 4.1 version. Bootstrapping was conducted to test the significance of the mediating effect and moderating effect.

**Results:** (1) There was a positive correlation between appearance motivation and exercise dependence ( $r = 0.073$ ,  $p = 0.016$ ). (2) Stress completely mediated the relation between appearance motivation and exercise dependence (Effect = 0.11, SE = 0.05, 95% CI [0.02,0.22]). (3) Grit negatively moderated the relationship between appearance motivation and exercise dependence ( $b = 1.26$ ,  $t = 2.67$ ,  $p < 0.01$ ), stress and exercise dependence ( $b = 0.50$ ,  $t = 3.45$ ,  $p < 0.01$ ). With the improvement of grit level, the influence of appearance motivation and stress on college students' exercise dependence symptoms gradually weakens.

**Conclusion:** The findings elucidate the mechanism delineating the association between appearance motivation and exercise dependence. Stress appears to function as an intrinsic factor shaping appearance motivation and subsequently exerting influence on exercise dependence among college students. Furthermore, grit is identified as a significant moderator in the complex interrelationship among appearance motivation, stress levels, and exercise dependence tendencies.

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## P289

### “Comfort over fashion”: Clothing comfort and clothing type differentially impact social physique anxiety and appearance monitoring in females.

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives:** Self-objectification increases appearance monitoring and social physique anxiety (SPA) and may negatively impact motor performance in females. Wearing different types of clothing (loose/concealing vs. tight/revealing) is known to foster self-objectification in females yet perceptions of clothing comfort have not been explored. The objective of the research was to examine the influence of clothing type and clothing comfort on SPA and appearance monitoring in females.

**Methods:** Young adult females (N=75; Mage=20.73 ± 3.11 years) were randomly assigned to wear loose/concealing or tight/revealing athletic clothing while completing a movement task beside a body-length mirror. Participants had their body awareness primed via anthropometric measurements, photographs that were taken of their bodies, and a computerized body size perception task. The main experimental measure was SPA. Participants also rated how comfortable they were wearing the clothing. The behaviour of participants in the testing room was video recorded. Videos were analyzed to generate a novel assessment of appearance monitoring - number of instances in which each participant looked at themselves in the mirror [mirror check] and adjusted their clothing [clothing check].

**Results:** Participants who rated the clothing as less comfortable reported higher SPA compared to participants who rated the clothing as more comfortable, regardless of the type of clothing worn,  $F(5,69)=10.56$ ,  $p=.002$ ,  $\eta^2p=.133$ . In addition, participants wearing tight/revealing clothing engaged in more appearance monitoring ( $M=7.32$ ,  $SD=6.95$ ) compared to participants wearing loose/concealing clothing ( $M=3.75$ ,  $SD=3.95$ ),  $t(61.2)=2.76$ ,  $p=.008$ ,  $d=0.63$ .

**Conclusion:** The results indicate that the level of comfort a female has in wearing a type of clothing impacts SPA more than the specific type of clothing worn. This finding supports calls for females' autonomy in their athletic clothing choices. In addition, we will discuss the use of measures of mirror and clothing checks as a new method to assess appearance monitoring.

## P290

### Does the Propensity for Reinvestment Moderate the Performance Relationship of Challenge and Threat States?

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Poster Session III, Juli 18, 2024, 09:30 - 10:30

**Objectives –** The psychophysiological responses of challenge and threat states have been observed to predict sports performance under pressure (Behnke & Kaczmarek, 2018), yet specific predispositions which could affect this performance relationship remain unclear. A threat state can impact performance via reinvestment (Meijen et al., 2020); hence it is likely that one's propensity to reinvest under pressure could moderate this performance relationship. The aim of this study was to examine the role of a putative moderator of challenge and threat states (dispositional reinvestment), during a motor-skill task and a decision-making task.

**Methods –** In our first experiment, 38 experienced golfers performed a putting task under conditions of low and high pressure. Participants completed the Movement Specific Reinvestment Scale (MSRS) and had psychophysiological measures of challenge and threat collected prior to this putting task. In experiment two, 23 elite cricketers performed a novel batting task under conditions of low and high pressure. This task was specifically designed to assess their decision-making performance. Alongside psychophysiological measures, participants also completed the Decision-Specific Reinvestment Scale.

**Results –** The results showed that despite a lack of significant moderation, the relationship between challenge cardiovascular responses and superior motor-skill performance may be attenuated when someone possesses a high propensity for reinvestment. In Experiment 2, challenge state cardiovascular responses significantly predicted better decision making for 23 elite cricketers during the batting task. However, this relationship was not moderated by dispositional reinvestment.

**Conclusions –** Consequently, promoting a challenge state in athletes should facilitate better decision-making performance under pressure, but those who possess a high propensity for reinvestment may require additional support to ensure successful motor skill performance. Therefore, interventions should be carefully constructed to ensure athletes are best prepared to perform well under pressure. Other psychophysiological findings of interest will be further discussed within this presentation.

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**P292**

**Running enhances plasticity in brain regions related to motor control and cognition: a long-term follow-up study**

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**Objectives:** Existing studies have documented plasticity in brain structure (Schlaffke et al., 2014; Wenzel et al., 2014) and function (Raichlen et al., 2016; Zhang et al., 2022) in endurance participants. However, conclusive evidence is still lacking to determine whether the plasticity observed between endurance participants and controls are attributable to inherent characteristics or training-induced effects. Therefore, this study aims to explore the causal relationship between long-term aerobic exercise and brain plasticity by follow-up research paradigm.

**Methods:** A group of 16 right-handed healthy college students were recruited, including 8 runners (22.5 ± 3.1 years old, running for 2.6 ± 1.6 years) and 8 controls (18.1 ± 0.3 years old). Two fMRI tests were performed before and after the follow-up using a Philips 3.0T Trio scanner with a 32-channel head coil. T1-weighted images were acquired to calculate gray matter volume (GMV), and BOLD data were acquired to compute fractional amplitude of low-frequency fluctuation (fALFF) and degree centrality (DC). Age was included as a covariate. Paired-sample t-tests were used to compare the changes in brain structure (GMV) and function (fALFF and DC) during two years (RESTplus).

**Results:** (1) In the running group, GMV was significantly increased in the bilateral prefrontal brain regions, bilateral medial frontal lobes, right insula, right putamen, and right fronto-parieto-occipitotemporal regions and decreased in the bilateral posterior cerebellum. Meanwhile, DC was significantly increased in the right temporal lobe and bilateral dorsolateral prefrontal lobe and decreased in the left thalamus. The fALFF of the right precentral gyrus was significantly increased (p < 0.001, FWE corrected).

(2) In contrast, no significant changes were found in brain structure or function in the control group (p < 0.001, FWE corrected).

**Conclusion:** 2-years of running could lead to plasticity changes related to motor control (motor regulation, execution, and sensorimotor integration), as well as motor cognition (episodic memory, spatial attention, and rhythm coordination).

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**P293**

**Characteristics of Rhythm Perception in Hurdlers and Exploration of Rhythm Perception Training Mode**

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The rhythm between hurdles is an important indicator of the technical completeness of the athletes over the hurdles. The aim of this study is to explore the influence factors of rhythm perception of hurdlers, and explore a more refined rhythm perception training mode.

In study 1, we used a two-factor mixed design to investigate the differences in rhythm perceptual abilities of hurdle athletes and college students under different types of rhythmic stimuli (visual stimuli, auditory stimuli, and audio-visual stimuli) through finger tapping task. The results showed that, in terms of mean asynchrony and absolute asynchrony, the main effect of rhythm stimulus type was significant. Meanwhile, in the variability, the interaction of motor training experience × rhythmic stimulus type was significant. The variability of hurdle athletes between auditory and visual stimuli was significantly different, and hurdle athletes performed better in sensorimotor synchronization under auditory stimuli; while the general college students performed better under audio-visual stimuli.

In Study 2, we brought in a digital metronome as the training tool in the rhythm perception training mode to assess the effect on athletes' rhythm perception ability. The results showed that on step frequency variability, the main effect of the training modality and the measurement time were both significant. In terms of step height variability, the main effect of measurement time was significant.

To sum up, we concluded that (1) Sports training experience and type of rhythmic stimuli had an effect on rhythm perception. Hurdlers performed better in sensorimotor synchronization under auditory stimuli; while the general college population performed better under audio-visual stimuli. (2)The rhythm perception training model effectively improved the sensorimotor synchronization ability of hurdlers and rhythm perception ability. This study provides some scientific evidence for understanding the rhythm perception characteristics of hurdle athletes and designing a more effective rhythm perception training program.

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## P294

## Exploring Chinese athletes' experiences of participating in a psychological skills training program: A narrative analysis

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Decades of research in the field of sport psychology has illustrated the value of psychological skills training in high-performance settings (Wang & Zhang, 2015; Weinberg & Gould, 2015). As well, there has been a growing awareness and resulting body of research that has begun to explore positive psychological development of youth athletes (Pierce et al., 2016; Sheard & Golby, 2006), the assessment of mental health among high-performance athletes (Si et al., 2021; Van Slingerland et al., 2019), the development of life skills (Zhu et al., 2023), and the delivery of sport psychology services in various sport contexts (Pierce et al., 2016; Si et al., 2015).

**Objectives:** The purpose of the present paper was to explore the experiences of Chinese women athletes in the sport of volleyball participating in a psychological skills training program.

**Methods:** A psychological skills training program was conducted with 13 Chinese professional players who were training with Chinese provincial women's volleyball teams. Interviews were conducted pre- and post the 13-month intervention.

**Results:** The players spoke of the multiple benefits being developed throughout the program, and how those skills not only helped them be well prepared psychologically for training sessions and games, but also helped them communicate effectively with their coaches and for preparing for life after sport. Four narratives illuminate the players' experiences for how they were applying the psychological skills.

**Conclusion:** This study provides insight into how a psychological skills training program enabled women volleyball players within the Chinese sport system to become reflective and "think about" and plan for training and games; how their coaches influenced the application of those skills; and how they began to utilize the skills in their transition out of their sport career.

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## P295

### Mental Illness among athletes of heavy competitive sports

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**Objectives:** Heavy competitive sports in which competitions are grouped according to weight, including boxing, taekwondo, weightlifting, judo, and wrestling. Those sports accounts for about 20% of the gold medals in the Olympic Games. The mental illness suffered by athletes of this type of event is double-layered.

**Methods:** Content analysis of qualitative study, was applied to evaluate 18 Chinese student athletes (11 male, 7 females, age 18-21) from heavy competitive athletes through Narrative interview.

**Results:** due to the weight control before the competition, incl. losing 10 kilograms within two weeks, or gaining 10 kilograms within a month, they are able to enter the corresponding weight group competition. After the absolute diet or fasting, once the game is over, binge eating immediately. Causes various eating disorders, such as anorexia and bulimia disorders, often accompanied by depression and anxiety.

Heavy competitive sports are sports that involve direct physical contact. Because of this feature, they will often experience physical injuries, especially head sports injuries. This lead to severe concussion, "mild and moderate concussions may as trigger of neuro-cognitive disorder" accompanied by depression (Zhu, L.J., Heil, J., 2017, 2023), and suicide among athletes is not surprisingly.

**Conclusions:** Even though "2018 International Olympic Committee (IOC) Consensus Statement on Mental Illness in Athletes "has published by British Journal of Sport Medicine, suicide rates among Olympic family members have continued increased (Suicide Achieve III, Zhu, L.j., Heil, J., 2023). Therefore, we need to do more work in this field, including education, scientific research, and intervention.

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## P063

### Evaluating the Implementation and Effectiveness of the Noise Cancelling Program on Mental Skills Development in Young Athletes: A Longitudinal Study

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This research investigates the impact of the Noise Cancelling Program, aimed at enhancing mental skills in young athletes aged 10-19, on their psychological and performance outcomes. Due to a shortage of psychologists, especially in sports, there's a significant need for research and knowledge transfer to optimize the psychological functioning of children and adolescents. Initiated in England and adapted for Polish primary and secondary sports schools, the program encompasses eleven mental skills, including goal setting, communication, mindfulness, and stress management across 6 months.

Conducted at the University of Gdańsk, this longitudinal study recruited 219 participants from two schools. The project assesses the effectiveness of a mental skills training program for young athletes through comparative analysis of specified skills before and after intervention. The new questionnaire assesses the use of specific skills, including goal setting and shared values, the need for communication, mental health awareness (mindfulness, awareness), developing a functional and growth-oriented mindset, reducing overthinking, performing under stress, enhancing resilience, discovering and directing inner speech, utilizing multisensory imagery, pre-start routines, and improving concentration. This evaluation will be conducted as a pretest and posttest to measure the program's effectiveness in enhancing these mental skills. Additionally, two measures: SIQ-C, (Hall, Munroe-Chandler, Fishburne & Hall, 2009) and SSMTSQ-19 (Przybylski, Karasiewicz 2023) were applied to measure the sports-related imagery and sports-related mental toughness pre and post-intervention.

Although data collection is ongoing (the end of the project is June 2024), preliminary results regarding the program's efficacy in improving psychophysical mechanisms, psychoeducational skills and performance will be presented.

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## P308

### Doping in elite cycling: a qualitative study of the various situations of vulnerability

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**Objectives:** Doping is considered as a critical deviant behaviour in competitive sport, and particularly in cycling. The existing qualitative studies have contributed to identify situations of vulnerability to doping in athletes in relation to doping (e.g., Hauw & Mohamed, 2015). However, much of the research tends to focus on singular dimensions of vulnerability, such as physical or psychological aspects.

Therefore, the present study aimed to extend the existing knowledge by concurrently exploring and attempting to categorize different types of situations of vulnerability encountered by elite cyclists during their careers and that predispose them to engage in doping.

**Methods:** Ten high-level Francophone cyclists (Mage = 49; SD = 14.63), who had used doping during their careers, were recruited on a voluntary with the help of national federations and partner Anti-Doping Organizations. Semi-structured individual interviews lasting 60 to 90 minutes were conducted. The interview guide has been developed on the basis of the existing scientific literature. Situations of physical and psychological vulnerability were particularly explored, as well as the factors contributing to their development or emergence. A thematic content analysis (deductive and inductive) was carried out by a committee of experts who reached a consensus.

**Results:** Our results highlighted four types of vulnerability situation: (a) psychological (e.g., negative affects, maladaptive motivation, depression), (b) physical (e.g., exhaustion, deficiencies, injuries), (c) relational (e.g., organized doping, social isolation, control and sexual harassment), and (d) contextual (e.g., cycling culture, supportive entourage, climatic condition).

#### Discussion

A holistic understanding of the various vulnerabilities provides a clearer categorization of the situations of vulnerability that converge toward doping in sport. This work should facilitate future research in examining related vulnerabilities, alongside taking into account dispositional factors. Practically, it should also aid in better screening and preventing doping through providing more favorable environments for athletes.

Substance use, negative affects, maladaptive motivation, burnout, cycling

## P297

### Psychological predictors of mental well-being in Judo: Exploring the impacts of the coach-athlete relationship, perceived support, and psychological safety

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Psychological predictors of mental well-being are crucial for comprehending and improving athletes' mental health. Identifying and supporting mental health in athletes is important for a healthy elite sports system (Henriksen et al., 2019). Previous research suggested that strong coach-athlete relationships and a psychologically safe environment can positively influence the mental health of athletes (Barrio et al., 2021; Jowett, 2017; Walton et al., 2023). However, the interplay between these components and social support has not been tested empirically. Therefore, the present study aimed to explore the impact of coach-athlete relationship quality and psychological safety on mental well-being through perceived social support within and outside of sports. A sample of 323 national and international level Turkish Judo athletes (mean age: 20.09±3.97; 45% females) completed online questionnaires. Structural equation modelling revealed significant positive effects of the coach-athlete relationship on Judo athletes' mental well-being, mediated by social support and psychological safety. These findings demonstrate that the quality of the coach-athlete relationship enhances athletes' perception of their social support in and outside sport, improving mental health-related psychological safety and consequently elevating Judo athletes' mental well-being. Notably, the significant direct effect of coach-athlete relationship quality on psychological safety became insignificant when perceived support was added as a mediator. Put differently, the coach-athlete relationship alone was not a key factor for enhancing psychological safety, but it was positively influencing mental well-being via the perception of social support and enhanced psychological safety.

## P298

### Do patterns of physical activity and sedentary behavior differ by personality profiles?

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A lower proportion of moderate-to-vigorous physical activity (MVPA) in relation to sedentary behavior (SB) and a prolonged SB pattern are potentially linked to increased risks of all-cause mortality. This study extends previous research linking personality traits to the amounts of MVPA and SB by exploring whether patterns of MVPA and SB differ by personality profiles.

Data was obtained from the Jyväskylä Longitudinal Study of Personality and Social Development. Longitudinal information (ages 33, 42, 50 and 61) on five-factor model of personality (extraversion, neuroticism, conscientiousness, openness, and agreeableness) was utilized to create latent personality profiles (n=307). MVPA and SB were captured over seven days using a triaxial accelerometer during waking hours at age 61. Indicators included a ratio of MVPA and SB and usual MVPA and SB bout durations, the latter analyzed with both ANOVA and Kruskal-Wallis tests (analytical sample n=141).

Five personality profiles, namely resilient, brittle, overcontrolled, undercontrolled and ordinary, were identified. Ratios of group-level MVPA and SB varied between the groups: Individuals in the resilient (high in each trait except in neuroticism) and ordinary (average in each trait) profiles had ratios of 0.116 and 0.111 corresponding to 7 and 6.7 mins of MVPA per hour of daily SB, respectively. In contrast, those in the brittle (high in neuroticism) profile had a ratio of 0.083 corresponding to 5 mins. Individuals assigned to the resilient profile exhibited a longer usual MVPA bout duration compared to those in the overcontrolled (low in each trait except in conscientiousness) profile (8 mins vs 2 mins) and a longer usual SB bout duration compared to those in the ordinary profile (29 mins vs 23 mins).

Personality characteristics may contribute to how MVPA and SB are accumulated. Resilients displayed the most prolonged bout patterns of all profiles in both the MVPA and SB.

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## P299

### Teachers' perceptions about the role of intercultural competence in multicultural classrooms

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**Objectives:** The study investigated the role of intercultural competence (IC) in mediating the effects of school policies on teachers' practices and behaviors concerning cultural diversity, and their ability to address multicultural classroom challenges.

**Methods:** The sample consisted of 211 educators, predominantly female (67.6%), from Greece, Cyprus, Ireland, Germany, and Italy. Most participants were graduates, Master and holders (81.8%), with a majority holding permanent positions in schools (67.1%). Participants completed a survey assessing demographics, level of diversity among students, school policy regarding diversity, and teachers' IC. IC was measured based on four subscales: Intercultural Awareness, Intercultural Attitudes, Intercultural Skills, and Intercultural Beliefs.

**Results:** Initial regression analyses revealed significant relationships between school policy, teachers' IC, and their practices and behaviors concerning diversity. When teachers' IC was introduced as a variable in the regression model, the model maintained statistical significance, suggesting that teachers' IC may mediate the relationship between school policies and teachers' practices and behaviors concerning cultural diversity. Further mediation analysis confirmed the mediating effect of teachers' IC on the association between school policy and teachers' practices and behaviors concerning cultural diversity. The overall model was statistically significant, with teachers' IC mediating this relationship. The study also examined the relationships among school policy on diversity, teachers' IC, and teachers' ability to address classroom challenges. Similar to the previous findings, teachers' IC was found to significantly mediate the association between school policy and teachers' ability to address classroom challenges. The direct effect of school policy on teachers' ability to address classroom challenges was not statistically significant after accounting for the mediator, providing support for full mediation.

**Conclusion:** The study's findings could provide valuable insights into the influence of IC on teachers' multicultural practices and their ability to navigate diverse classroom settings. Further results and discussion are expected to follow this methodology section.



## P300

### Evaluation of a training course for teachers about school dropout

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** Addressing school dropout is crucial as it has far-reaching implications for both the individual and society. Educators play a pivotal role in addressing school dropout rates as they are responsible for creating an environment conducive to learning. Still there is limited evidence on the how educators are trained to tackle school dropout and whether this training is effective. This study presents an evaluation of a training course aimed at addressing the issue of school dropout.

**Method:** The course, attended by 11 educators and youth workers, included 25 hours of teaching theoretical background on addressing school dropout and good practices from Greece, Romania, Spain and Czech Republic. Participants evaluated the course with 7 closed-ended questions asking the potential of the course to provide valuable and applicable information on how to address school dropout and 3 open-ended questions with suggestions or recommendations.

**Result:** The results revealed that the course was highly rated for its quality and effectiveness in tackling key issues such as early school leaving, bullying, and low academic performance. The course met the unique challenges and needs of the target audience, providing them with valuable materials and resources. These resources were instrumental in enhancing their understanding of the issues and equipped them with the necessary tools to address these problems in their work. Participants highly evaluated the exchange of ideas from participants representing different countries and suggested for more practical activities.

**Conclusion:** The feedback from the participants underscores the success of the course in addressing the complex issue of school dropout, highlighting the potential for similar initiatives in the future.

## P301

### Exploring the relation between self-compassion and personality traits in adolescent elite athletes

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** Adolescent elite athletes often struggle to cultivate self-compassion due to the high pressure of competitive sports (Walton et al., 2020). However, athletes with higher self-compassion are better equipped to navigate the intense demands of elite sports to maintain psychological well-being and optimize performance. Personality traits such as extraversion and conscientiousness are significant predictors of self-compassion in adolescents (Qadriyah et al., 2020). Similar associations could exist in elite sports, where personality traits might influence the development and manifestation of self-compassion. This study explores how personality traits are associated with self-compassion in adolescent elite athletes.

**Methods:** The analysis includes 258 female and 199 male athletes with a mean age of 17.50 years (SD = 4.07; range: 13-37 years), competing at a regional (14%), national (50%), or international (36%) performance level. Self-compassion was measured with the Self-Compassion Scale for Youth (Neff et al., 2021), the Big Five personality traits with the Big-Five-Inventory-10 (Rammstedt et al., 2013). A multiple linear regression was implemented to predict self-compassion from the Big Five personality traits, with age and gender added as control variables.

**Results:** The multiple linear regression model significantly predicted self-compassion,  $F(7, 449) = 27.450$ ,  $p < .001$ ,  $R^2_{adj} = .289$ . Of the Big Five personality traits, neuroticism ( $\beta = -.385$ ), conscientiousness ( $\beta = .200$ ), and agreeableness ( $\beta = .158$ ) added significantly to the prediction,  $p < .001$ , whereas age and gender did not ( $p > .05$ ).

**Conclusion:** Neuroticism, characterized by self-criticism and emotional instability, contrasts sharply with self-compassion's emphasis on self-kindness and acceptance (Yang et al., 2023), potentially accounting for the negative correlation in adolescent athletes. Interventions designed to enhance self-compassion could be adjusted to consider an individual's specific personality profile (Walton et al., 2020). The findings justify longitudinal research to explore the causal relationship between the Big Five personality traits and self-compassion.

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## P302

### Is the ball still in the men's court? Examining gender perception of sports in Italy by comparing genders and cohorts

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**Objectives.** Despite the advances in women's participation in sports (Fink, 2015), "gender appropriateness" (Matteo, 1988; Koivula, 1995) or "gender perception" of sports (Fink, 2016) is still a relevant concept. In 2004, Lauriola and colleagues investigated it involving Italian adults, finding that many adhered to the male=strength vs. female=coordination/rhythm gender-based stereotype. Twenty years later, this study aims to identify whether gender perception of sports has changed, involving a wide sample of respondents from four age cohorts.

**Methods.** A total of 1244 participants (736 women) completed the Sport Rating Checklist (Lauriola et al., 2004), evaluating 50 Olympic Summer and Winter sports among the most well-known in Italy. Participants were primary schoolchildren (120), middle schoolers (270), high-school students (360), and adults (502).

**Results.** Sports were perceived into three categories, namely "feminine" (-1 SD), "masculine" (+1 SD) and "neutral", finding a distribution similar to Lauriola and collaborators (2004). We performed three Gender\*Cohort ANOVAs. Pairwise comparisons (contrasts) of estimated marginal means were employed to disentangle the interaction effect. For all three sport categories, results showed a principal effect of Cohort (.47 < partial  $\eta^2$  < .71), with adults showing less stereotypical representations than younger groups, and a Gender\*Cohort interaction effect (.01 < partial  $\eta^2$  < .02): in developing cohorts, male respondents consistently showed higher adherence to gender-based stereotypes. A network analysis of the sports grouped by gender perception will be presented.

**Conclusion.** Twenty years after, and despite a sample diversified by age, women in sports are still relegated, in Italians' imagination, to aesthetic sports. This underlines the need for a reflection on the gender socialization of sports, and on the role of the media in their representation (Vezzali et al., 2023; Bonato et al., 2024). Findings support educational cohort-related differentiated interventions.

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## P303

### Sport Psychology Practitioners' Contributions to the Drafting Process of a Professional Esports Team: A Case Study

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The process of drafting and recruiting players prior to a season is a prominent practice in traditional sport (Maher & Goldman, 2023). Drafting or “trials” often involve executives, scouts and coaches working collaboratively to identify athletes they would like to select for their teams, focusing on athletes’ tactical, technical, physical and social qualities (Maher & Goldman, 2023). Due to the increased recognition of the important role psychology plays in sport performance, members of staff have begun requesting Sport Psychology Practitioners (SPPs) to contribute to the decision-making processes during drafts and provide insight on athletes’ psychological makeup (i.e., personal traits and dispositions) to help inform stakeholders’ (e.g., coaches, sporting directors) decision making process (Maher & Goldman, 2023). Similar to traditional sport, esports organisations also engage in drafting periods to identify the next talents. Yet, a paucity of literature exists, in examining best practice during such trial periods in the esports context. In the current case study, we outline our process of being involved as sport and exercise psychologists in training (SEPit) during a professional National Overwatch team draft period for the 2023 Overwatch World Cup. As a supplementary resource to help staff during the selection process, we created player psychological profiles by assessing their psychological qualities through formal observation. Following the trials, we established an after-care service to support released players to monitor their well-being. Finally, we uncover the various hurdles we experienced during the trial period as SEPit by sharing a series of reflections.

Maher, C. A., & Goldman, S. (2023). Contributing to the draft process in professional sport organizations in the United States and Canada: Perspectives and guidelines for sport psychology practitioners. *Journal of Sport Psychology in Action*, 1-15. <https://doi.org/kj8q>

## P304

### A citation network analysis of talent selection in sports and business

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Sports and business organizations both strive to find and select the most promising talents. With this aim, recruiters in both domains are searching for predictive factors and methods, which results in an increased number of publications within the last decades (Williams et al., 2020). Because of its long history of selection research, business could serve as a support for talent identification and selection in sport (Lievens et al., 2021). To see, whether domains exchange information, we assess the interconnectivity of both domains by capturing the connections of business, sports, and psychology literature of the SCOPUS and Web of Science databases (n = 20.492). After following the PRISMA guidelines a citation network analysis (CNA) was conducted (n = 940) to see the interconnectivity either directly or indirectly via a general psychology literature path. CNA “seeks to map the scientific structure of a field of research as a function of citation practices” (McLaren & Bruner, 2022) and provides insights in the connection between fields by showing the extent and possible pathways as well as influencing articles or research groups. Results indicate a lack of interconnectivity (nlinks = 3.732) with only six articles being cited by the other context, divided equally. Sports articles referenced business research for talent definition, skill assessment, and methodological concerns. Contrarily, the business domain primarily used sports research as illustrative examples and for individual aspects of talent development models. This study highlights the potential for points of connection, including requirement analysis, skill assessment, and predictive validity research. Further research should systematically investigate salient topics in both contexts and those topics which are lacking research in the context of sport. Differences should serve as starting points to use information from the business context and to enhance talent selection in sports.

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## P305

### The Associations among Sedentary Behavior, BMI, and Mental Health in Jamaican Adults: The Jamaica Physical Activity Study

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The prevalence of, and factors associated with sedentary behaviour (SB) in Jamaican adults remains unclear. SB has been associated with obesity, physical activity engagement, mental and physical health, and living in a low-income country. Most evidence on SB has examined populations from Western high-income countries. Clarifying associations among SB and health-related factors will extend SB research in middle-income countries and inform intervention approaches to reduce sedentary time (ST). This study explored associations among ST, psychological distress (PD; controlling for self-worth), and body mass index (BMI; controlling for leisure time physical activity [LTPA] engagement) in Jamaican adults (n = 261; Mage = 30.7 years [SD = 12.50]; female = 58%; lower SES = 71.3%) using a cross-sectional survey design. Mean ST was 6.2 (SD = 3.87) hours per day, mean LTPA was 29.48 (SD = 27.78; i.e., active), and mean BMI was 25.9 (SD = 5.43; i.e., overweight). Path models uncovered four main findings. First, ST was positively associated ( $\beta = .12$ ,  $p = .023$ ) with PD (Model 1) but not BMI ( $\beta = -.01$ ,  $p = .836$ ; Model 2). Second, ST was positively associated ( $\beta = .30$ ,  $p = .019$ ) with PD and not BMI ( $\beta = -.07$ ,  $p = .446$ ) in a single model (Model 3). Third, Model 3 had exact model-data fit ( $\chi^2(3) = 4.82$ ,  $p = .185$ ) and explained 22% ( $R^2 = .22$ ,  $p < .001$ ) and 9% ( $R^2 = .09$ ,  $p = .007$ ) of the variance in PD and BMI respectively. Fourth, age and gender were the only significant demographic covariates of ST. ST was positively associated with mental health symptoms but not BMI. Age and gender may be important demographic covariates of SB. Gender- and age-appropriate behavioral intervention approaches to reduce ST may also result in improved mental health outcomes in Jamaican adults.

## P306

### Fear of heights: a progressive desensitisation method for climbers, hikers and runners

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

In the mountains, we meet many amateur and professional athletes who have a problem with vertigo (around 20%). Suffering from this condition can lead to a loss of confidence, guilt, anticipatory stress and sometimes a cessation of activities.

The common approach of one-on-one therapy can be time consuming and is slow to produce tangible results.

We have developed an intervention model based on group interaction, practice in the field and progressive exposure.

Each day includes psychological and technical support from a psychologist and a mountain guide. Progressive exposure allows participants to develop and put into practice new techniques while keeping their stress at a tolerable level. As the day progresses, the obstacles increase, allowing participants to develop confidence in both themselves and their supervisors, subsequently raising their tolerance threshold.

For the past 5 years, we have been supervising groups of 8 people on the trails (around 60 people a year). The results show an increase in the tolerance threshold, a return of confidence in one's own abilities and, above all, a reconnection to the enjoyment of the activity. These positive outcomes help to maintain the participants' motivation. The advantage of our protocol is that it can be adapted to climbers, hikers and runners, whether they are amateurs or top-level athletes.

Cognitive-behavioural therapy, positive psychology and techniques for managing emotions and stress through mindfulness form the basis of our programme.

In conclusion, we found that groupwork in the field led to rapid progress and a rapid return of self-confidence. Working outdoors, in the mountains, provides an important component and requires us to observe our surroundings, so that we can all connect with the present moment. We are also convinced that the mutual support provided through working as a group helps to deal more effectively with problems linked to fear.

## P307

### Relationship between Ruminative Dispositions and Sports Performance: Mediating Role of Problem-Oriented Coping Strategies

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Rumination, a cognitive process frequently observed in athletes, may have a nuanced relationship with sports performance, depending on individuals predisposed to specific facets of rumination dispositions. This involves a multi-dimensional rumination framework, including emotion-focused ruminative disposition (ERD), meaning-searching ruminative disposition (MRD), and instrumental ruminative disposition (IRD) (Fritz, 1999; Smith & Alloy, 2009). Additionally, ruminative dispositions are intertwined with coping strategies, both playing crucial roles in sports performance. The study aimed to investigate the relationships among ruminative dispositions, coping strategies, and sports performance in athletes, considering the perspective of multidimensional rumination. Furthermore, the study examined whether coping strategies mediate the relationship between ruminative dispositions and sports performance. The dataset, comprising 111 valid responses (aged  $19.57 \pm 5.76$  years, including 55 males and 56 females) from 136 elite athletes, underwent parallel mediation analysis to explore these relationships. The results revealed that ERD and MRD negatively predict sports performance, which were partially mediated by problem-oriented coping (POC) (ERD direct effect:  $\beta = -.340$ , 95% CI  $[-.542, -.137]$ ; ERD indirect effect:  $\beta = -.100$ , 95% CI  $[-.208, -.027]$ ; MRD direct effect:  $\beta = -.275$ , 95% CI  $[-.477, -.073]$ ; MRD indirect effect:  $\beta = -.080$ , 95% CI  $[-.164, -.012]$ ). In contrast, IRD positively predicts sports performance, which was fully mediated by POC (IRD direct effect:  $\beta = .057$ , 95% CI  $[-.156, .270]$ ; IRD indirect effect:  $\beta = .214$ , 95% CI  $[.051, .420]$ ). These findings suggest that athletes with higher levels of ERD and MRD tend to use POC less frequently, leading to poorer sports performance. Conversely, athletes with higher levels of IRD tend to employ POC more frequently, which is associated with higher performance. The proposed model provides the theoretical framework for multidimensional rumination in sport psychology and outlines the potential impact of coping strategies on sports performance.

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**P309**

**Coach-Athlete Relationships, Self-Confidence and Psychological Wellbeing: The role of Perceived and Received Coach Support**

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** Coaches are recognized as key support providers (e.g., Rees et al., 2012), and when athletes feel supported by their coach, the coach-athlete relationship is stronger (Simons & Bird, 2022). There is limited understanding, however, of how coach support relates to athletes' self-confidence and psychological wellbeing. This study examined whether perceived support, received support, and coach-athlete relationship predict self-confidence, and psychological wellbeing. A further aim was to identify if perceived and received support mediates the relationship between coach-athlete relationship and self-confidence, and psychological wellbeing.

**Methods:** A total of 537 athletes (Mage = 21.83, SD = 3.67) from a range of team and individual sports completed the following measures: Perceived Available Support Questionnaire (Freeman et al., 2011), Athletes' Received Support Questionnaire (Freeman et al., 2014), Revised Competitive State Anxiety Inventory 2 (Cox et al., 2003), Coach Athlete Relationship Questionnaire (Jowett & Ntoumanis, 2004), and the Warwick Edinburg Mental Wellbeing Scale (Tennant et al., 2007). In-line with previous research a mean score was provided for perceived and received support, rather than differentiating by support dimensions.

**Results:** Multiple regression analyses revealed received support significantly predicts psychological wellbeing, whereas perceived support and coach-athlete relationship predict self-confidence. Mediation analysis revealed coach athlete relationship is associated with a significant indirect effect on psychological wellbeing via received support, but not perceived support. In contrast, coach athlete relationship is associated with a significant indirect effect on self-confidence via perceived support, but not received support.

**Conclusion:** These findings demonstrate the significant role perceived and received support plays in bolstering positive coach-athlete relationships, athletes' self-confidence, and psychological wellbeing. Additionally, results suggest the mechanisms in which perceived and received support operate in relation to self-confidence and psychological wellbeing differ. These results have implications for how coaches can optimally support their athletes to enhance their self-confidence and improve their wellbeing.

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## P310

### “What the hell is happening to me”: A longitudinal exploration of diet, exercise, and self-compassion in retiring Canadian student-athletes

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Introduction:** Athletic retirement is a significant life transition with potentially deleterious effects on former athletes' social, mental, and physical health (Cosh et al., 2021), which North American collegiate athletes may experience uniquely when simultaneously transitioning from university (Fuller, 2014). Individuals with high athletic identification are particularly susceptible to maladaptive eating and exercise behaviors (Buckley et al., 2019), yet self-compassion may guide more adaptive transitions by supporting positive identity adaptation (Kullman et al., 2021) and healthier eating and exercise habits (Braun et al., 2016; Cuesta-Zamora et al., 2022).

**Objectives:** The purpose of this study was to explore how Canadian collegiate student-athletes experience retirement, specifically how they navigate personal eating and exercise routines post-sport, and how self-compassion may shape this process.

**Methods:** Seven varsity student-athletes of high athletic identification completed three semi-structured individual interviews, one in the month directly around their retirement, and two following the end of sport by two and six months respectively. Interview questions pertained to athletes' eating, exercise, and self-compassion practices, and were developed from Taylor and Ogilvie's 1994 athletic retirement model and Neff's 2003 self-compassion scale. We performed a longitudinal interpretative phenomenological analysis, bolstered by reflexive journaling and critical friend consultation.

**Results:** Results indicated participants' paths to acceptance of retirement were highly individualized, yet all reached relative acceptance by six months post-sport. Athletes' relationships with eating and exercise fluctuated, with unanticipated challenges emerging two months after sport. Participants' proclivities for self-compassion grew slightly outside of competitive athletic environments, likely supporting positive adaptations to life after sport.

**Conclusion:** Athletes' eating and exercise habits evolved uniquely as they transitioned from high-pressure athletic environments to autonomous post-sport routines. This study offers rare prospective insight into athletic retirement and pioneers self-compassion in retirement literature. Practically, it suggests recommendations for individuals and universities to better support Canadian student-athletes' transitions from collegiate sport.

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## P311

### Optimizing the Performance of Soccer Assistant Referees through Stroboscopic Training

**Pierluigi Diotaiuti<sup>1</sup>**, Beatrice Tosti<sup>1</sup>, Stefano Corrado<sup>1</sup>, Giuseppe Spica<sup>1</sup>, Stefania Mancone<sup>1</sup>

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objective.** The primary aim of this study was to evaluate the effectiveness of stroboscopic training in enhancing the visual perception, attention, and quick decision-making capabilities of soccer assistant referees (linesmen). Given the need for accurate and timely decisions in fast-paced and complex game situations, the study aimed to determine whether the use of stroboscopic glasses during training could lead to significant improvements in refereeing performance. **Methodology.** The study involved a group of professional assistant referees, who underwent a 10-week stroboscopic training program, with bi-weekly sessions. The sessions included visual perception exercises, reaction games, and game simulations to refine depth perception, attention, and reaction times. The assistant referees were assessed at the beginning and end of the program using standardized tests and performance analysis in simulated game scenarios. **Results.** The findings indicated significant improvements in visual perception abilities, reaction times, and the accuracy of decisions among the assistant referees who underwent stroboscopic training, compared to a control group that did not receive such training. These improvements suggest that stroboscopic training can be an effective method for refining the skills required for soccer refereeing. **Conclusion.** The study confirms the hypothesis that stroboscopic training can significantly enhance the visual and cognitive performance of soccer assistant referees, offering a competitive edge in the game context. These results pave the way for further research on the application of stroboscopic training in other sports that require quick and precise decisions under pressure. The integration of stroboscopic training into referee preparation programs could represent a significant innovation for referees seeking effective methods to improve their performance.

#### Keywords

Stroboscopic Training, Soccer Assistant Referees, Visual Perception, Decision Making, Refereeing Performance

## P312

### Enhancing Fencing Performance with Stroboscopic Training: A Cognitive and Visual Improvement Study

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives.** The primary aim of this study was to explore the effectiveness of stroboscopic training in enhancing cognitive and visual abilities of fencers, focusing particularly on anticipation of opponents' moves, reaction times, and spatial perception. Given the high-speed nature and precision demand in fencing, the study sought to determine whether use of stroboscopic glasses during training could lead to significant improvements in performance on the piste. **Methods.** The study involved a sample of 30 fencers aged between 18 and 30 years, evenly divided into a control group and an experimental group. The experimental group underwent a 6-week stroboscopic training program, with 40-50 minute sessions twice a week. The sessions included pattern recognition exercises, controlled duels, and reaction games, all conducted while wearing stroboscopic glasses. The control group followed an identical training program without the use of glasses. Both groups were assessed at the beginning and end of the study using standardized tests to measure reaction times, distance perception, and the ability to anticipate opponents' moves. **Results.** Findings indicated that the experimental group showed significant improvements in reaction times (-15%), distance perception (+20%), and the ability to anticipate opponents' moves (+25%) compared to the control group. These improvements suggest that stroboscopic training can be an effective method for refining visual and cognitive skills required in fencing. **Conclusion.** The study confirms the hypothesis that stroboscopic training can significantly enhance visual and cognitive performance of fencers, offering a competitive edge on the piste. These results pave the way for further research on the application of stroboscopic training in other sports requiring quick reaction times and precise decisions under pressure. The potential integration of stroboscopic training into athletic preparation programs could represent a breakthrough for athletes seeking innovative methods to improve their performance.

#### Keywords

Stroboscopic Training, Fencing Performance, Cognitive Abilities, Visual Skills, Reaction Times

## P313

### Athletes' leadership style and collective efficacy

**Galina Domuschieva-Rogleva**<sup>1</sup>, Viktorija Doneva<sup>1</sup>

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Leadership style and collective effectiveness are among the significant factors related to sports performance and satisfaction with sports activities.

Objectives: to reveal the manifestations of leadership style and collective effectiveness of athletes, differentiated by sex, kind of sport, and sports result.

The research was done among 356 athletes, 193 men, and 163 women, practicing team sports (volleyball, basketball, football, rugby, handball, field hockey, and baseball) with a mean age of 18.6 years ( $\pm 4.6$ ).

Methods: The following were used: Leadership Scale for Sport - (LSS) and Questionnaire for Collective Effectiveness in Sport - (CEQS), adapted for Bulgarian conditions.

Results: A stepwise regression analysis was applied to reveal the influence of leadership style on collective effectiveness. Ability was found to increase through training and instruction ( $\beta=0.269^{**}$ ) and giving social support ( $\beta=0.277^{**}$ ) by coaches. Building the training-competition process by applying training and instructions ( $\beta=0.433^{**}$ ) and democratic behavior ( $\beta=0.149^{**}$ ) stimulate unity. Training and instruction ( $\beta=0.483^{**}$ ) and democratic behavior ( $\beta=0.139^{**}$ ) positively influence persistence. Athletes' preparation increases when structuring the activity through training and instructions ( $\beta=0.353^{**}$ ) and providing social support ( $\beta=0.269^{**}$ ) by coaches. Efforts increase when applying training and instructions ( $\beta=0.395^{**}$ ) and democratic behavior ( $\beta=0.166^{**}$ ).

Conclusion: The results of this study give reason to assume that the leadership style of the coach influences the construction of the collective effectiveness of athletes practicing team sports.

Keywords: training and instruction; democratic behavior; preparation; persistence.

## P314

### Perceived motivational climate and group cohesion of athletes

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Perceived motivational climate and group cohesion are important factors affecting performance in team sports.

Objectives: to reveal the influence of the perceived motivational climate on group cohesion of athletes differentiated by sex, kind of sport, and sports result. The research was done among 356 athletes, 193 men, and 163 women, practicing team sports (volleyball, basketball, football, rugby, handball, field hockey, and baseball) with a mean age of 18.6 years ( $\pm 4.6$ ).

Methods: the Perceived Motivational Climate Questionnaire-2 (PMCSQ-2) and the Group Environment Questionnaire (GEQ), adapted for Bulgarian conditions, were used.

Results: A stepwise regression analysis was applied to reveal the influence of the perceived motivational climate on group cohesion. Cooperative learning ( $\beta=0.267^{**}$ ) and effort and improvement ( $\beta=0.124^{**}$ ) increase individual attraction to group-task (ATG-T), and punishment for mistakes ( $\beta=-0.106^{**}$ ) decreases it. Individual attraction to group-task is enhanced in cooperative learning ( $\beta=0.135^{**}$ ) and decreases in the dominance of a performance-oriented motivational climate ( $\beta=-0.274^{**}$ ). Group integration-social (GI-S) is positively affected by cooperative learning ( $\beta=0.388^{**}$ ) and negatively by unequal recognition ( $\beta=-0.202^{**}$ ). Perceived mastery-oriented motivational climate influences positively ( $\beta=0.329^{**}$ ), and perceived performance-oriented motivational climate ( $\beta=-0.127^{**}$ ) negatively influences group integration – task.

Conclusion: The results of this study give reason to assume that the perceived motivational climate affects group cohesion of athletes practicing team sports. They provide guidance to coaches for building an appropriate motivational climate related to optimal sports performance.

Keywords: mastery, performance, group integration, individual attraction.

**P316**

**Thriving Under Threat: A Scoping Review of Human Thriving in Recurring Potentially Traumatic, Elevated Threat and High Stress Work Environments**

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** Human thriving is defined as; ‘the joint experience of development and success’. The purpose of this review was to examine the literature on thriving in occupations where individuals are exposed to recurring threat, and potential trauma (e.g., first responders, military personnel). We further aimed to identify factors that enable individuals to move beyond a return to normal functioning and thrive.

**Method:** A scoping review methodology was utilised with searches conducted in CINAHL, Embase, Medline and PsychINFO. Search terms included thriving and its synonyms or related terms (e.g., flourishing, wellbeing and resilience) to ensure studies were not missed due to variations in terminology.

**Results:** 774 were identified, none of which used the word ‘thriving’ to describe the phenomenon of interest. However, following title, abstract and full text review, 23 articles were retained for data extraction (n=1 qualitative, n=22 quantitative) as they investigated aspects/components of thriving, but using different terms or synonyms. The 23 final papers focused on positive adaptation within the target population, with 18 papers reporting a combination of personal or contextual factors that enabled thriving and 5 papers exploring personal factors exclusively.

**Conclusions:** The concept of thriving was not directly investigated in any papers identified, however personal and contextual factors that contribute to moving beyond tolerance of high stress to an increase in function were identified. Personal factors included resilience, post traumatic growth and subjective wellbeing. Coping styles also appear to be related to an individual's ability to thrive, findings suggested that an active coping style is linked to greater wellbeing and avoidant coping can be helpful during a stressful event. Contextual factors identified included social support from colleagues and supervisors, shared humour and positive human connection. Understanding how individuals thrive and positively adapt to disruptions may inform workplace education and interventions.

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## P317

### The Forgotten Child – Abusive behaviour towards Young Referees in Swedish Sport Clubs

**Inger Eliasson**

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Child protection has rapidly ascended to a prominent position on the Swedish sports policy agenda (Eliasson, 2017), particularly since child protection measures were enacted into law in 2020. Despite the progress made under the United Nations Convention on the Rights of the Child (Lang, 2022), one group of children that appears to have been forgotten by the safeguarding initiatives in sports and academic research is young referees. The primary aim of this research project was to gain in-depth insights into the experiences and conditions of young referees while officiating in Swedish sport clubs. Specifically, the study aimed to examine the experiences and effects of emotionally abusive behaviour directed towards young referees officiating team sports matches. Data was gathered through semi-structured interviews conducted with 13 young referees officiating in both male and female football, and floorball games. The participants comprised seven girls and six boys aged 15–18 years old. The referees' experiences averaged 3.4 years on average (ranging from 1.5 to 6 years). The analysis process followed the inductive thematic analysis offered by Braun and Clark (2006), according to which thematic analysis is appropriate when the aim is to "report experiences, meanings, and the reality of participants" (p. 86). The findings reveal that young referees are exposed to emotionally abusive behaviour to a harmful extent. This abuse manifests through various forms of verbal and non-verbal criticism, aggressive behavior, and gendered prejudices expressed towards female referees. Consequently, the young referees experience anxiety, stress, fear, a decline in self-confidence, and diminished motivation to continue officiating. The study concludes that emotional abuse is predominantly expressed within the context of male teams. The discussion centers on how sport-governing bodies can develop initiatives to provide support, protection, and education for young referees, aligning with the principles of child protection outlined in the UNCRC (UN, 1989).

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## P318

### Dual Career of student-athletes through the lens of employability

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

This research aims to analyze student-athletes participation in University Dual Career programs through the lens of employability, empirically testing the Employability Capital Growth Model (ECGM; Donald, Baruch, & Ashleigh, 2024) within the target group of student-athletes.

Purposive sampling was applied to 20 student-athletes enrolled in University Dual Career programs and 20 graduate student-athletes engaged in the labor market at the time of the data collection.

Semi-structured in-depth interviews were conducted, audio-recorded and verbatim transcribed to collect data. Phenomenological-interpretative approach (Smith & Osborn, 2008) and theory-driven codes analysis was applied. Data analysis was performed using NVivo software for qualitative analysis.

The ongoing qualitative data analysis highlights that being in a Dual Career program could enhance the development of all the nine forms of employability capital regarding the ECGM. Specifically, Cultural Capital is mostly addressed to sports and competences developed within this context (i.e. stress management, teamwork, problem solving) that seems to be handled in Personal Identity Capital as well. Regarding Social Capital, dual career tutor and other significant figures (e.g., coaches, teammates) has been cited. Additionally, Career Identity Capital emerge in some interviews as fostered by the support received from tutors during the university path, particularly on emotional and psychological levels.

Dual Career programs have the potential to enable athletes in building long-term thinking and planning career beyond sports and to develop Employability Capital.

Within the ECGM (2024), stakeholders such as graduate students, educators, career professionals, and employers are highlighted; in the target group of student-athletes, key actors from Dual Career University programs (e.g., tutors) and from the sports world (e.g., coaches, agents, managers) should be included. Moreover, characteristics of Dual Career Providers should be considered as one of the external factors.

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## P319

### Outdoor sport in natural spaces as a tool for promoting connection with nature and community among vocational training school students

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Green exercise, namely physical activity conducted in natural settings such as parks and forests, has been recognized for its mental and physical benefits (Donnelly & MacIntyre, 2019). However, its impact on enhancing our connection with nature and the community is less documented (Eigenschenk et al., 2019).

The goal of this study is to investigate the impacts of outdoor physical activity in green spaces on self-efficacy, as well as connection with nature and the community, targeting a youth demographic. Specifically, it examines whether and how orienteering can enhance Self-Efficacy (Nota, Ferrari, & Soresi, 2005), Relatedness with Nature (Nisbet et al., 2009), and Sense of Community (Chiessi, Cicognani, & Sonn, 2010) among students attending vocational training school.

This case study centers on a health-promotion, sport-based intervention that includes orienteering sessions in urban parks, aimed at students in the first year of vocational training. The study employs a longitudinal, two-stage mixed-method approach: at T1 and T2, Focus Groups with students and interviews with class tutors are conducted, and participants are asked to complete a self-report questionnaire. During the orienteering sessions, researchers and teachers independently fill out an observation grid to assess participants' attitudes and behaviors.

Involving 160 students (n=21 female) from eight classes over two academic years, preliminary findings - despite ongoing data collection - reveal that the intervention boosts participants' willingness to engage with nature, improves spatial, psychological, and relational orienteering skills, increases self-efficacy, and fosters a renewed connection with community spaces like urban parks.

Aiming to fill a gap in the literature on green exercise's potential to promote eco-friendly attitudes and inform the design of health-promotion interventions, this study suggests that such activities in green urban areas can significantly enhance connection with the community, a concept that encompasses not only spaces and people but also the natural environment.

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## P320

### Overcoming gender barriers through adventure sports?

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**Objectives:** The domain of sports has mostly kept its conservative role in gender relations which is shown through sex segregation throughout sports participation in differentiated spaces, rules and gendered sports activities (Chalabaev et al., 2013). Adventure sports (AS) were developed in a different social context and are usually not separated by sex on a recreational level (Wheaton & Thorpe, 2018) which might lead to different gender-related experiences. Therefore, this study aimed to increase knowledge about gender-related experiences in female AS participants.

**Methods:** We interviewed 20 experienced female AS participants [10 downhill mountain bikers (DH) and 10 freeride skiers/snowboarders (FR)] with a mean age of 27.7 years using semi-structured interviews. The interviews were analyzed using a thematic content approach, underpinned by a pragmatic research philosophy.

**Results:** Four themes (identity, social media, adventure sports influences, reasons for few girls) were identified. Participants described how they have developed their own identity through adventure sports which was not bound to social constructions of gender perceptions. This was further seen in their descriptions of their social media behavior where they did not feel a need to appear stereotypically feminine. The strongest barrier which they linked to their gender was the description of being underestimated due to their sex. Reasons for few girls in the sport were named as sociocultural reasons such as the female gender role and connected with that, less social recognition for bold behavior in girls.

**Conclusion:** The results showed that female AS participants developed their own identity and definition of femininity apart from traditional gender roles. Thus, AS could help to overcome stereotypical notions of sports participation. The promotion of female AS by participants but also by sports organizations and brands could increase the visibility of female AS athletes and possibly reduce barriers for girls to start the activity.

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## P321

### Effects of physical activity counseling on accelerometer-based physical activity levels in in-patients with major depressive disorder: PACINPAT randomized controlled trial

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**Objectives:** Major depressive disorder (MDD) is among the most prevalent psychiatric illnesses worldwide. MDD is associated with a high risk of insufficient physical activity and an increased risk for cardiovascular diseases. Theory-based, individually tailored, in-person and remote physical activity counseling has the potential to increase physical activity levels in various populations. We therefore examined the effect of such a physical activity counseling intervention on the physical activity behavior of in-patients with MDD.

**Methods:** The study was designed as a multi-center, two-arm randomized controlled trial including initially insufficiently physically active adult in-patients with MDD from four clinics located in the German-speaking part of Switzerland. In total, 220 participants with a mean age of 41.0±12.6 years (52% women) were recruited and randomly assigned to an intervention (n=113) and a placebo control group (n=107). Accelerometer-based moderate-to-vigorous physical activity (MVPA) was used as the primary outcome.

**Results:** When comparing the intervention with the control group, no significant difference in minutes spent in MVPA was observed over the 12-month intervention period ( $\beta=-1.02$ , 95% CI: -10.68 to 8.64). Higher baseline physical activity significantly predicted physical activity at post and follow-up.

**Conclusions:** Our study shows that delivering an individually tailored, theory-based physical activity counseling intervention to in-patients with MDD is feasible. Whereas the study was well received and perceived as effective by the majority of the patients, the accelerometer-based MVPA assessments did not mirror this finding. Further efforts are warranted to identify ways to make physical activity counseling more efficacious in patients with MDD.

## P322

### Toxic behavior and Intolerance of Uncertainty as predictor of Trolling behavior

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Trolling is a phenomenon very present in video games, especially in League of Legends, which directly affects the performance of players. The present study aimed to predict Trolling from toxic behavior and intolerance to uncertainty. For this purpose, a sample of 380 amateur League of Legends players (68% male) with an average age of 24 years (SD = 4.12) from Argentina was composed. For this, they all answered a battery of questionnaires on Trolling, one on toxic behavior, and finally, one on intolerance to uncertainty, in their Spanish versions. Before this, all participants signed an informed consent form. A multiple regression analysis was performed, which yielded a significant model ( $p < .001$ ), explaining 28% of the variance. The major positive predictors turned out to be the demand for rights ( $t = 3.568$ ,  $\beta = .205$ ,  $p < .001$ ) and toxic behavior ( $t = 10.451$ ,  $\beta = .471$ ,  $p < .001$ ), while emotional intolerance was found to be a negative predictor ( $t = -2.009$ ,  $\beta = -.108$ ,  $p < .05$ ). The results show that toxic behavior predicts far and beyond trolling, compared to intolerance to uncertainty. These findings will be discussed with previous research, and will focused on the prevention of trolling behavior in online matches.

## P323

### Prediction of tilt from toxic behavior, emotion regulation and mental toughness in Argentinian players of League of Legends

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League of Legends is one of the leading esports in the world. One of the most common negative behaviors during League of Legends matches is tilt behavior, compromising the performance of the player and their capacity to stay focused. Objective: predict tilt behavior from toxic responses, emotion regulation, and mental toughness. Sample: 1152 male amateur esports players, with a mean of 22 years old (S.D: 4.16). Instruments: online tilt scale, toxic behavior scale, emotional regulation questionnaire, and the mental toughness Index, all in their Spanish versions. All individuals agreed on informed consent before participating in the study. Results: multiple regression analysis was performed to predict both forms of Tilt behavior, cognitive and emotional/behavior. For cognitive tilt, results showed a significant model ( $p < .001$ ), explaining 23% of the variance. The most important predictors were Toxic behavior ( $t = .15.871$ ,  $\beta = .420$ ,  $p < .001$ ), expressive suppression ( $t = 3.521$ ,  $\beta = 100$ ,  $p < .001$ ) and mental toughness ( $t = -4.845$ ,  $\beta = -.139$ ,  $p < .001$ ) as a negative one. For emotional/behavioral Tilt, also a significant model ( $p < .001$ ) was found, explaining a variance of 34%. Significant predictors were toxic behavior ( $t = 22.211$ ,  $\beta = .545$ ,  $p < .001$ ) and mental toughness ( $t = -4.116$ ,  $\beta = -.110$ ,  $p < .001$ ), again as a negative one. Discussion: toxic behavior may be a risk factor for tilt appearance, above and beyond emotional regulation, and mental toughness. Future studies should focus on the prevention of toxic behavior in online matches.

## P324

### No Pain No Gain: The Impact of Alexithymia on Performance Following Self-Control Exertion.

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Objectives: Self-control exertion has been linked to diminished performance and increased pain perception in tasks following self-control depletion (Hunte et al., 2021). Research has suggested that pain is a readily identifiable emotion in sport that alexithymic individuals glean regulatory effects from (Woodman & Welch, 2022), which may lead to potential performance benefits. It could be that athletes with alexithymia are less likely to experience attentional shifts (e.g., cessation of exercise due to pain) with aims to regulate their emotions, thus, optimising performance in tasks limited by pain and fatigue. Therefore, the study aimed to compare the effects of prior self-control exertion on subsequent physical performance in both alexithymic and non-alexithymic individuals.

Methods: 20-participants (15-males, 5-females; 22.5±3.5years) all currently involved in sport completed the Toronto Alexithymia Scale (Bagby et al., 1994) and were grouped as highly alexithymic ( $\leq 61$ ,  $n=10$ ) or non-alexithymic ( $\leq 52$ ,  $n=10$ ). The participants completed either a congruent Stroop task (non-self-control exertion) or an incongruent Stroop task (self-control exertion) for 4-minutes, and then performed a standing wall-sit until volitional exhaustion. Participants performance time was measured following volitional exhaustion of the wall-sit task.

Results: A repeated 2x2 measures ANOVA (alexithymia\*self-control) revealed no main effect for groups ( $p=0.825$ ) or performance time ( $p=0.556$ ). However, a significant group by performance time interaction ( $p=0.041$ ) showed that the alexithymia group experienced a small increase in wall-sit performance time when self-control was exerted ( $d=0.20$ ; 156 vs 177 seconds), whereas the control group experienced a small decrease in wall-sit performance time when self-control was exerted ( $d=0.11$ ; 180 vs 168 seconds).

Conclusion: These findings suggest that prior self-control exertion leads to better isometric muscular endurance for alexithymic athletes, suggesting that alexithymic athletes may optimize physical performance following cognitive exertion. Additionally, these results provide provisional support for alexithymic athletes utilising sport as a more adaptive means to regulate their emotions.

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## P325

### Person-Environment Fit: Investigating the Form of Life to Support Player Development at an Elite Football Academy.

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Contemporary research in talent development and high-performance sport highlights the influence of interactions between the athlete and the environment in successful pathway progression, personal development, and performance. However, specific research is limited on professional football environments and how this may impact player development.

**Objective:** In this paper we adopt Bronfenbrenner's bioecological model and the theoretical framework of ecological dynamics to investigate the 'form of life' at Southampton Football Club Academy.

**Methods:** We explore the experiences, beliefs, values, and opinions of 20 support staff (senior managers, coaches, performance analysts, and sport scientists) through in depth semi-structured interviews. Methodologically, we adopt a critical realist paradigm, a six-step reflexive and rigorous thematic analysis to build real-world knowledge of a complex and dynamic landscape.

**Results:** Findings provide a narrative of an elite football 'form of life' characterised by positive experiences, and people development, guided by social-historic and organisational constraints (proximal & distal).

**Conclusion:** We recommend further exploration of the 'form of life' through a multiple methods approach to provide a rich understanding of how the 'academy form of life' impacts upon on youth development in elite football.

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Social and cultural constraints on football player development in Stockholm: influencing skill, learning, and wellbeing. *Frontiers in Sports and Active Living*, 4.

## P326

### Gender and Age-related Variations in Organizational Stressors of Amateur German Players in Popular Team Sports

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**Introduction:** Despite the assessment of organisational stressors among elite sport performers gaining popularity, research accounting for these same affect experiences among amateur athletes is limited. The study investigated variations in the intensity, duration, and frequency dimensions of organisational stressors across gender and different age groups in team sports.

**Methods:** One hundred and twenty (N = 120) randomly selected amateur level German players (N = 65 males and 55 females), aged between 18 and 35 years, completed the Organizational StrIndicator for Sport Performers (OSI-SP) using the intensity, duration and frequency subscales.

**Results:** Multivariate Analyses of Variance (MANOVA) showed no significant interactions for between-subject factors (gender, age) across all the organizational strindicators. However, significant main effects were identified for gender and age on only intensity and duration. For the intensity dimension, a follow-up one-way between-subject ANOVAs showed group variations for only team culture (TC) across gender,  $F(1,115) = 5.588, p = 0.022, \text{partial } \eta^2 = 0.94$ . Specifically, the corrected t-test showed that female players perceived issues on TC as more intense than the males. A similar follow-up between age groups ANOVAS also showed differences for only TC,  $F(2, 114) = 3.142, p = 0.033, \text{partial } \eta^2 = 0.149$ . The 22-23-year old players perceived their organisational stressors under the TC sub-dimension as more intense than the 24-25-year old counterparts. Under the duration dimension, the follow-up corrected t test showed that female players' experiences under TC lasted longer than the males. Similarly, the 22-23 year players experienced organisational stressors under TC longer than the older players.

**Conclusions:** Players' organisational stressors are linked to TC, with gender and age-specific variations. Therefore, the development of gender-age specific sustainable interventions are required to mirror the players' stress intensity and frequency dimensions, especially for females and young players in team sports.

**Keywords:** frequency, intensity, organisational stressors, team culture

**P327**

**Social support and social identity outcomes from men’s lifestyle change interventions: Insights from RuFIT-NZ**

**Elaine A. Hargreaves**<sup>1</sup>, Pete Coffee<sup>2</sup>, Tim Rees<sup>3</sup>, Teketo K Tegegne<sup>4</sup>, Ralph Maddison<sup>4,5</sup>

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Objective: Successful sport-based lifestyle change programmes report that receiving social support is important for men’s engagement (Hargreaves et al., 2021). Simultaneously, a salient social identity as a group member has been proposed to explain their effectiveness (Stevens et al., 2017). Research is yet to establish the types of social support received from these programmes, whether members adopt a social identity, and the relationships between social identity and social support. This study explored these questions using data from the 12-week Rugby Fans in Training – NZ (RuFIT-NZ), gender-sensitised healthy lifestyle programme for men.

Methods: 200 overweight men (Mage = 45.7; SD = 8.7 years) were randomised to the RuFIT-NZ intervention (n=103) or a wait-list control group (n=97). For this secondary analysis, social support and social identity measured at 12- and 52-weeks were analysed. Mixed-effects models analysed the intervention effects and cross-lagged regression examined associations between social support and identity.

Results: Compared to control, the RuFIT-NZ group reported significantly greater social identity and esteem, informational and tangible social support at 12-weeks but not 52-weeks (B range from -1.28 to -0.34; p < .05). These forms of social support and identity declined across time in the RUFIT-NZ group (B range from -0.34 to -0.51; p < .05). Esteem support (12-weeks) positively predicted social identity at 52-weeks (B = 0.49, 95%CI 0.13, 0.85). Tangible support (12-weeks) negatively predicted social identity at 52-weeks (B = 0.24, 95%CI 0.12, 0.36). Social identity (12-weeks) did not predict social support types at 52-weeks.

Conclusion: Men identified as a RuFIT-NZ group member, receiving support in the form of confidence building, advice and guidance, and practical help during the programme, but support and identity had diminished a year after. Social support influenced identity creation suggesting proactively cultivating social support within men’s health interventions is important during and after programme completion.

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**P328**

**Cognitive Diversity Among Elite Moba and FPS Esports Athletes**

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Objectives: In the rapidly evolving esports space, grasping the cognitive traits that bolster an athlete’s performance is a potential competitive advantage (Himmelstein et al., 2017; Kegelaers et al., 2024). Our work aimed to uncover the trends within cognitive profiles of elite esports competitors. This poster examines trends between elite athletes in First Person Shooter (FPS) and Multiplayer Online Battle Arena (MOBA) style games.

Methods: N=73 athletes were subjected to a series of cognitive tests. These included a working memory task based on the work of McNab et al. (2014; 2015), an executive control system task based on the work of Neubert et al. (2010), and the Attention Network Task (ANT). Data was encoded as a pandas dataframe in Python 3.x and analyzed using the numpy, pingouin and sklearn statistical packages.

Results: This poster highlights findings pertaining to the reaction time (RT) - accuracy tradeoff (Heitz, 2014) between MOBA (League of Legends, Dota 2) (N=39) and FPS (Counter Strike, VALORANT, Rainbow6: Siege) (N=34) athletes. Among these findings are that MOBA athletes typically have equal or faster reaction times than FPS athletes with significant differences in slowest Reaction Time (p=0.044) in the control system task, and congruent flanker RT (p=0.002) and fastest RT (p=0.03) within the ANT. However, FPS athletes typically outperform MOBA athletes in the accuracy of their tasks with significant differences in center cue accuracy (p=0.04), wrong spatial cue accuracy (p=0.03), and incongruent flankers accuracy (p=0.02) within the ANT.

Conclusions: These findings suggest that at the elite level different esports find a different equilibrium in the reaction time - accuracy tradeoff. In particular, this balance is related to how consequential their in-game actions are within their game of preference.

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## P329

### Psychometric indicators Multidimensional Perfectionism Scale- (Sport -MPS2) In Arab culture

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The study aims to prepare the Multidimensional Sports Perfection Model - 2 (Sport - MPS2), which was developed by Madigan, Daniel (2016) to be compatible with the Egyptian environment. The study sample amounted to 248 athletes of both sexes in individual and team sports, and the model was translated into Arabic by bilingual experts. To ensure the validity of the translation and its compatibility with Egyptian culture, the internal consistency coefficient was used to verify the validity of the model and the Cronbach's alpha coefficient for reliability. It was found that the indicators of the statistical structure of the model are at an acceptable level of statistical significance, indicating that the model is a valid and reliable measurement tool that can be used to examine the factors associated with predictors of perfectionism among people. Egyptian athletes.

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## P330

### Examining the curvilinear relationship between grit and burnout in Japanese university student athletes: A comparison with the linear relationship.

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Grit is a noncognitive ability that predicts success in various domains and athlete performance and burnout tendencies (Cormier et al., 2021). Previous studies have shown a U-shaped curvilinear relationship between grit and athlete burnout (Amemiya et al., 2021). However, there has been no elaborate study of curvilinear relationship between grit and burnout because the curvilinear model and the linear model was not compared. It has also been demonstrated that using the 3-factor model of grit (perseverance of effort, consistency of interest, and adaptability to situation; Datu et al., 2017) is more likely to reveal adverse effects of grit (Hatto et al., 2023). This study aimed to examine the curvilinear relationship between grit and athlete performance (Amemiya 2016), and burnout (emotional exhaustion for athletic practices, lack of personal accomplishment, interpersonal exhaustion, and devaluation to club activities; Amemiya & Ueno, 2013), and somatic symptoms (Matsudaira et al., 2018) by comparing it with the linear relationship and using the 3-factor model of grit. We surveyed university Japanese student athletes (N=270) and conducted multiple regression and polynomial regression analyses. The models were compared using Akaike's Information Criterion (AIC). The results showed U-shaped curvilinear relationships between perseverance of effort and emotional exhaustion for athletic practices, and total burnout, and somatic symptoms. Additionally, adaptability to situation negatively predicted all burnout subscales and performance decline. However, consistency of interest positively predicted lack of personal accomplishment. These results indicate that athletes with high perseverance of effort have higher burnout tendency and more somatic symptoms. Furthermore, interventions that enhance adaptability to situation, rather than perseverance of effort and consistency of interest, can prevent burnout and performance decline in athletes. In the future, conducting additional studies that examine the detailed effects of the three factors of grit on athletes' mental health and performance is desirable.

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## P331

### Identity Changes, Social Support and Dual Career Attitude in Adolescent Student-Athletes

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** The pursuit of a sporting career alongside education commonly begins during adolescence, a phase in which personal identity takes shape. Research on student-athletes' identities has predominantly focused on recognizing the concurrent existence of both student and athletic identities in this population. Following this perspective, it is recommended to compare within-individual differences in student and athletic identity and investigate the antecedents and outcomes associated with these differences. Using a person-centered approach, this study examined the identity profiles that high school student-athletes exhibited and the extent to which these profiles were associated with sport social support, academic social support, and dual career attitude. **Methods:** In the first stage, 415 high school student-athletes were invited to provide data on athletic identity and student identity. Following a six-month interval, the same participants completed questionnaires covering athletic identity, student identity, sport social support, academic social support, and dual career attitude. A total of 367 valid samples were identified. **Results:** The results revealed three distinct profiles: maintaining high dual identity, athletic identity, and decreasing dual identity. The profiles of maintaining high dual identity and athletic identity showed stable levels of high athletic identity over time, whereas the student and athletic levels decreased in the decreasing dual identity profile. Student-athletes exhibiting the maintaining high dual identity profile reported higher levels of sport social support, academic social support, and dual career attitude than the other two profiles. **Conclusion:** The findings demonstrate that it is possible for student-athletes to sustain a high level of identification with the athlete and student roles simultaneously. Social support in sport and academic domains can contribute to maintaining more balanced and higher levels of athletic and student identities, which may improve a positive attitude toward dual career development.

## P332

### Exploration of Student Learning Stress and Achievement: A Program on Grit

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Grit has gradually garnered attention in the field of neuroscience. It involves abilities such as self-control, willpower, and the relentless pursuit of goals, crucial for overcoming challenges and adversity. Grit levels can be enhanced through sustained effort and training. Understanding how to develop grit becomes crucial in today's fast-paced and high-stress environments, aiding in coping with life's various challenges. To delve deeper into grit, this paper further explores its relationship with neural networks, analyzing the impact of brain regions such as the prefrontal cortex, hippocampus, and amygdala from neuroscience and psychological perspectives. However, the article discusses potential approaches for future educational institutions to implement. It suggests that educational institutions consider implementing practices focusing on the three constructs of "perseverance of effort," "consistency of interests," and "adaptability to situations" in fostering students' resilience. The aim is to explore whether these practices can help students establish and maintain resilience in their learning journey. Feedback regarding who participated in resilience-related seminars, was gathered through interviews with 20 students. This included: 1. Perseverance of Effort: Some students pointed out that this helps them establish good learning habits, overcome difficulties and challenges, enhance confidence and motivation, deepen understanding of learning, and achieve long-term goals. 2. Consistency of Interests: Students expressed that when they are interested in the subject matter and maintain consistency, their learning experience becomes more enjoyable and fulfilling. They also find it easier to feel a sense of achievement, which enhances motivation, broadens and deepens learning, and strengthens autonomy and initiative. 3. Adaptability to Situations: This concept enables students to flexibly and adaptively respond to learning challenges, adjust learning strategies and methods, and find effective ways to solve problems, thereby improving learning efficiency and effectiveness.

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## P333

### Exploring Student-Athlete's Social Identity During Transitions from Elite Sport into Higher Education

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**Objectives:** Individuals' commitment to identity domains can vary over time, meaning the dual careers of student-athletes may reflect dynamic transition paths that can alter decision-making and life choices (Mateu et al., 2020). The present study aimed to longitudinally explore student-athletes' experiences of transitions from elite sport into higher education and examine the associations between identity, well-being, and performance over time.

**Methods:** Ten undergraduate students (aged 18 to 20 years) who had transitioned into university within two years after having been released from or left elite sport clubs were recruited. Participants competed in various sports (e.g., men's football, women's football, men's rugby union, women's hockey). At three points throughout an academic year, participants completed measures of social identity, dual-career competency, burnout, well-being, and life satisfaction, and participated in a one-to-one interview.

**Results:** A repeated measures ANOVA will be conducted to examine the associations between participants' athletic and academic identity, well-being, and performance over 3 terms throughout an academic year. Thematic analysis of interview transcripts will highlight the key themes associated with students' experiences, identity, and well-being during transitions from elite sport into higher education.

**Conclusion:** The current mixed-methods study will allow for the examination of the associations between student-athletes' identity, well-being, and performance, as well as an in-depth exploration of their experiences of transitioning from elite sport into higher education over time.

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## P334

### The Influence of Athletic and Academic Identity on Student-Athletes' Adaptation to University and Well-Being

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** Athletes who are released during the junior to senior transition stage may encounter identity crises (Brown & Potrac, 2009). At the same time, such individuals are likely to experience transitions in other aspects of their lives, such as between secondary and higher education (Wylleman & Lavallee, 2021). However, the influence of student-athletes' varying levels of athletic and academic identity on adaptation to university and well-being is not fully understood (e.g., O'Neil et al., 2021; Rocha et al., 2021). Hence, the present study aimed to examine the associations between athletic and academic identity, adaptation to university, well-being, and life satisfaction, as to inform interventions to help student-athletes successfully transition into university.

**Methods:** One hundred and forty-five university students who competed in sport at any level completed measures of athletic and academic identity, adaptation to university, well-being, and life satisfaction. The sample represented 38 different sports, with the largest numbers involved in football (29), netball (16), lacrosse (14), rugby (13), and field hockey (12).

**Results:** Multiple linear regression analysis revealed that athletic identity, academic identity, adaptation to university, and life-satisfaction explained 45.6% of the variance in well-being ( $F(4, 140) = 31.21, p < .001, R^2 = .46$ ). Specifically, adaptation to university significantly predicted well-being ( $t = 2.70, p < .01$ ), as did life-satisfaction ( $t = 6.92, p < .001$ ). Further linear regression analysis indicated that congruence between athletic and academic identity predicted well-being ( $F(1, 143) = 4.31, p < .05, R^2 = .04$ ).

**Conclusion:** Student-athletes who embrace both an athletic and academic sense of social identity, as opposed to maintaining either a salient athletic or academic identity, display higher levels of well-being and life satisfaction. Interventions that support student-athletes in cultivating a multidimensional social identity that includes both athletic and academic identities could facilitate their adaptation to university whilst maintaining well-being.

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## P335

### Perfectionism and motivation in sports: associations and interactive effects of the two higher-order dimensions of perfectionism

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**Objectives:** Perfectionism, extensively studied in psychology and sports, involves setting unrealistically high standards and being overly critical (Frost et al., 1990). It consists of two higher-order factors: perfectionistic strivings and concerns, with potentially adaptive and maladaptive outcomes in sport (Hill et al., 2018). In the current study, we explored how perfectionism interacts to predict different types of sports motivation (intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation and amotivation). Past research showed diverse associations between perfectionism and motivation (Hill et al., 2018) and examined possible mechanisms that explain this relationship (e.g., Appleton & Hill, 2012; Jowett et al., 2013). However, there is currently no evidence regarding how the interaction between perfectionistic strivings and concerns may impact athletes' motivation.

**Methods:** In the present study a total of 396 athletes (Mage = 26.03; SD = 5.96) from diverse sport disciplines (e.g., football, volleyball, tennis) completed the Polish versions of the Sport Motivation Scale-6 (SMS-6; Blecharz et al., 2015), the Sport Multidimensional Perfectionism Scale 2 (S-MPS-2; Gotwals & Dunn, 2009) and the Performance Perfectionism Scale for Sport (PPS-S; Hill et al., 2016).

**Results:** Linear regression analyses revealed positive associations of perfectionistic strivings with all aspects of motivation, except for amotivation, where the association was negative. Perfectionistic concerns showed positive associations with external motivation and amotivation, and negative associations with the remaining aspects of motivation. The interaction between dimensions of perfectionism was a significant of intrinsic and integrated motivation. These models accounted for 15-30% of variance in motivational dimensions.

**Conclusion:** The results of the analysis seem to be an important point for further exploration of the relationship between described aspects. By investigating this link, practitioners can swiftly identify athletes' requirements and apply interventions to support them on two fronts: enhancing motivation levels and improving its quality.

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## P336

### Influence of parenting styles on athletes' help-seeking styles and stress coping styles

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Although athletes can seek and utilise available interpersonal resources as a coping strategy if needed, it has been reported that some athletes cannot appropriately seek support from others (Breslin et al., 2017). The tendency to seek assistance has been examined in help-seeking style research (e.g. Nagai, 2013). Referring to the existing research (Nagai, 2013), athletes who seek support only when they cannot solve a problem without assistance from coaches or parents would be categorised into the "independent help-seeking" style, considered an adaptive style. On the other hand, "excessive help-seeking" styles, which expect too much assistance from others regardless of need, and "avoidance help-seeking" styles, which hesitate to seek help even when needed, are considered undesired styles. In terms of developing an independent athlete who can appropriately utilise social support as required, it is essential to clarify mechanisms of how the help-seeking styles can be developed should be examined. In literature, environment or experience, such as parenting attitudes or parental relationships, can influence coping or help-seeking styles. This study, therefore, aimed to examine the relationship between athletes' help-seeking style, stress-coping style and parenting attitudes to identify features of athletes with "independent help-seeking" styles. Data were collected from two universities in Japan using convenience sampling. Two hundred and thirty-two university student-athletes (M20.78±1.89years) participated in the survey. Help-seeking style scale (Nagai, 2013), General Coping Questionnaire (Sasaki & Yamazaki, 2017), and Sports Parenting Scale (Togo et al., 2017) were used in the current study. Regression analysis was used to test whether parenting style significantly predicted coping and help-seeking styles. The results showed that parents' attitudes toward athletes correlate with help-seeking and coping styles. It was indicated that parents' empathic interactional style can influence athletes' help-seeking style. In conclusion, parents' attitudes might play a significant role in forming help-seeking styles, leading to help-seeking behaviour in athletic careers.

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## P337

### Usefulness of monitoring athletes' subjective responses across the season: A case of high-profile EKIDEN team

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Objectives: 'EKIDEN' is a long-distance road relay developed in Japan. One of the most popular ekiden races is the Hakone Ekiden, a two-day event at the New Year, consisting of 10 sections (217.1km). Keeping the optimal balance between training load stress and recovery is important to enhance runner's capacity and performance by reducing the risks of injury and illness (Herring et al., 2019). The purpose of the present study was to investigate the usefulness of monitoring runners' subjective responses across the season.

Methods: Participants were 48 male undergraduate long-distance runners (Mage = 20.5, SD = 1.8) who belonged to a high-profile ekiden team at a private university in Tokyo. They were categorized into four different training groups based on their condition and performance levels. The grouping was changed across the season by considering runners' latest condition and performance. Participants' stress and recovery states were measured four times (spring, summer, fall, winter) over 10 months by using a Japanese translated version of the Recovery-Stress Questionnaire for Athletes (REST-Q Sport; Kellmann & Kallus, 2000). MANOVAs were conducted on the RESTQ subscale scores separately for the four categories (general and sport-specific stress and recovery).

Results: Results of MANOVAs indicated that sport-specific injury scores were significantly different between groups in spring and fall (spring:  $F[3, 44] = 5.10, p = .004$ ; summer:  $F[3, 44] = 1.51, p = .225$ ; fall:  $F[3, 41] = 2.96, p = .043$ ; winter:  $F[3, 35] = 2.74, p = .058$ ). Post-hoc tests revealed that the poorer condition group expressed higher concerns about injury-related symptoms than better performance groups consistently in spring and fall.

Conclusion: Given the consistent results observed in the present study, it is useful to monitor athletes' subjective responses across the season. Timely effective interventions can be provided through monitoring their stress and recovery status.

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## P338

### Relationship between Personality Traits and Cognitive Strategies of College Students with Experience in Athletic Club Activities.

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Cognitive strategies are defined as consistent patterns of expectation, evaluation, planning, effort, and retrospection in the pursuit of goals (Cantor & Norem, 1986). Factors that influence the adoption of cognitive strategies in sports situations have not been studied. The present study examined the effects of the Big Five and athletic characteristic anxiety on each subfactor of the cognitive strategies in college students who had participated in athletic club activities.

A questionnaire consisting of cognitive strategies, Big Five, and athletic characteristic anxiety items was administered to 100 university students who had experience in athletic club activities. In order to examine the relationship between personality traits and cognitive strategies, multiple regression analysis was conducted using each subfactor of the Big Five and athletic trait anxiety as independent variables, and each subfactor of cognitive strategies as dependent variable.

Multiple regression analysis revealed that anticipation and rumination on failure was significantly positively associated with competition characteristic anxiety ( $R^2=.46$ , adjusted  $R^2=.43, p<.001$ ;  $\beta=.52, p<.001$ ), cognition of past performance was significantly positively associated with extraversion and significantly negatively associated with competition characteristic anxiety ( $R^2=.22$ , adjusted  $R^2=.17, p<.001$ ;  $\beta=.26, p<.01$ ;  $\beta=-.21, p<.05$ ), rumination on success was significantly positively associated with openness and significantly negatively associated with athletic characteristic anxiety ( $R^2=.14$ , adjusted  $R^2=.08, p<.05$ ;  $\beta=.22, p<.05$ ;  $\beta=-.22, p<.05$ ), rumination on planning was significantly positively associated with cooperation and diligence ( $R^2=.16$ , adjusted  $R^2=.11$ ;  $\beta=.32, p<.01$ ;  $\beta=.40, p<.001$ ).

The present study revealed that the subfactors of the cognitive strategies were strongly influenced by characteristic anxiety. In other words, trait anxiety enhances anticipation and contemplation of failure and contemplation of plans but interferes with recognition of past performance and contemplation of success. Defensive pessimism, which is thought to be a contemplation of both failure and success, cannot be explained in terms of personality traits.

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## P339

### Moving Forward: How Exercise and Sport Affect Cognitive Function and Pain of Individuals Living in a Greek Refugee Camp

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** Finding a foothold in a new society can pose serious challenges for forcibly displaced individuals, such as acquiring the local language and achieving financial independence. However, these individuals often face severe post-migration living conditions, impacting functional requirements for social integration (Schick et al., 2018). Therefore, we aimed to assess the impact of exercise and sport activities on cognitive function and pain among individuals living in a refugee camp in Greece while also examining the mediating role of cardiorespiratory fitness.

**Methods:** In this randomized controlled trial, we divided 142 forcibly displaced individuals (52.8% female) into an intervention group and a wait-list control group. Over 10 weeks, the intervention group engaged in tailored exercise and sports activities. Outcomes were sustained attention, inhibitory control, pain, and cardiorespiratory fitness. Effects were analyzed with structural equation modeling.

**Results:** Our data indicated that the intervention did not directly affect cognitive function and pain at T2 ( $p \geq .410$ ). In contrast, the intervention group significantly increased their cardiorespiratory fitness at T2,  $\beta = .18$ ,  $p = .008$ , in comparison to the control condition, whereas improvements in cardiorespiratory fitness were linked to faster reaction time in cognitive tasks,  $\beta = -.23$ ,  $p = .009$ , but not to pain,  $\beta = .06$ ,  $p = .500$ . In sensitivity analysis, more frequent participation was associated with reduced pain levels at T2,  $\beta = -.15$ ,  $p = .037$ .

**Conclusion:** Implementing exercise and sport activities in a refugee camp in Greece improves cardiorespiratory fitness among forcibly displaced individuals. Benefits on cognitive function and pain through exercise and sport may only be achieved by enhancements in cardiorespiratory fitness and regular participation.

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## P340

### The attractiveness of sports groups according to self-categorization – A vignette study with conjoint analysis

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According to the social identity approach (e. g. Rees et al., 2015), people prefer groups with similar others. The role of the social categories age, gender and weight-status has been investigated in the sports context, but rather as separated features of sports groups. A simultaneous consideration of these characteristics, and a recording of self-categorization seem more appropriate for the depiction of social identity. The overall purpose of our investigation was to examine the role of fit between self-categorization and the rating of fictional sports groups besides the weighing of the categories.

In the first study, we used (2x2x2 =) 8 different vignettes, which contained information about gender, age, and weight-status of sports group members (similar vs. dissimilar).

For the second study, we used 2 (male, female) x 3 (young, middle, old) x 2 (normal weight, overweight) = 12 vignettes. Participants of study 1 (N = 111; M = 33.59 years, SD = 11.71) rated the attractiveness on an 8-point Likert scale, while participants of study 2 (N = 123; M = 34.75 years, SD = 12.53) were given a 12-point Likert scale.

An online survey tool was used to gather the sports group rating and self-categorization according to the three categories. Weighing of categories and the preferred expression of categories in study 2 were analyzed through conjoint analysis.

In study 1 a single-factor ANOVA shows that higher fitting vignettes were rated better ( $F(1.69, 185.97) = 256.50; p < .001, \eta^2 = .70$ ). First results of study 2 show that the gender of subjects seems to be an important indicator of the preferences of sports group settings. The results of other subgroups and an analysis of different manifestations of the categories will be reported.

The findings provide a more comprehensive insight into self-categorization and attractiveness of fictional sports groups.

Rees, R., Haslam, S. A., Coffee, P., & Lavallee, D. (2015). A Social Identity Approach to Sport Psychology: Principles, Practice, and Prospects. *Sports Med.* 45. 1083-1096. DOI 10.1007/s40279-015-0345-4

## P341

### Unveiling the Longitudinal Reciprocal Relationship Between Burnout and Engagement Among Adolescent Athletes in Finnish Lower Secondary Sports Schools

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Background: Burnout and engagement are pivotal concepts for students' school well-being, as they are closely associated with academic success and have broader implications for subsequent life satisfaction and the prevalence of depressive symptoms (Fiorilli et al., 2017). Previous controversial results portray burnout and engagement as either direct negative opposites or as concurrent and mutually inclusive occurrences (Molinari & Grazia, 2023). For adolescent dual career athletes, sport presents another important context that generates an additional layer of difficulty in interpreting the true nature of the relationship between the two concepts. While acknowledging their interconnectedness (Sorkkila et al., 2018), a discernible research gap exists regarding the extent and direction of associations between burnout and engagement in school and sport.

Objectives: As part of a larger 3-year, lower secondary sports schools pilot project, the aim of this study was to examine the reciprocal relationship between engagement and burnout in school and sport by cross-lag analysis of longitudinal associations.

Methods: Two questionnaires were administered to 165 Finnish adolescent athletes (49 % girls, and 51 % boys) with an interval of 1 year (i.e., Grade 8 and Grade 9) enrolled in lower secondary sport schools.

Results: Burnout and engagement demonstrated significant auto-regressive relationships. Further, grade 9 sport burnout was predicted by low levels of sport engagement in grade 8, grade 9 sport engagement was predicted by lower levels of school engagement and sport burnout in grade 8, and grade 9 school engagement was predicted by lower levels of school burnout in grade 8.

Conclusions: This novel study empirically investigated the direction and strength of relationships among burnout and engagement, offering insights consistent with the demands-resources model and shedding light on their interconnectedness within school and sport settings. We encourage practitioners and researchers involved with athletes in dual career environments to delve deeper into these dynamics.

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Molinari, L., & Grazia, V. (2023). Students' school climate perceptions: Do engagement and burnout matter?. *Learning Environments Research*, 26(1), 1-18.

Sorkkila, M., Aunola, K., Salmela-Aro, K., Tolvanen, A., & Ryba, T. V. (2018). The co-developmental dynamic of sport and school burnout among student-athletes: The role of achievement goals. *Scandinavian journal of medicine & science in sports*, 28(6), 1731-1742.

**P342**

**Differential Psychological Profiles in Elite and Non-Successful Athletes: Implications for Stress Resilience**

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**Objectives:** Elite sport imposes substantial demands on athletes, underscoring the importance of stress resistance in performance and long-term success. This study aims to comprehensively investigate and compare the psychological attributes and stress resistance levels between high-achieving athletes and those with no significant athletic success, providing insights into the nuanced differences that may contribute to varying levels of athletic performance and resilience.

**Methods:** 33 athletes (elite n=15, non-successful n=18) underwent psychological assessment using validated measures, including the Big Five Personality Questionnaire, Stress Resistance Assessment, Rotter's Locus of Control Scale, Gottschald's "Embedded Images" methodology, Schwartzländer's level of ambition assessment, and A. M. Prikhodzhan's self-esteem measurement method. Statistical analyses, including independent samples t-tests and one-way ANOVA, examined differences between groups.

**Results:** High-achieving athletes demonstrated significantly higher levels of extroversion ( $54.8 \pm 8.07$ ,  $p < 0.05$ ), guilt expression ( $10.2 \pm 2.9$ ,  $p < 0.01$ ), activity ( $12.6 \pm 1.8$ ,  $p < 0.05$ ), conscientiousness ( $62.8 \pm 7.03$ ,  $p < 0.01$ ), expressiveness ( $12.33 \pm 2.1$ ,  $p < 0.05$ ), and emotional stability ( $45.27 \pm 6.67$ ,  $p < 0.05$ ) compared to the control group. However, stress resistance did not exhibit significant differences between the two groups. Further analysis revealed that "conscientiousness" ( $F=5.059$ ,  $p=0.032$ ) and "confidence-skepticism" ( $F=3.356$ ,  $p=0.079$ ) significantly influenced stress resistance in high-achieving athletes. Non-successful athletes displayed connections between most personality traits and stress resistance, including effects from locus of control ( $F=3.834$ ,  $p=0.026$ ) and dependence on the field ( $F=15.587$ ,  $p=0.000$ ). Comparative analysis highlighted differences in "conscientiousness" and primary scales, emphasizing attachment's role in athlete resilience and success, particularly among high-level athletes.

**Conclusion:** Psychological attributes, particularly attachment, play a crucial role in differentiating between high-achieving and non-successful athletes, influencing their levels of stress resilience and performance outcomes. Understanding these differences can inform targeted interventions to optimize athlete well-being and success.

**Acknowledgement:** This study was supported by the Higher Education and Science Committee of MoESCS RA, in the frames of the research project N 23AA-1F024.

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Smirnova, Z. V., Gruzdeva, M. L., Chaykina, Z. V., & Cherney, O. T. (2020). Stress resistance in building a career in sports. *Amazonia Investiga*, 9(29), 463-471.

Özdemir, N. (2019). The investigation of elite athletes' psychological resilience. *Journal of Education and Training Studies*, 7(10), 47-57.

Zakrajsek, R. A., Raabe, J., & Blanton, J. E. (2019). Psychological characteristics of elite athletes. In M. H. Anshel, T. A. Petrie, & J. A. Steinfeldt (Eds.), *APA handbook of sport and exercise psychology: Sport psychology* (pp. 129-148). American Psychological Association. <https://doi.org/10.1037/0000123-008>

## P343

### Application of a probabilistic methodology to determine optimal psychophysiological states during police tactical driving

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**Objective:** Research has consistently shown that performance quality varies as a function of one's emotional or affective state, and that this relationship is mediated by intrapersonal psychological characteristics, self-regulation strategies, as well as task-characteristics (Hanin, 1997, 2007). Using Kamata, Tenenbaum, and Hanin's (2002) Individual Affect-related Performance Zone (IAPZ) methodology, the probability for performing optimally can be determined based on one's psychophysiological state. While research has shown the applicability of this approach with individual athletes, the current study sought to explore application of this methodology to determine optimal psychophysiological states of three police officers during police tactical driving. **Method:** Two cadets (aged 23, 24) and one veteran officer (aged 47) participated in the study. Physiological arousal levels, gathered through introspective (self-report) and objective (heart rate) methods, were collected during tactical driving exercises and simulated high-risk vehicle pursuit scenarios to produce optimal psychophysiological profiles for each officer individually. **Results:** The IAPZ methodology identified idiosyncratic differences in optimal psychophysiological states among each officer characterized by variations in optimal and non-optimal performance zones and probabilities for success. Performance during the simulated high-risk scenarios revealed that the officers fluctuated between optimal and non-optimal performance states throughout the exercise. **Conclusion:** Results support the use of the IAPZ methodology to distinguish optimal psychophysiological states for police tactical driving. These findings have particular relevance for enhancing self-awareness and the use of self-regulation strategies to maintain optimal performance.

## P344

### Dual career and triple roles: Understanding multiple roles of student-athletes and their interactions using qualitative approach

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**Introduction:** Committed in both academic and athletic contexts, student-athletes (SAs) need to manage their student and athlete roles. Given the lack of research work on role interactions in the sport-school context, and the important research work existing in organisational psychology about role interactions in the work-home context (e.g., work-home resources model, ten Brummelhuis & Bakker, 2012), the central question of the present study was: which interactions exist in the sport-school context?

**Objectives:** This study aimed to identify the diversity of positive (i.e., enrichment) and negative (i.e., conflict) role interactions experimented by SAs.

**Method:** Semi-structured interviews were conducted among 17 SAs (eight men and nine women). Five SAs were at secondary school and 12 at university. The study included SAs from multisports: six in collective sports (i.e., handball, ice-hockey and rugby) and 11 in individual sports (i.e., track and fields, cross-country skiing, biathlon, snowboard). Data were collected between May and September 2022 and thematic analysis was used to examine the data.

**Results:** The thematic analysis revealed five categories: perceived factors influencing the dual career, roles involved in the dual career, perceived conflicts, perceived enrichments, and factors that might deteriorate or improve the perceived well-being of SAs.

**Conclusion:** Consistent with previous research, our results suggested that role interactions between athlete and student roles could be conceptualised mainly as work-home role interactions. In addition, the findings also revealed interactions between personal life and student roles that were distinct from interactions between sport and school roles. Finally, this study suggested the need for SAs to have personal, interpersonal and structural resources to face the many demands and to be successful in their dual career.

Ten Brummelhuis, L. L., & Bakker, A. B. (2012). A resource perspective on the work-home interface: The work-home resources model. *American psychologist*, 67(7), 545.

## P345

### Educational Needs of the Esports Industry: A Delphi Study

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The esports landscape has experienced substantial growth in recent years, engaging players, coaches, and scholars. Although research provided insights into various facets of esports such as stress (Leis & Lautenbach, 2020; Leis et al., 2023) and cognition (Pedraza-Ramirez et al., 2020), significant gaps persist, particularly in understanding and addressing educational needs in the evolving esports industry. Therefore, this study aims to inform educational needs in the esports industry. With the emergence of educational programs designed to equip individuals with the requisite skills and knowledge, a systematic review of existing higher education programs was conducted across various databases. This review identified 117 esports-related higher education programs with a predominant focus on bachelor's degrees (k = 51), largely led by the United States (k = 51). Business and management programs emerged as the most prevalent (k = 40), while management and production ranked third. Utilizing insights gain from this review, an online survey was developed to assess the educational needs for the creating of a specialized master's program. Twenty experts, combining applied and academic perspectives, will participate in two rounds of ratings and subsequent group discussions to inform the programs' development. This methodological approach ensures a nuanced exploration of educational needs, facilitating the evolution of programs in alignment with the dynamic nature of esports. Scheduled between January and February 2024, the group discussions aim to elicit in-depth insights into the identified gaps and educational requirements within the esports domain. The preliminary data presented at this very conference serves to contribute to the evidence base for informed and adaptable educational practices, which can be tailored to the complex demands of the esports industry.

Leis, O., & Lautenbach, F. (2020). Psychological and physiological stress in non-competitive and competitive esports settings: A systematic review. *Psychology of Sport and Exercise*, 51, 101738.

Leis, O., Sharpe, B. T., Pelikan, V., Nicholls, A., Fritsch, J., & Poulus, D. (2023) Stressors and coping strategies in esports: A systematic review. <https://osf.io/preprints/psyarxiv/ak9gt>

Pedraza-Ramirez, I., Musculus, L., Raab, M., & Laborde, S. (2020). Setting the scientific stage for esports psychology: A systematic review. *International Review of Sport and Exercise Psychology*, 13(1), 319-352.

## P346

### Developing the System of Dual Career Support for University Student-Athletes: An update of the Swedish National Dual Career Guidelines

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In 2018, the first version of the Swedish national dual career (DC) guidelines was issued by the Swedish Sports Confederation to answer the call from the European Union's guidelines on DCs (2012) and to promote a system of DC support across Swedish National Sports Universities (RIUs) and Elite Sports-Friendly Universities (EVLs). The policy document was a culturally informed synthesis of current national and international DC research, best practice examples across RIUs/EVLs, and in line with the Swedish strategy for Sports. Since that time, Swedish DC system at university level has been developed, which is seen, for example, in annual educations for DC practitioners across RIUs/EVLs and national sports federations, as well as in establishing the role of a DC-coordinator and national standard for DC policy for study flexibility across all universities. Alongside this organizational development there has been a rapid increase in DC research. Several reviews (e.g., Stambulova & Wylleman, 2019; Tessitore et al., 2021, Kegelaers et al., 2022) and recent FEPSAC position statement on athletes' DCs (Stambulova et al., 2024) contribute to development of the European DC discourse promoting athletes' striving for DC excellence. Considering the developments made, a national working group of practitioners and DC researchers across RIUs/EVLs and officials of the Swedish Sports Confederation met in a series of meetings during 2023-2024 to update the Swedish national DC guidelines. The updated version outlines the organizational model for RIUs and EVLs centered around developing DC development environments (Storm et al., 2021) and with context-informed and evidence-based guidelines on how to facilitate student-athletes' (a) academic development, (b) athletic development, (c) balance between sport, studies, and private life, and (d) career transitions. The updated guidelines set a national standard for DC support in line with recommendations from national (e.g., Linnér, 2021) and international DC research (e.g., Stambulova et al., 2024).

**P347**

**The Impact of Sports Participation on Social and Emotional Health in a Large Sample of Lithuanian Youth**

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**Objective:** This research study aimed to examine sport participation within a cumulative-assets framework measuring social and emotional health indicators in a large sample of Lithuanian adolescents recruited from urban cities and rural towns.

**Methods:** The initial sample totaled 2031 students. After eliminating submitted surveys with participants indicating ages greater than 17 (n = 66), the final sample for this investigation totaled 1965 (60.10% female of the total sample) ranging in age from 11 to 17 (M = 13.62, SD = 1.96). We coded the participants by sex, age, and sports participation to address our main research questions. Participants completed the Social and Emotional Health measurement (SEHS-S) and demographic questions that were analyzed using ANOVA and MANOVA analyses for interpretation.

**Results:** Many significant differences (p < .001) emerged for participant sex, age grouping, and sports participation (competitive, leisure, or none). Only for the sport participation were the MANOVA and ANOVA effect size values at least small in magnitude. In the follow-up analyses (all p's < .001), the competitive group differed from the no-sport group medium-to-large in meaningfulness and small compared to the leisure participant group in belief-in-self, belief-in-others, engaged living, emotional competence, and the meta-indicator covitality. Small-to-medium effect size values resulted between the leisure to no sport groups.

**Conclusion:** Sport participation, even for leisure, is related to improved self-reported social and emotional health in our large sample. Longitudinal research as a future research direction is encouraged to best understand and move forward with youth mental health in a sports context.

**P348**

**Coach-Athlete-Parent (C-A-P) Relationships in Youth Sports: The final version of Positive and Negative Processes in C-A-P Questionnaire (PNPCAP)**

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**Objective:** This research aimed to develop and present a reliable and valid instrument to measure interpersonal relationships between the coach, the athlete, and the parent in individual and team sports contexts. The instrument is administered to populations of coaches, athletes, and parents within youth sports to better understand the relationship between all three stakeholder groups and provide support to maintain healthy relationships.

**Methods:** To develop this instrument, two studies were completed. In Study 1, 308 participants completed the existing 48-item measure, resulting in 15 items that were fit into two dimensions, positive and negative group processes. In Study 2, 678 participants completed the 15-item measure. The first study presents an exploratory factor analysis, and the second study reports on a confirmatory factor analysis.

**Results:** After examining the analyses, a final version of 11 items remained to form the Positive and Negative Processes in the Coach-Athlete-Parent Questionnaire (PNPCAP).

**Conclusion:** The PNP-CAP is a valid brief 11-item measure for assessing interpersonal relationships among coach-athlete-parents in both team and individual sports contexts. Future research is needed to continue to develop the scale for construct validity as well as translate the scale into multiple languages to determine validity across countries.



## P349

### Adolescents-athletes' combined perceptions of the behaviors and attitudes of coaches, parents and peers toward their competitive sport: A scoping review

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**Objectives.** The sporting experience is shaped by many factors, including the interactions between the athlete and his social environment, through behaviors and attitudes (Keegan et al., 2014). The social environment of an adolescent-athlete, is mainly composed by coaches, parents and peers (Wylleman & Lavallee, 2004). In contrast to previous reviews, this scoping review was conducted to systematically map and provide an overview of the research exploring simultaneously and in combined ways adolescent-athletes' perceptions of the behaviors and attitudes of the three social agents (i.e., coaches, parents and peers) towards their competitive sport.

**Methods.** Five databases were explored (i.e., SPORTdiscus, PsycINFO and PsycArticles, Web of Science and PubMed). All study designs were considered without restrictions on publication date, associated variables and theoretical frameworks. Protocol was drafted using the PRISMA-ScR guidelines.

**Results.** A total of 27 studies, all quantitative, were included. Achievement goal theory (Ames, 1995) was the most common theoretical background, while a quarter of the studies didn't use clear theoretical background for athletes' perceptions of their social environment. Results include an overview of the tools used and the characteristics of each social agents. Forty-nine associated variables and 23 different behaviors and attitudes related to their social environment were explored and may grouped into 4 categories: motivational (e.g., task motivational climate), sport (e.g., sport investment), interpersonal relationships and social support (e.g., acceptance); and violence, punishment and pressure (e.g., pressure to be thin).

**Conclusion.** Results of this scoping review suggest that future studies would benefit from adopting an holistic approach (i.e., consider athletes' perceptions in a combined way rather than independently) to explore athletes' social environment in order to better understand its consequences on athletes' well-being and performance. Guidelines for future research are proposed.

Keegan, R. J., Spray, C. M., Harwood, C. G., & Lavallee, D. E. (2014). A qualitative synthesis of research into social motivational influences across the athletic career span. *Qualitative Research in Sport, Exercise and Health*, 6(4), 537–567. <https://doi.org/10.1080/2159676X.2013.857710>

Wylleman, P., & Lavallee, D. (2004). A Developmental Perspective on Transitions Faced by Athletes. In M. R. Weiss (Ed.), *Developmental sport and exercise psychology: A lifespan perspective* (pp. 503–523). *Fitness Information Technology*

## P350

### Differences in trait mindfulness of female university athletes based on their Experiences of time-loss due to sports injuries

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** In recent years, there has been increasing attention on the mindfulness of athletes, with implications suggesting reductions their anxiety and stress (Mohammed, Pappous, and Sharma, 2018). However, research on the formation of mindfulness traits in athletes remains limited. This study aimed to investigate the differences in current mindfulness traits between athletes who had time-loss experiences due to sports injuries or not.

**Methods:** Participants were 66 female athletes (Mage =20.19, SD = 1.19) affiliated with university cheerleading team in Japan, enrolled between 2020 and 2023. Data were collected in January 2024 using the Japanese version of the Five Facet Mindfulness Questionnaire (FFMQ) (Sugiura, Sato, Ito, and Murakami, 2012) to measure trait mindfulness. The injury data from 2020 to 2023 documented by the team athletic trainers were utilized for this study. Time-loss was defined as injuries resulting in missing one or more practices or games (Sunagawa et al., 2022). Independent t-test were conducted to examine differences in current trait mindfulness based on presence or absence of time-loss experiences due to sports injuries.

**Results:** Out of the 66 participants, 29 reported experiencing time-loss due to sports injuries. No significant difference was found in the total FFMQ scores between with and without time-loss experiences ( $t(65) = 1.566, p = .122$ ). However, in the Non-judging facet, one of the FFMQ facets, athletes who experienced time-loss due to sports injuries exhibited significantly higher scores compared to those who did not ( $t(65) = 2.037, p = .046$ ).

**Conclusion:** The stressful period of time-loss for athletes, may offer opportunities to observe themselves and team dynamics objectively.

Mohammed, W. A., Pappous, A., & Sharma, D. (2018). Effect of mindfulness based stress reduction (MBSR) in increasing pain tolerance and improving the mental health of injured athletes. *Frontiers in Psychology*, 9, 722. <https://doi.org/10.3389/fpsyg.2018.00722>

Sugiura, Y., Sato, A., Ito, Y., & Murakami, H. (2012). Development and validation of the Japanese version of the five facet mindfulness questionnaire. *Mindfulness*, 3(2), 85–94. <https://doi.org/10.1007/s12671-011-0082-1>

Sunagawa, N., Manabe, T., Hangai, M., Hosokawa, Y., Okuwari, T., Hirose, N., Nakayama, H., Take-tomi, S., Kasahara, M., Mashimo, S., & Masujima, A. (2022). Recommended methods for sports injury and illness surveillance: Japanese society of clinical sports medicine and Japanese society for athletic training consensus document. *Japanese Journal of Athletic Training*, 7(2), 155-171. [https://doi.org/10.24692/jsatj.7.2\\_155](https://doi.org/10.24692/jsatj.7.2_155)

## P351

### A randomised controlled trial of the effectiveness of a compassionate mind training intervention for academy football players

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**Objectives:** This study examines the effects of an adapted 8-week programme of Compassionate Mind Training (CMT) for academy football (COMMIT) on the performance and wellbeing of a sample of academy football players aged 9-15 years old at a professional football club in England.

**Theoretical background:** Compassion interventions for reducing and recovering from extreme emotions are of interest in sport and performance environments (McCarthy et al., 2013). CMT is the psychoeducation and skills building part of Compassion Focused Therapy (CFT; Gilbert, 2009). CFT is a biopsychosocial approach (Gilbert, 2022) that draws heavily on developmental psychology and attachment theory as well as cognitive neuroscience (Carona et al., 2017). Self-compassion has been shown to be linked to wellbeing in pre-adolescents and adolescents (Bluth & Blanton, 2014). However, randomised controlled trials of compassion-based interventions with children and adolescents are needed to improve understanding of the effects of compassion-based interventions on these age groups (Kirby et al., 2017). No studies have been conducted in elite youth sport or have measured the effects of compassion on performance as well as wellbeing.

**Design and method:** A mixed methods experimental design was adopted that compares a COMMIT intervention group (n = 30) with a waitlist control group (n = 30). Volunteers attended short weekly workshops integrated into their usual training programme and received on-pitch support. Quantitative measures were assessed pre- and post-intervention as well as at 2-month follow-up. Additionally, participants had their performances in games filmed and attended focus group interviews before, during and after the intervention.

**Results and discussion:** It is hypothesised that compared to the control group, the COMMIT group will demonstrate increased levels of self-compassion, wellbeing, subjective performance, objective performance, sense of mastery and relatedness, as well as decreased performance anxiety and emotional reactivity. All data have been collected. Provisional quantitative results will be presented.

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## P352

### Finding Flow: Helping professionals to achieve flow

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Flow is often referred to as the holy grail of optimal performance. Research on psychological flow is well established, though no gold standard flow training program exists. Recent advancements in the conceptualisation of flow to a three dimensional construct has highlighted common overarching psychological, neuroscientific, physiological, and coaching themes to flow (Norsworthy et al., 2023), that have made the applicability of finding flow more practically useful. In this roundtable, we discuss a series of studies outlining how the latest research on flow can provide a framework for flow attainment and showcases our findings on the practical barriers and success of working with elite professionals to find flow intentionally.

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## P353

### A Qualitative Study to Explore the Effects of Social Media on Jockey Welfare

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objective:** Anecdotal evidence suggests that jockeys experience a range of interaction across various social media platforms due to the public status of horseracing. The study sought to investigate the dynamics of social media engagement directed at professional jump jockeys, with a specific focus on the impact of horseracing's betting culture. The research aims to identify and understand how the nature of these online interactions influence the overall well-being of jockeys.

**Methods:** Eight professional jump jockeys, comprising males (n=4) and females (n=4), competing in both Ireland and Great Britain took part in the study. Semi-structured interviews were conducted to gather insights into their experiences with social media as professional jockeys. In particular, the jockeys were questioned about their perspectives on horseracing's gambling culture and how they feel it influences the nature of interaction they receive. Braun and Clarke's (2006) framework for reflexive thematic analysis was used to interpret the collected data.

**Results:** The qualitative analysis revealed four significant dimensions from the data: social media as a tool, gambling culture, jockey interaction and self-presentation, and coping strategies. Within these dimensions, nineteen higher-order themes and an additional twenty-three subthemes were identified, providing a comprehensive understanding of the nuances within the study's scope. An overarching theme emerged concerning the pervasive gambling culture and its impact on the interactions experienced by jockeys.

**Conclusions:** The gambling culture inherent in horseracing plays a pivotal role in fostering negative engagement experienced by jockeys on social media platforms. The negative engagement manifests in various forms, including aggression, threats, bullying, accusations, sexualisation, and berating. Age proved a key factor in buffering jockeys from online abuse. Older and more experienced jockeys demonstrated increased resilience (Nicholls & Polman, 2007) to such abuse while younger jockeys were perceived as more vulnerable, lacking sufficient guidance and protective measures to shield them from online negativity.

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## P354

### The 'ITeamActive' physical activity and wellbeing programme in a UK police population

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**Objectives:** Police work in the UK is stressful (Police Federation, 2021). This work-related stress has negative associations for police workers' mental health, wellbeing and ability to fulfil the demands of their roles (Police Federation, 2021). Further, such work-related stress can also adversely impact police workers family relationships (Tuttle et al., 2018). One area of support that can protect police workers from stress and improve their physical and psychological wellbeing is the provision and engagement of physical activity (Gerber et al., 2010). Some physical activity interventions, informed by sport and exercise psychology, have begun to establish this relationship in a police context (e.g., Anshel & Kang, 2008; Oliver et al., 2021). The 'ITeamActive' programme aimed to improve the health and wellbeing of police workers through increased physical activity, undertaken with their families. The objective of this research was to evaluate the 'ITeamActive' programme.

**Methods:** Four UK police forces piloted the 'ITeamActive' programme. 156 police workers joined the programme with 198 family members. The programme was assessed against police worker physical activity behaviour, wellbeing, and work-related variables using quantitative and qualitative approaches.

**Results:** The 'ITeamActive' programme provided statistically significant benefits for police worker perceptions of physical activity behaviour, wellbeing and work performance. Interviews indicated that participants enjoyed the 'ITeamActive' programme and perceived positive physical, psychological and social impacts. Social impacts positively affected family and work relationships.

**Conclusion:** The ITeamActive programme had positive impacts on police physical and psychological wellbeing. Physical activity programmes can promote wellbeing within the police workforce and support thriving under work-related stress.

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## P355

### Characteristics of Commitment in Japanese Student Athletes: An Examination from Burnout

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Factors of sports group affiliation and sports continuity are examined in terms of organizational commitment and sports commitment. Orimo and Takai (2023) created clusters using both concepts and examined their characteristics, but the number of subjects surveyed was small and the characteristics of commitment were not examined in detail. In this study, we conducted a cluster analysis of commitment among student athletes and reexamined the characteristics of commitment based on the concept of burnout (Amemiya et al, 2013), which is related to dropout. The subjects of the analysis were 471 Japanese student athletes (311 males and 160 females, mean age 20.09±0.76 years). This study utilized the data used in Orimo and Takai (2023) to conduct additional research. Hierarchical cluster analysis was conducted based on the standard scores of the organizational commitment (Orimo and Takai, 2021) and sports commitment (Orimo and Takai, 2023) subscales in order to classify the analyzed subjects. Regarding the burnout, a one-factor analysis of variance without correspondence was performed with the obtained clusters as independent variables and burnout subscale scores as dependent variables, and multiple comparisons were made using the Tukey method when significant main effects were found. First, a hierarchical cluster analysis revealed four interpretable clusters. The Cluster 1 and 3 had lower commitment scores, especially Cluster 3 in perceived negative aspects. The Cluster 2 and 4 had higher commitment scores, especially Cluster 2 perceived positive aspects. Next, in order to identify the characteristics of each cluster, the characteristics of burnout were examined across the four clusters. The results showed that the Cluster 1 scored significantly higher than the other clusters on all subscales. Furthermore, the Cluster 3 scored significantly higher than the Cluster 2 and 4. These results indicate that commitment among Japanese student athletes can be categorized into four clusters, each with different characteristics.

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## P356

### A[head] of the game: An exploration of disabled athletes experiences with, and coach-athlete conversations of, mental health and illness

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Disabled athletes often experience poor mental health (Swartz et al., 2019). Positive sport experiences can improve mental health, however, disabled athletes are at risk of negative sport experiences (Castaldelli-Maia et al., 2019). There is a need to focus on the quality of the sporting environment to improve mental health outcomes of disabled athletes. In line with the quality parasport participation framework (Evans et al., 2018), which posits that quality sport experiences are defined by satisfying one or more of six building blocks (autonomy, competence, challenge, mastery, engagement, belonging), the purpose of this qualitative study was to explore high-performance disabled athletes' experiences of mental health within disability sport. Participants were 10 disabled athletes with 6-23 years of national/international sport experience (Mage=34.6; 7 men, 3 women; impairment type: 6 physical, 2 sensory, 2 physical and developmental; 7 with history of diagnosed mental illness). Participants completed semi-structured interviews using an arts-based method of body-mapping (ranging from 59 to 110 minutes). Within the interview guide, the quality parasport participation framework's building blocks were contextualized to mental health. Interviews were transcribed and analyzed using verbatim codebook inductive thematic analysis. Five researcher-developed themes were generated: (i) early specialization in adulthood, (ii) abuse-free sport doesn't equate to safe sport, (iii) give me what I need to be autonomous, (iv) negative peer relationships 'cut deeper' than coaches, and (v) the need for blurred lines in professionalism so that disabled athletes can ask coaches with lived disability experiences personal questions outside of the sport environment. While the relationship with other athletes was influential in shaping mental health experiences, athletes highlighted coaches were responsible for fostering athlete interactions. Learning about the relationship between sport and mental health can help to prioritize disabled athletes' needs with the goal of developing quality sport environments that lead to positive mental health outcomes.

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## P357

### Profiles of Actual and Perceived Motor Competence Among 9-14 Year Old Girls: Associations With Biological Maturation, BMI, and Sports Participation

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When perceived motor competence(PMC) aligns with performance outcomes, motivation and maintenance of activity increase(De Meester et al.,2020). Interestingly, some studies have shown that girls have higher locomotor skills than boys but lower perception (Field et al.,2020;Tietjens et al.,2020;Zeng et al.,2019), and the mechanism behind this needs to be explored. Actual motor competence(AMC) may decrease during peak height velocity(PHV; Sheehan&Lienhard,2019) and early-maturing girls may be less physically active than late-maturing girls(Bacil et al.,2015). Thus, this study aimed to examine AMC and PMC concerning biological maturation(BM), body mass index(BMI), chronological age, and sport participation in girls aged 9-14. A total of 909 girls(Mage=11.76,SD=1.66 years) completed "The Körperkoordinationstest Für Kinder", "Perceived Motor Competence Questionnaire for Children" for ages 9-11, and the "Physical Self Inventory-VS" for ages 12-14. BM was calculated using the PHV formula(Mirwald,2002). MANOVA was used to examine the AMC and PMC on BM classification(early/average/late) and sports participation groups(non/<1 yr/≥1 yr) in PHV states, and BMI, biological age, and chronological age in PMC profiles. Significant groups were further analyzed using ANOVA. Corrected p-values were used with Bonferroni correction for multiple comparisons. Variance homogeneity was checked with the Levene test. If homogeneity was not met, significance and F-value were assessed using the Welch test. In pairwise comparisons, Tukey's or Tamhane's test was used according to variance homogeneity. Lastly, Chi-square test used to examine sport participation and BM groups in PMC profiles. Results show that early-maturing and non-sport-participant girls demonstrated lower AMC for all PHV status(p<0.05). Late-maturing girls had lower scores in only perceived object control in ages 9-11, while non-sport-participants in all PMC scores in ages 9-14(p<0.05). Late-maturing girls tended to be under-estimators, while early-maturing girls over-estimators(p<0.05). BMI values and chronological age were lower in the under-estimator and over-estimator profile, respectively(p<0.05).

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## P358

### Matrioska careers: disclosing football competences to cope with precariousness, a grounded theory study

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The study aims at building an interpretative model that relates the constructs of precarity (Culvin, 2023), transitions (Hendry & Kloep, 2001) and competences (Santos et al., 2010), in the professional football sector, by 1) identifying specific traits of precarity experienced by professionals; 2) understanding what learning strategies are in use for competence development; 3) identify a set of psychosocial competences, especially those indicated by sports professionals as key to coping with precariousness.

Within a qualitative psychosocial approach (Gozzoli, 2016), using a Grounded Theory methodology (Charmaz & Belgrave, 2012), 25 in-depth interviews are being conducted. Three auxiliary instruments are presented during the interview: a projective one (images taken from the clinical-generational interview (Cigoli & Tamanza, 2009), an assessment one (Performance Profile (Butler & Hardy, 1992) and a third, graphic-symbolic (DSSVP (Gozzoli et al., 2012), aimed at triangulating and increasing consistency of results. Participants are former footballers, coaches, managers (N=25, almost all participants played at least two or all three previous professional roles, hence the metaphor of matryoshka careers); they work/worked in professional football teams in Italy, England and Spain, and were recruited at first according to criteria of convenience and then snowballed, until theoretical saturation. Data coding is ongoing, so it is not possible to present final results yet (availability in June).

However, the initial analysis of the interviews allows us to identify the traits of the specific precariousness experienced in the football context (process of identity precariousness); to map the learning strategies in use, aimed at the development of abilities (informal, relational); to make an assessment of competences (spontaneously named/latent/key), promoting awareness in the participants. We believe that the results fill a cultural gap: they have a high applicative spendability and social value, supporting employability and outlining training needs useful for the up/re-skilling of skills in the sector, stemming the dispersion of the competence capital, from and in it, generated.

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Caterina Gozzoli\*, Chiara D'Angelo\*, Giancar

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## P360

### Navigating power dynamics: Exploring transitions in high-performance dyadic sport partnerships

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** Athletic partnership dissolutions are meaningful transitions for dyadic sport athletes that may adversely affect their mental health. Dyadic sport relationships are unique because athletes' ability to train and compete relies on concordant goals (Gaudreau et al., 2010). Ideally, each member of an athletic dyad equally shares power and responsibility (Poczwadowski et al., 2020); however, power imbalances may arise when one athlete's individual goals diverge from the dyad, which can lead to conflict and partnership dissolutions. Previous research has explored transition experiences of individual and team sport athletes (De Subijana et al., 2020); however, little research has been conducted on dyadic sports (Wickwire et al., 2004). Therefore, the purpose of this study was to explore how power dynamics within a partnership influence athletes' partnership dissolutions and transition experiences in high-performance dyadic sports.

**Methods:** Ten high-performance figure skating (n=5) synchronized diving (n=1), and beach volleyball athletes (n=4), participated in one semi-structured interview where they described their experiences leading up to, during, and after partnership dissolutions.

**Results:** We found that there are often power imbalances both internally and externally imposed on dyads that have implications on athletes' perceptions of themselves, how a partnership dissolves, how athletes navigate transition periods following the dissolution of an athletic partnership, and the likelihood of athletes seeking another partner to continue competing in high-performance sport. Using reflexive thematic analysis, we generated 4 overarching themes affecting athletes experiences with power dynamics in athletic partnerships: Gender, Physical Factors, Age and Level of Experience, and Financial Factors.

**Conclusion:** Findings demonstrated that power imbalances within athletic partnerships influence partnership dissolutions and transitions. This study contributes to the dearth of literature on dyadic sports and can be used to develop targeted interventions aimed at addressing power imbalances and facilitating successful transitions for athletes navigating partnership dissolutions and transitions in high-performance dyadic sports.

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## P361

### A first empirical look at the influence of environmental factors and mental performance on Next Gen athletes' mental health

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The growing interest on elite and professional athletes suggests that personal factors (mental performance; MP) and environmental factors (athletes' maltreatment, parental pressure, coach-athlete relationship, type of sport) can influence their mental health. However, there is a significant gap in understanding the factors affecting the mental health of Next Gen athletes, despite their susceptibility for developing mental disorders (MD). Objectives: 1) Examine how environmental factors (e.g., athletes' maltreatment, parental pressure) and MP influence anxiety and depressive symptoms, and well-being in Next Gen athletes and 2) Investigate whether these relationships are moderated by the type of sport they practice. Methods: 174 female and 109 male athletes (n=283) completed an online survey including questionnaires on MDs (e.g., Generalized Anxiety Disorder-7), environmental factors (Violence Towards Athletes Questionnaire), and MP. Results: Analysis revealed positive associations between athletes-athletes maltreatment and symptoms of anxiety ( $\beta = 0.418$ ,  $p = .003$ ) and depression ( $\beta = 0.277$ ,  $p = .034$ ). MP was negatively associated with symptoms of anxiety ( $\beta = -0.124$ ,  $p < .001$ ), depression ( $\beta = -0.135$ ,  $p < .001$ ), while being positively associated with well-being ( $\beta = 0.525$ ,  $p < .001$ ). Regarding objective 2, parental pressure was significantly associated with lower levels of well-being for athletes competing in endurance ( $\beta = -4.957$ ,  $p = .003$ ), and weight-category ( $\beta = -5.329$ ,  $p = .022$  sports, while MP was negatively associated with symptoms of anxiety among athletes who competed in collective sports ( $\beta = -0.1067$ ,  $p = .0048$ ). Conclusion. Findings emphasize the importance of practitioners having expertise in establishing a safe environment for Next Gen athletes. MP emerged as a crucial protective factor against mental disorders, emphasizing the need for its early integration into athletes' careers. Additionally, parental pressure in endurance and weight-category sports highlights the need for further qualitative research to understand the potential impacts of this pressure on athletes' sport experiences.

## P362

### The group matters: The influence of team cohesion and Interpersonal Emotion Regulation on adolescent athletes' mental health

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**Objectives:** Athletes' mental health is known to be highly related with their social environment, particularly during adolescence (Walton et al., 2024), with sport teams usually constituting one of the most relevant social groups in which adolescents are integrated (Fransen et al., 2022). Despite this, the influence of group dynamics on athletes' wellbeing remains underexplored. Group cohesion and interpersonal emotion regulation (IER) are identified as key predictors of team functioning (Tamminen et al., 2019), and engagement in sport (Heuzé et al., 2018; Tamminen et al., 2016). However, their association with mental health is still unknown. Accordingly, this study aims to examine how team cohesion and interpersonal emotion regulation are associated with athletes' mental health.

**Methods:** Participants were 259 adolescent athletes, ranging from 12 to 21 years, from 21 different sports teams. Participants completed measures of IER (EROS; Niven et al., 2011), group cohesion (GEQ; Carron et al., 1985), and mental health (GHQ-12; Goldberg et al., 1997). The resulting data was analyzed using descriptive statistics, correlations, and two-step simple regression analysis using mental health indicators as dependent variables.

**Results:** The subscales of cohesion positively correlated with IER, with particularly stronger connections between social cohesion and IER. Furthermore, simple regression analysis indicated that both IER and team cohesion make significant, distinct contributions to predicting various aspects of mental health. Specifically, both task and social facets of individual attraction to the group were associated with mental wellbeing. Conversely, the IER subscales of extrinsic affect-improving and intrinsic affect worsening were linked to mental illbeing.

**Conclusion:** Cohesion appears to positively impact well-being by fostering an individual's sense of belonging to the group; while some patterns of IER are associated with illbeing through the supportive (or not) dynamics that are established between team members.

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## P363

### Influence of the Educational Sports Model of Real Madrid Foundation on Gender Equity

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**Objectives:** To analyse the educational sports model of Real Madrid Foundation in terms of social interaction preferences, sport anxiety, and personal and social factors of Sportsmanship in boys and girls from the Real Madrid Foundation social sports schools.

**Methodology:** The sample was made up of 320 players (boys: 218; 68%), (girls: 102; 32%), between 8-16 years old (M=10.54±1.92).

The Multidimensional Sportspersonship Orientations Scale in juvenile football (MSOS-F), the "GR-SIPPEL" questionnaire, and the Sport Anxiety Scale-2 (SAS-2) were used.

A descriptive analysis was carried out for each dimension. For the contrast analysis, the Student's t-test was used, the effect sizes were calculated using the Cohen effect. The statistical programme used was SPSS 27.0.

**Results:** Sportsmanship: Differences were detected in mini basket (U10, U12) in personal factors ( $p=.033$ ;  $d=.35$ ) in favour of the girls. In the basketball categories (U14, U16), no differences were found in any dimension.

**GR-SIPPEL:** In the mini-basketball categories, the boys placed greater value on the dimensions of competition ( $p=.002$ ;  $d=.71$ ) and affiliation ( $p<.001$ ;  $d=.51$ ). In the basketball categories, no differences were found.

**Sport Anxiety Scale-2:** Differences were observed in the dimension of concern about performance, specifically in mini basket. The boys showed higher values ( $p=.046$ ;  $d=.53$ ). On the contrary, in the basketball categories, the girls obtained higher values ( $p=.004$ ;  $d=.51$ ).

**Conclusions:** Based on the data, the educational sports model contributes to reducing the differences between the boys and the girls, thus promoting gender equity.

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## P364

### Sociodemographic variables moderating the relationship between students´ perceived support from Physical Education teachers and students´ prosocial behavior

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**Objective:** Physical Education lesson is a crucial tool for fostering child's overall development. This study is based on previous studies that showed that the environments in which children are raised generate an impact on their developmental trajectories. The purpose of this study was to determine whether the relationship between the students´ perceived support from Physical Education lesson teachers (when they are attending Physical Education lesson), and students´ prosocial behavior could be explained further by sociodemographic variables (school location, after-school sport practice, gender, and type of sport practiced).

**Method:** Five hundred and fifty-eight students attending high-schools in Chengdu, Henan and Shaanxi provinces (15.7 ± 1.53 years; 59.7% female and 40.3% male) completed the Chinese versions of the following questionnaires pertaining to Physical Education lesson environment: Learning Climate Questionnaire (LCQ) measuring students´ perceived support from the social agents; Basic Psychological Needs in Exercise Scale (BPNES) measuring students´ basic needs satisfaction; Perceived Locus of Causality Scale (PLOC) measuring motivation to Physical Education lesson; and Prosocial Tendencies Measure Scale (PTM).

**Results:** Regression analyses using moderators were conducted. Students´ perceived support from teachers at the Physical Education lesson was more positively related with the prosocial behavior when the students lived in an urban area and practiced after-school sport. However, gender and the type of sport in PE lesson did not contribute to the explanation of this relationship.

**Conclusions:** Results emphasize the need to consider students characteristics from both research and practitioner perspectives, since they showed a great influence on the way in which students receive support from their teachers in the context of Physical Education lesson, which will have an influence on their prosocial behavior and will help them throughout their life span. Herein, we advocate for increase awareness of teachers, families and policymakers amongst students´ school environment distinctive.

Keywords: Physical Education, PTM, teacher, China

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## P365

### Canadian Men Ice Hockey Players' Perspectives of Sport Norms

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**Background:** Gender-based violence (GBV), including psychological and sexual abuse, bullying and harassment, has become the focus of public and scholarly attention in sport. In Canada, the sport of men's ice hockey, which is part of the societal fabric and a source of Canadian pride, has come under the spotlight for enabling and concealing gender-based violence.

**Objectives:** Recognizing the role of social norms, gender norms, implicit biases, and culture in creating an environment that enables and sustains GBV (Breger, 2018), this study used the social norms theory (Perkins & Berkowitz, 1986) to explore how men's ice hockey players perceive both descriptive and injunctive (Cialdini, 1990) social and gender norms.

**Methods:** Seven men's ice hockey players (6 current, 1 retired) from universities across Canada participated in this study. Semi-structured interviews about players' experiences and perceptions of sport and gender norms were employed and data were analyzed through a reflexive thematic analysis (Braun & Clarke, 2019).

**Results:** Participants expressed perspectives that as men's ice hockey players, they should exemplify a "male hockey persona", characterized by entitlement, hyper-masculinity, and mental and physical toughness (injunctive norms). Expressed descriptive norms included dominance over women, other men, and their emotions, as demonstrated through sexism, exaggerated violence, sharing sex stories, hyper-sexuality, and emotional suppression or exaggeration, depending upon the emotion. In addition, results showed that some hockey players challenged current men's ice hockey norms through emotional vulnerability with other men, enforcing accountability of negative behaviors among teammates, demonstrating respect for women, and noting dichotomies within hockey culture.

**Conclusions:** These findings indicate that sport norms in men's ice hockey can contribute to toxic cultures that accept and promote GBV. Implications and recommendations will be discussed in relation to re-norming behavior and beliefs (Berkowitz, 2010).

## P367

### Sexual and Gender Minority Youth's Experience of Bullying in Sport: A Multidimensional Approach

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**Context.** Research shows that sexual and gender diverse (SGM) youth are significantly more at risk for bullying in sport settings. Studies have generally focused on one type of risk factor (e.g., individual or organizational), limiting our ability to develop a multidimensional prevention strategy. The objective of our study was to explore the association between different individual, relational, and organizational factors and bullying reported by SGM youth in sport.

**Method.** Data were part of a larger study documenting the experiences of SGM youth (15-29 years old) in Canada. We used a subset of the 539 participants involved in organized sport. Using Poisson regressions with robust variance estimation, crude and adjusted prevalence ratios (PR) were estimated between the independent variables and bullying in sport (yes/no). The first model consisted of sociodemographic variables and the adoption of anti-bullying policies. The second model added intervention strategies after a bullying incident and the presence of staff dedicated to prevention. The third model added level of disclosure and level of concealment.

**Results.** In the final adjusted model, the only two significant variables were the presence of functional limitations (PR=1.62, 95% CI [1.01, 2.60],  $p = .04$ ) and the presence of intervention strategies after a bullying incident (PR=1.96, 95% CI [1.13, 3.38],  $p = .02$ ). The adoption of anti-bullying policies was significant in the first step, but then fell above the significance threshold once the other organizational practices were added. The presence of staff dedicated to bullying prevention, the level of disclosure, and the level of concealment were not significantly related to bullying.

**Conclusion.** Findings show that factors at the individual level, presence of functional limitations, and organizational level, implementing intervention strategies after bullying incidents, were important to consider. This underlines the importance of using a multidimensional approach to bullying prevention for SGM youth in sport.

## P368

### Self-efficacy assessment hinders improvement on a deliberate cricket bowling practice task

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**Objectives:** Previous research has shown that self-efficacy assessments are highly correlated to performance on a task (Stevens et al., 2012). In this study, we examined how a self-efficacy assessment influences improvement on a cricket bowling task.

**Methods:** In the first phase, 42 participants (37 male), ranging from 16 to 24 years of age ( $M = 18.48$ ;  $SD = 1.95$ ), attempted to bowl in a designated "good length" zone across 12 trials. Then, participants were randomly assigned to either an experimental group, where they rated their own general and task-specific self-efficacy, or a control group, where they rated someone else's ability. They each then bowled 12 more trials. Their performance was measured based on the number of trials that were bowled within the standard "good length" zone.

**Results:** Paired t-tests showed that while the performance of the control group improved significantly from pre-test to post-test,  $t = 2.613$ ,  $p = .008$ ; the experimental group did not show a significant improvement,  $t = 1.156$ ,  $p = 0.131$ .

**Conclusions:** Findings from this study suggest that asking people to rate their self-efficacy may hinder their improvement on a deliberate practice task. These results are explained through two potential mechanisms: self-efficacy assessments may limit performance expectations (Wulf et al., 2018) on a task which prompts improvement; and self-efficacy assessments may prompt an internal attentional focus (Wulf et al., 2013). Accordingly, rather than self-efficacy assessments, practitioners might advise athletes to focus on instructional self-talk that enhances performance expectations and external attentional focus.

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## P369

## The power of bad - negativity bias in sport

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The phenomenon known as negativity bias characterizes the tendency to prioritize negative events, experiences, or information over neutral or positive ones (Norris, 2019). While the negativity bias has been observed in various aspects of everyday life, such as work and news perception (Baumeister et al., 2001), its prevalence in the realm of sports remains unclear.

A potentially fruitful avenue for investigation lies in the emotional perception of sport-specific situations, given the significance of emotions not only in sporting performance but also in their context and situational specificity (Furley & Laborde, 2020; Mesquita & Boiger, 2014). Thus, we aim to investigate the negative and positive emotional perception (anger & happiness; Jones, et al., 2005) of different handball-specific situations (i.e., scoring a goal). Here we consider, both, defensive and offensive perspectives as it enables negativity bias to be established.

Based on an a priori G-Power analysis (Faul et al., 2009) using an  $\alpha$ -level = 0.05 and a power  $(1-\beta) = 0.8$  to detect a medium ( $f^2=0.09$ ) effect (due to missing comparable studies), we will investigate 158 male and female handball players from the top three German handball leagues. Data collection is currently ongoing. Additionally, we intend to account for variables as individual personality traits (Rammstedt & John, 2005), and demographics. A Two-way Multivariate Analysis of Variance (MANOVA) will be employed to analyse the impact of perspective and different situational contexts on the emotional perception of the respective handball-specific situations. Based on the documented positive impact of sports on mental and social well-being (Eime et al., 2013), we hypothesize the absence of a prevalent negativity bias in the emotional perception of handball-specific situations. The implications of our findings will be discussed in light of the theoretical aspects aiming to explain negativity biases and the potential societal benefits of identifying negativity bias-free areas.

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## P370

### Just Being: An alternative approach to supporting young people's mental health in a sport and physical activity environment

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Creative solutions are urgently needed to address the growing youth mental health crisis in Scotland (Scottish Parliament, 2022). In Aberdeen, ActiveSchools was recognised as an alternative support to combat this mental health crisis. However, a knowledge-gap was identified, with staff having limited awareness of how to support mental health. Just Being training was developed to bridge this knowledge gap; developing staff knowledge and skills about person centred approaches to supporting young people, and confidence to use these skills to establish positive relationships and improve mental health in young people engaging with Active Schools programs (Walker, 2010).

Just Being utilised a multi-modal model. At a foundational level, the person-centred approach (Rogers, 1957) emphasised the power of relationships in empowering young people to overcome challenges and develop coping skills. At a theoretical level, cognitive behavioural therapy (Beck, 1970) was used to explain human behaviour. To increase staff motivation and engagement, principles of Self-Determination Theory (Ryan & Deci, 2000) underpinned programme design (Eliwa, 2011).

18 staff members participated in the one-day Just Being training which was delivered in three sections: understanding psychological concepts and models of behaviour; understanding person-centred approaches to supporting young people; and techniques to support young people's mental health.

Participant knowledge and skills for the target topics were measured before and after participation via online self-assessment questionnaires using rating scales, with pre and post score were compared. Semi-structured interviews were undertaken and analysed to understand the training impact on participants work.

Staff reported increased knowledge and confidence levels to provide mental health support. Feedback identified the Just Being programme as an innovative, effective way to support young people's mental health, taking a more reflective approach to support than existing training models. The theoretical underpinning enabled staff to provide evidence-informed support that empowered young people to make decisions and help themselves.

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## P371

### Extracurricular Sports and Their Impact on Self, Others, and Task-Oriented Socioemotional Skills

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Socioemotional skills (SES) have been linked to various academic and health outcomes (Taylor et al., 2017), and can be categorized into intrapersonal, interpersonal, and task-oriented domains (Schoon, 2021). These socioemotional competencies evolve through interactions with the environment and significant others, including in sports (Bruner et al., 2023). This paper examines the association between youth engagement in extracurricular sports and socioemotional skills oriented toward the self, others, and tasks.

**Methods:** The study uses data from the first wave of the OECD Study of Socioemotional Skills (Kankaraš & Suarez-Alvarez, 2019), with 60,000 participants from two cohorts aged 10 and 15 years (50.2 % girls) from nine countries. Indicators of socioemotional skills were synthesized in the three domains: other orientation (sociability, empathy, trust, cooperation, and tolerance), self-orientation (emotional control, energy, self-control, stress resistance, assertiveness), and task-oriented skills (curiosity, responsibility, optimism, perseverance, creativity). Sport participation was assessed through a single item showing how much time adolescents spent exercising or practicing sports outside of school during weekdays.

A hierarchical regression analysis, controlling for gender, socioeconomic status (SES), and cohort (ages 10 and 15), demonstrated that sports participation significantly enhances socioemotional skills across three distinct domains: social-oriented, self-oriented, and task-oriented. Specifically, sports participation explained an additional 2.0 % of the variance in the social-oriented domain, highlighting its substantial impact on social skills development. In the self-oriented domain, an increase of 3.8% in explained variance was observed, indicating sports participation's role in enhancing self-related emotional skills. For the task-oriented domain, the increment in variance explained was 2.6 %, underscoring the significant contribution of sports to the development of skills related to task management and execution. While the discussion acknowledges limitations and future directions, these findings underscore the importance of sports participation in the holistic development of young individuals, promoting not only physical but also socioemotional competencies.

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## P372

### Coopetitive sport participation – an extreme case study among a diverse group of handball players with special needs

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Competitiveness characterize most sport communities. This leads to a dominating focus on promoting sport skills and performance - even among children at grass-roots level. This focus is associated with reduced sport participation and counteracts the primary of mass sport participation, especially among youth with disability as they are less motivated in acquiring skills, and more motivated to have fun and getting new friends, compared to the general population. Therefore sport initiatives that have successfully engaged many children in mass sport participation may have found novel ways to organize participation.

This quintain multi-case study merges James Carse's 'Finite game theory' and Wenger's 'Communities of practice, to understand what characterises the sport participation in a succesful handball community called Happy League. Within the last few years this community has involved app. 400 coaches and 1500 children with a diverse range of age, gender, diagnosis and disabilities across 82 club teams in Denmark. The data collection includes participation observation of training and tournaments in two clubs over a four-month period, combined with 25 interviews with parents across 10 clubs. Consistent with our pragmatic research philosophy, we employed a 'reflective thematic analysis' that generated the following over-arching themes. 'Dont worry be Happy' (i.e. joint enterprise), 'The Universe of Happy League' (i.e. shared repetoire) and 'Coopetitive Participation' (i.e. mutual engagement). Within 'Coopetitive Participation' there were four underlying themes: 'Legitimate Roles', 'Bending rules', 'Selection of all', 'Playing with boundaries' that focuses on their game approach in training and matches. The findings illustrate how ordinary competitive games, such as handball, can be transformed into inclusive, coopetitive games by revising the rules, roles, boundaries and selection strategies in practice and competition. Coopetiive games as those practiced by Happy League has the potential to transform sport participation and to inspire practitioners to emphasize more inclusive practices' in youth sport.

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## P373

### Inclusive Physical Education: Examining the Impact of Baskin-Based Interventions on Physical and Psychosocial Skills in Healthy and Disabled Students

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Objectives: Creating inclusive sports and activities for the well-being of all children, including those with disabilities, is a crucial and rewarding task for educators (Haegele et al., 2015). However, children with disabilities often find themselves merely observing their peers in physical activities and, in severe cases, getting isolated from the class (Wang, 2019). The Baskin activity is an inclusive physical activity program based on reverse learning that can be beneficial for both healthy and disabilities children (Sisti et al., 2021).

In this study, we explored the impact of an inclusive physical education intervention based on the Baskin method on both physical psychosocial skills (i.e., physical self-efficacy, perceived integration, and collaboration) of healthy children and the psychosocial skills of children with disabilities. We anticipated an enhancement of physical and psychosocial skills for healthy children, as well as an increment of physical self-esteem, perceived integration, and collaboration for disabled students.

Methods: Thirty-five healthy students and two with intellectual disability were recruited students (Mage=9.7±0.7). Before and after the intervention, healthy participants were engaged in physical tests and completed questionnaires to assess self-efficacy and perceptual integration. The two disabled students completed the questionnaire related to physical self-efficacy and perceptual integration through a structured interview.

Results: Quantitative results revealed heightened psychosocial skills, encompassing increased physical self-efficacy, improved inclusion, enhanced collaboration, and an overall advancement in healthy participants' motor skills. Qualitative findings indicated an overall improvement in physical self-efficacy and a positive sense of inclusion and collaboration among children with disabilities.

Discussion: The study underscores the importance of inclusive physical education strategies and emphasizes the pivotal role of teachers in nurturing the proper development of inclusive classes employing activities such as the Baskin method.

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## P374

### Dual career construction styles among adolescent student-athletes in lower secondary education and in transition to upper secondary education

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This longitudinal study examined dual career (DC) construction styles among adolescent athletes during their lower secondary school years and explored how these styles influenced their transition to upper secondary education (Ryba et al., 2017). We conducted two rounds of semi-structured interviews with 16 adolescent student-athletes (nine females and seven males) from five Finnish lower secondary sport schools during Grades 8 and 9. The interviews were analyzed using thematic analysis. We reached out to the school study counsellors to obtain registry data on adolescents' progression into upper secondary education.

At the end of Grade 8 (T1), the majority (11/16) of adolescent athletes showed a contrapuntal career construction style, attempting to balance their athletic and educational themes in daily life. Among the remaining interviewees, three boys displayed a dissonant style characterized by an imbalance in allocating their attention between school and sport. Conversely, two girls showed a monophonic approach, displaying strong dedication to their academic endeavors and well-established career aspirations, alongside comparatively fewer ambitions in sport. Eleven of the sixteen student-athletes sustained their DC construction style from T1 to T2. Almost all adolescents in the contrapuntal group applied for a position in upper secondary sports school, whereas adolescents with a monophonic or dissonant career construction style opted for general education programs.

This study provides insights into the situational and rational factors shaping career construction among adolescent athletes in lower secondary school, expanding our understanding beyond previous research, which mainly focused on the career construction of DC athletes in upper secondary school (Evans et al., 2013). Given that a majority of adolescents transitioned into a general education program with limited support for maintaining a significant commitment to sport, we discuss whether sports-oriented lower secondary schools fulfill their national objective in preparing adolescents for the increasing demands of school and sport in the subsequent phase.

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## P375

### The Role of the Coach in Combat Sports: Impact on Communication Skills and Persistent Anger-Anger Expression Styles

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This study aims to determine the relationship and its nature between the communication skills of coaches and the continuous anger and anger expression styles of athletes operating in the field of combat sports. Designed using the relational scanning model, this approach allows for an in-depth examination of the interactions between variables. The sample of the research consists of 456 athletes actively competing in various disciplines of combat sports, and the data obtained from their perceptions are used to reveal relational dynamics. The measurement tools used in the research are the Coach Communication Skills Scale and the Continuous Anger-Anger Expression Style Scale. Through these scales, a detailed assessment of the coaches' communication skills was conducted, and the relationship between athletes' levels of anger and their styles of anger expression was thoroughly examined. Findings indicate that coaches' communication skills significantly impact athletes' levels of continuous anger and their styles of anger expression. The ability of coaches to communicate in an open, supportive, and understanding manner has positively affected athletes' anger management skills, leading to less anger expression and healthier anger management strategies overall. Moreover, athletes working with coaches possessing effective communication skills have been observed to better control their anger states and express their negative emotions in more appropriate ways. Interestingly, the research also reveals that the relationship between coaches' communication skills and athletes' styles of anger expression varies according to athletes' demographic characteristics (such as gender, nationality, education level, duration of sports activity). For instance, differences have been identified in the impact of coaches' communication skills between experienced athletes and younger athletes. In conclusion, this study highlights that coaches' communication skills can directly affect not only athletes' performance but also their emotional and psychological well-being.

## P376

### Dual career pathways in Italian student-athletes: A qualitative investigation

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**Objectives:** The study is part of a research project aiming at exploring student-athletes' pathways and contributing to the improvement of academic assistance services. Aims are to identify: (1) different types of dual career pathways; (2) perceived challenges and opportunities in managing more career pathways; and (3) competencies that participants felt to have acquired and transferred from sporting to academic contexts and vice versa.

**Methods:** This qualitative investigation (currently ongoing) involved six student-athletes (2 females; age range: 19-37 years old) with past or current experience in managing two career pathways. Participants were interviewed online using a semi-structured grid and interviews were then transcribed verbatim. The first two authors also utilised the same interview grid for a self-reflection on their own experiences. All data were then analysed through reflexive Thematic Analysis.

**Results:** Five different career pathways emerged: continuous dual career, continuous student-discontinuous athlete, discontinuous student-continuous athlete, discontinuous student-discontinuous athlete, and dual career plus (e.g., participants that also had part-time jobs). Challenges and opportunities were classified according to a multilevel approach from the macro- (environmental factors, such as those due to the COVID-19 pandemic), to the meso- (supporting or obstructive behaviours experienced in organisations or in the family), to the micro-level (e.g., personal strengths and weaknesses in managing adversity). By exploring retrospectively their youth experiences, participants also brainstormed several skills that they felt to have acquired in sport and transferred to educational contexts, or the other way around, including time management, goal setting, ability to dialogue with adults to conciliate commitments.

**Conclusion:** The present study highlights multiple career pathways that are possible for people who decide to pursue both academic and sport achievements (and maybe other life goals) and provides information on the possible benefits of these choices. Findings may also advice traditional and online universities on which services best fit student-athletes' needs.

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## P377

### Positive Youth Development-Focused Coach Education: A Scoping Review

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Research efforts on Positive Youth Development (PYD) programming have seen a considerable increase. The growing interest in incorporating PYD into coach education worldwide has resulted in more studies being developed in various countries. Understanding past research on PYD-focused coach education programs can enable researchers to identify prevalent trends and potential pitfalls. Therefore, the purpose of the present study was to conduct a scoping review centered on research of PYD-focused coach education to identify prevalent trends, potential pitfalls, and future needs. The screening process was conducted based on the following inclusion criteria: (a) studies that included the development, delivery, and/or study of PYD-focused coach development and/or coach education; (b) studies that focused on coach perspectives of PYD-focused coach development and/or coach education; (c) philosophical, theoretical, and/or conceptual articles related to PYD-focused coach development and/or coach education; and (d) studies that involved children and youth until the age of 18 years old published between 2013 to 2023. The inclusion of more languages other than English was based on the limitations previously identified in the literature. A total of 26 articles were included in the extraction and charting processes. Findings highlight how ontological and epistemological thinking is, for the most part, absent from previous studies which hinders researchers' ability to advance new conceptualizations about PYD and coach education. Further, there are several studies that are not informed by theory, a common critique to PYD through sport research. Consequently, there is a diversity of designs, premisses and desired outcomes for PYD-focused coach education programming. Moving forward, with the expansion of PYD-focused coach education research to other countries, careful consideration is needed towards ontological, epistemological and theory-driven thinking, as well as towards systematically understanding what effective programming should be today. More interventions will not necessarily translate into new insights for both theory and practice.

#### Acknowledgments

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## P378

### Parental Behaviour in Youth Soccer: Perspectives of Athletes and Coaches

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Parents play a highly important role in athletes' sports experience and development. The primary aim of this research is to investigate both positive and negative parental behaviors in soccer, as perceived by athletes' and coaches. The study also seeks to investigate participants' opinion on how parental involvement intervention in soccer should be implemented. Five semi-structured focus group interviews were conducted with 27 soccer players along with four semi-structured focus group interviews with 10 coaches. The data was then analyzed in NVivo 11 software through content analysis, revealing three main themes: negative parental behaviors, positive parental behaviors, and features of a desired intervention for athletes' parents. The findings indicate the existence of numerous negative parental behaviors towards coaches, athletes, and other parents as well as other immoral parental behaviors. Participants also reported that parents also demonstrate positive behaviors towards coaches and athletes as well as performing other moral behaviors. The participants provided detailed information about what a parental intervention should aim, how these aims should be achieved and what should be used in the intervention. Overall, the findings suggest a variety of both positive and negative parental behaviors, with athletes and coaches highlighting the importance of an intervention for athletes' parents in soccer. The findings can be valuable for researchers aiming to develop interventions for parental involvement in youth soccer.

Keywords: Parental involvement, athletes, coaches, parent, behavior

**P379**

**The Impact of Achievement and Affiliation motives on Young Athletes' Dropout and Persistence in Elite Sports**

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**Objectives:** The aim of our study is to investigate the impact of young athletes' sport-specific achievement motives and affiliation motives on the dropout and persistence in elite sports to consider implications to support them.

In light of a significant increase in the drop-out rate at junior-elite level (Baron-Thiene & Alfermann, 2015; Elbe, Beckmann & Szymanski, 2003), the study investigates differences in the motive structure of athletes.

**Methods:** 146 students (64 girls; 82 boys) aged from 12 to 15 years (mean age 13.55±1.14) participated the study. The students were recruited from elite sport-school in Berlin. 99 participants were still attending the elite school two years later, 47 participants have dropped out from sports and had left the elite sport-school. The groups were formed and compared regarding the consequently variables: gender, sport-structure, age.

**Results:** The present study indicates that there are some major differences in the fear motives.

In general, there are large differences in the fear of failure motives when comparing the stayers with the dropouts ( $p=.048$ ). It is also interesting to compare the young dropout group with the older dropout group, whereby significant differences were found in the hope of success motive, which was significantly lower in the later dropout athletes ( $p=.024$ ). The fear of failure was also significantly higher among the dropout athletes than among the stayers of the same age ( $p=.047$ ).

**Conclusion:** The results show that there are differences between those who stay and those who drop out, which must be taken into account when coaching athletes. Accordingly, further training measures need to be developed to sensitize coaches to the different motivational starting points and, if necessary, to optimize and educate coaching approaches.

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## P380

### A study on the impact of using verbal descriptions and video feedback on skill teaching for judo beginners

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The purpose of this study is to explore the impact and effectiveness of innovative judo courses on students' physical education classes? In order to improve the correct performance of 8 judo class warm-up movements and 5 judo techniques. The research subjects were 30 students in their second year of college and above. The feedback after each class refers to the research of Borman (2021), the Lince Plus software application refers to the research of scholars such as Gutiérrez-Santiago (2020), and the final teaching effectiveness questionnaire refers to Liang (2021). The implementation date of the study is from 2024, 3/19-6/18. After the teacher's teaching demonstration, each action will be corrected by 15 students (In groups of three) through self-practice and mutual discussion. In addition, the movement analysis guidance of 15 students in the control group was displayed on the big screen for discussion using the Lince Plus program. In order to compare the accuracy of movement learning between the two groups of students, the rigor and effectiveness of each movement test must be verified by three Judo experts. (One is a national team player who has won third place in international competitions, one is an international referee and a young player with ten years of experience in the school judo team.) The results of the student's actions must be 95% unanimously agreed upon by the three persons. It is expected to be able to understand the changes in students' learning status, provide real and correct guidance, and demonstrate the value of physical education in constant feedback and feedback.

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## P381

### Investigating PE teachers' beliefs about self-regulation, self-control, and self-regulated learning

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**PURPOSE:** Given the importance of self-regulation of learning (SRL) in sport practice (McCardle et al., 2019) and motor skill acquisition (Zimmerman & Kitsantas, 1996), it seems reasonable that physical education (PE) teachers and coaches are able to understand and explain processes and skills associated with this concept. Research shows that teachers' beliefs about a concept, rather than their definitional knowledge of it, is a better predictor of teachers' acting upon it (Dignath-van Ewijk & van der Werf, 2012). The present study investigated personal beliefs of self-control (SC), self-regulation (SR), and their connections with self-regulated learning (SRL) among Polish graduate students of PE.

**METHOD:** An exploratory study design was constructed to identify participants' beliefs and various approaches to SR and SC. A demographic survey and open-ended questions were administered to 104 respondents (Mage = 23 yrs, SD = .85, nmale = 61), who had at least 270 hrs of practice with elementary and secondary school students. Respondents were invited to share their beliefs about SR and SC. Data from two open-ended questions were analyzed around two topics: (1) Are SC and SR perceived as similar or different concepts? (2) Do participants directly or indirectly refer SC and/or SR to SRL?

**RESULTS:** 56.7% of participants perceived SC and SR as different and 17.3% as similar concepts. Connections between SRL with SC were observed 21 times (out of 99 respondents), and with SR, 14 times (of 89 respondents). SRL was more often (19 times) referred to the performance phase of SRL (e.g., monitoring, effort), and less often to forethought (12 times) or reflection (9 times) phases.

**CONCLUSION:** The preliminary results can be helpful in better understanding PE teachers', coaches', and sport instructors' conceptualization of, and approach to SRL in PE and sport practice. This information can be useful in developing self-regulatory literacy.

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## P382

### Towards a Holistic Understanding of Sustained Participation and Dropout in Swedish Artistic and Rhythmic Gymnastics

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**Background:** Despite the various health benefits that are obtained through physical activity (Kemel et al., 2021), research shows a significant proportion of youth dropout from sport participation before reaching adolescence (Cobley & Till, 2017). Although sport dropout has been well-researched, limitations such as reliance on conceptually narrow psychological frameworks and cross-sectional methodologies are highlighted in the literature (Moulds et al., 2022). Researchers have advocated for the adoption of Bronfenbrenner's Process-Person-Context-Time model, to facilitate a more comprehensive understanding of the multidimensional factors influencing youth dropout (Moulds et al., 2022). In Sweden, recent statistics illustrate a severe increase in dropout rates within artistic and rhythmic gymnastics, particularly between 11-16 years of age.

**Objectives:** In collaboration with the Swedish Gymnastics Federation (SGF), the current project aims to identify and better understand the key process, bio-psycho-social, contextual, and time factors within artistic and rhythmic gymnasts' environment that influence sustained participation and dropout.

**Methods:** We will use a longitudinal mixed methods design and aim to collaborate with 8-10 artistic and rhythmic gymnastics clubs across Sweden. Participating gymnasts will be between the critical ages of 9 to 16. Across two and a half years, repeated semi-structured interviews will be utilized to explore how gymnasts, parents, and coaches experience the gymnast's participation and dropout. We will also examine how the federation and clubs work to promote sustained participation and prevent dropout. Validated questionnaires capturing various factors within the PPCT model will be provided to gymnasts three times per year for the duration of the study to examine factors that prospectively contribute to sustained participation and dropout.

**Contributions:** Results from the current project will provide the SGF with new knowledge regarding specific factors that help sustain participation and will be beneficial for future policies and interventions to prevent dropout in the future.

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## P383

### What are the key topics coaches judge important to address in educational opportunities regarding maltreatment in sport?

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**Objective:** The purpose of this study was to identify topics coaches deemed important to address in the design of educational opportunities for them regarding maltreatment in sport. This project was a part of the broader Study on Coaching Integrity (ETIC) that questioned coaches on their beliefs and perceptions regarding safety and integrity in sport. **Methods:** Coaches involved in organised sport were invited to answer a survey including one open-ended question asking them to identify priority topics for coach training on the subject of maltreatment in sport. Of the 788 coaches that participated in the survey, 488 completed the open-ended question. An inductive, thematic analysis was performed (Braun and Clarke, 2006) to identify initial themes among the topics reported by the coaches. These were then grouped deductively using Gilbert and Côté's (2013) definition for coaching effectiveness that describes coaches' knowledge and abilities in three areas: professional, interpersonal, and intrapersonal. **Results:** Inductive, thematic analysis of 985 units of meaning (topics) resulted in 26 sub-themes, subsequently grouped by deductive analysis into four major themes: 1) Management of the training environment (professional, e.g., Creating a healthy environment), 2) Information and tools regarding maltreatment (professional, e.g., Definitions and types of maltreatment), 3) Management of relationships (interpersonal, e.g., Communication with athletes), 4) Self-knowledge and management (intrapersonal, e.g., Managing my own emotions). A fifth major theme, 5) Systemic issues, consisted of sub-themes of topics beyond the responsibilities of the coaches themselves (e.g., Pressure from organisations to win). **Conclusion:** This study identified topics of priority for coaches in the design of coach education programmes on maltreatment in sport. Additionally, the results showed that coaches attribute systemic factors, often outside of their control, as contributors to maltreatment in their sport environment.

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## P384

### Perceived stress as a mediator between mental toughness and burnout in young Polish athletes

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This study investigated the relationship between mental toughness, perceived stress, and athlete burnout in a sample of 386 athletes aged 15-19 years, representing various sports within Polish national teams. The objective was to explore the mediating role of perceived stress, assessed through the Perceived Stress Scale (PSS), in the connection between mental toughness, measured by the Sports Mental Toughness Questionnaire (SMTQ-P) and athlete burnout (ABQ). The analysis revealed that higher levels of perceived stress significantly contributed to increased levels of athlete burnout, thereby underscoring the crucial mediating role of stress in the dynamic between mental toughness and burnout. The findings suggested that athletes with lower mental toughness were more susceptible to the detrimental effects of perceived stress, leading to higher burnout rates. This study underscores the importance of addressing both mental toughness and perceived stress in the comprehensive management of athlete well-being, offering practical implications for coaches, sport psychologists, and support staff in developing effective support systems within competitive sports settings. The findings align with recent research by Lin et al. (2022), which highlighted the relationship between athlete stress and burnout, and with studies by Gustafsson et al. (2007) which explored the prevalence of burnout in adolescent athletes with connection to perceived stress. These results carried significant practical implications for coaches, sport psychologists, and support staff. By integrating mental toughness training and stress management strategies into their programs, they could potentially mitigate the impact of stress on athlete burnout, thus enhancing overall athlete well-being and performance.

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**P385**

**Motives for participating in dragon boating with breast cancer - physiological and psychological aspects**

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Dragon boating offers the potential to support people suffering from breast cancer during treatment and in aftercare (Blanzola et al., 2016). The present study addresses the extent to which health status may affect motives to participate in dragon boat sports in the presence of breast cancer, and to test the hypothesis, whether lower health-related quality of life (QOL) leads to stronger expression of motives. 156 breast cancer survivors aged 37 to 73 years from the dragon boat community in Germany were surveyed using standardized questionnaires in a correlational cross-sectional design, with health-related QOL measured using the Short Form Health Survey (SF-36) and motives to participate in dragon boating measured using the Bern Motives and Goals Inventory (BMZI). Results of the regression analysis regarding the motive distraction and katharsis showed that the overall model was significant,  $F(8, 135) = 4.93, p < .001, R^2 = .23$ . Three predictors were significant in the way that lower psychological well-being ( $\beta = -0.31, p = .013$ ) and lower physical ( $\beta = -0.24, p = .035$ ) and social functioning ( $\beta = -0.23, p = .046$ ) led to increased use of dragon boating for distraction from problems and stress relief. The overall model regarding the motive aesthetics was significant,  $F(2, 141) = 5.54, p = .005, R^2 = .07$ . Experiencing a lower QOL concerning severe and frequent pain resulted in a more pronounced motive for aesthetics ( $\beta = -0.25, p = .011$ ). The findings indicate that the paddlers primarily use dragon boating as an emotion-oriented coping strategy by distracting themselves from stress and health problems. Furthermore, the lower their health-related QOL in terms of pain, the more they use the meaning-based coping strategy through the motive of aesthetics. Valuable implications (e.g. specific train-the-trainer programs) can be derived from the results for the long-term recruitment of paddlers.

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**P386**

**An experimental investigation of social identification on communication and effort in two-person groups.**

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**Introduction.** The social identity approach argues that people's sense of identity (i.e., who they think they are) is defined by both their personal identity and their group membership (Tajfel et al., 1979). Literature demonstrates that strong social identities within teams can result in effective communication (Cranmer & Myers, 2015), decreased social loafing, and increased performance (Høigaard et al., 2013). However, literature has yet to investigate the influence that social identification has upon communication and effort within two-person groups using experimental methods. **Methods.** This study's purpose was to examine the effects of social identification on communication and effort during an interdependent task. Twenty-eight individuals participated in a rope-pulling task that required them to pull on a rope as hard as possible for 5 seconds with a confederate, who the participant did not know. Participants were randomly assigned to either a high identity or low identity condition and responded to questionnaires regarding communication, effort and performance.

**Results.** Independent samples t-tests indicated a significant difference in perceptions of individual effort expended ( $t(26) = 2.15, p = .04$ ), with the out-group reporting greater effort in the rope pulling trial ( $M = 96.92, SD = 6.30$ ) than the in-group ( $M = 90, SD = 10$ ). No significant differences were observed in willingness to provide feedback to a partner ( $t(26) = 1.88, p = .07$ ), accept feedback from a partner ( $t(26) = 0.97, p = .34$ ), commitment ( $t(26) = 1.33, p = .20$ ), and perceptions of partner effort ( $t(26) = 0.128, p = .90$ ).

**Conclusion.** Self-reported effort was greater in the out-group contradicting what has been observed in previous literature with larger-sized teams. Social identity may be unique in two-person groups because the increased pressure and responsibility that arises in close partnerships may supersede the effect of social identity. Further research is required to fully understand social identification within dyads

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Wickwire, T. L., Bloom, G. A., & Loughead, T. M. (2004). The environment, structure, and interaction process of elite same-sex dyadic sport teams. *The Sport Psychologist, 18*(4), 381-396.

**P387**

**Development of performance motivation and self-efficacy of young athletes in track and field athletics at Elite Sport School (ESS)**

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**Objectives:** Psychological factors significantly influence sports performance, often acting as moderator or mediator variables (Lourenço et al., 2022). During adolescence, the development of these factors is crucial, requiring special support for talents. This study explores the motivations of young athletes seeking admission to an ESS and examines the development of achievement-motivation and self-efficacy in their first two years at the ESS based on their sports-performance.

**Methods:** As part of the talent screening for ESS in Halle and Magdeburg (Saxony-Anhalt, Germany), a questionnaire was given to 9-10 years applicants from October 2016-2023. The MoLei-K (Stucke & Schulz, 2023) analysed explicit motives for ESS admission. A total of 497 athletes participated, with 160 receiving ESS recommendations. Over the next two years, participants underwent central physical-sports tests for achievement-motivation (Frintrup & Schuler, 2007) and general self-efficacy expectations (Jerusalem & Schwarzer, 2003). Strong performers at ages 13-14 were recognized as national squad athletes (NSA)

**Results:** Young athletes seeking ESS admission cite two explicit motives (MoLei-K): "gain recognition through athletics" and "goal/purpose of athletics." The "goal/purpose" motive exhibits significantly greater strength than "gain recognition" (p<.001). Athletes recommended for ESS tend to show higher values on both, with statistical significance only for the "goal/purpose" motive (p=.007). Future NSA display significantly higher values on the "goal/purpose" motive (p=.028). In the initial two years at ESS, no statistically significant development in achievement-motivation and self-efficacy was observed. However, NSA exhibit significantly higher values in "confidence" and "performance goals".

**Conclusion:** Admitted ESS athletes differ in motives compared to rejected athletes. No significant development in achievement-motivation and self-efficacy was evident in the first two years at ESS. Only later did Athletes from NSA show increased confidence and performance goals. Providing appropriate pedagogical and psychological support to young athletes, especially in their initial ESS years, is crucial for fostering proper personality development.

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Lourenço, J., Almagro, B.J., Carmona-Mátquez, J. & Sáenz-Lopez, P. (2022). Predicting Perceived Sport Performance via Self-Determination Theory. *Perceptual and Motor Skills* Vol. 129(5) 1563–1580. <https://doi.org/10.1177/00315125221119121>

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**P389**

**The Scouting Self-Efficacy scale in Football (SSESF): Initial conceptualisation and exploratory factor analysis**

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The purpose of this study was to advance a conceptual understanding and conduct an exploratory factor analysis (EFA) of the Scouting Self-Efficacy Scale in Football (SSESF). The instrument measures an individual's belief in their ability to make judgements on the identification and recruitment (i.e., scouting) of players across youth and adult football. Research suggests that 'talent identification and recruitment' (TIR) is highly complex and routinely based on intuition and deliberation (Lath et al., 2021). The SSESF was developed for TIR stakeholders to gain a better understanding of their own practice, and facilitate the development and validation of evidence-based interventions to improve scouting processes.

During stage 1, an initial item pool of 31-items were developed and subjected to expert panel review (n=17) who provided feedback to determine if each item characterised the intended domain (Dunn et al., 1999; Haynes et al., 1995). Following expert rating analysis (Hambleton, 1980; Dunn et al., 1999) a 30-item measure was established. In stage 2, SPSS v29 was used to conduct an EFA (n=205) using principal axis factoring with direct oblimin rotation.

The Kaiser-Meyer-Olkin's measure of sampling adequacy found the data to be suitable for factor analysis and within the 'marvellous' range ( $\geq .90$ ; Kaiser & Rice., 1974). The EFA yielded the hypothesised four factor structure with the labels: 'Technical', 'Tactical', 'Physiological' and 'Psychosocial'. All items met the minimum factor loading criteria set at  $\geq .40$  with n=1 cross-loading item.

This study has provided a conceptual understanding and an initial factor structure for the SSESF. To test its validity, a confirmatory factor analysis with a new sample provides a logical next step to further conceptual understanding of the field.

Lath, F., Koopmann, T., Faber, I., Baker, J., & Schorer, J. (2021). Focusing on the coach's eye; towards a working model of coach decision-making in talent selection. *Psychology of Sport and Exercise*, 56, 102011. <https://doi.org/10.1016/j.psychsport.2021.102011>

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**P390**

**Winner For Life 2.0: An innovative programme for school sport stakeholders and parents to promote life skills development and transfer**

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According to School Sport Canada, over 750,000 student-athletes attend schools where they can practice their sport in a sport-study programme. Their mission is to promote positive development and life skills in student-athletes. Despite this noble aim and the benefits associated with sport practice, there may be undesirable outcomes, such as performance anxiety and injuries. Therefore, life skills programs should be based on scientific advances and respond to stakeholders' expressed needs. In this perspective, our research team launched the Winner For Life 2.0 programme. The aim was to introduce improvements over a previously implemented programme and to take into consideration a need assessment evaluation in 10 high schools offering sport-study programmes in Québec, Canada. The objective of the improved programme is to equip school sport stakeholders and parents to teach student-athletes four general life skills: (a) optimal mental skills, (b) healthy eating habits, (c) safety behaviours, and (d) physical and mental recovery skills. Stakeholders and parents are invited to collaborate to impart the life skills across different settings (e.g., classroom, training, family). A hybrid format was chosen: distance (Internet platform) and face-to-face components combined with individual intervention and follow-up to make the program accessible and adaptable to the realities of school sport stakeholders and parents. The programme's educational activities and tools are designed following Trudel et al.'s constructivist learning model. Accordingly, for each life skill, the program included: (a) practical workshops, videos, and tools (mediated learning situations), (b) online forums for stakeholders and parents to exchange ideas (unmediated learning situations), and (c) reflective cards to help stakeholders and parents reflect on how they could facilitate life skills development and transfer (internal learning situations). Based on the complementarity of the three learning situations, innovative interventions are created. The programme design will be presented along with specific examples of the tools and activities.

## P391

### Mindscales: An investigation on the relationship between motor imagery and cardiac interoception among sport students

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Motor imagery (MI) is the mental simulation of a motor action without physically performing it (Decety, 1996). Interoception refers to the sense of the body's internal state (Craig, 2003). MI and interoception studies showed that athletes have good MI and interoceptive skills, optimizing their performance level (Collett, 2011). The relationship between MI and cardiac interoception, which has common putative mechanisms, is not completely understood. We aimed to examine (i) the relationship between MI and interoception, (ii) the relationship between MI and the expertise level in sport, and (iii) the relationship between interoception and expertise level. We tested 32 sport students (22 males and 12 females, mean age  $28.16 \pm 12.14$  years) with various expertise levels in different sport types. To assess MI skills, we used the "Mental chronometry" task and the Vividness of Movement Imagery Questionnaire (VMIQ; Isaac et al., 1986); to assess interoceptive skills, we used the "Heartbeat detection" task and the Multidimensional Assessment of Interoceptive Awareness-2 (MAIA-2; Mehling, 2018). We used the "Training and Performance Calibre Classification" to classify subjects' expertise level (McKay et al., 2022). We performed Pearson bivariate correlation to analyse the relationship between MI and interoception measures. The results demonstrated there was a significant negative correlation between VMIQ and expertise level [ $r = -.371$ , ( $p = .040$ )]; no significant association between MAIA-2 and expertise level [ $r = .276$ , ( $p = .127$ )]; a negative significant association between MAIA-2 and VMIQ [ $r = -.377$ , ( $p = .037$ )]; no significant correlation between the objective measures for MI ("Mental chronometry" task) and interoception ("Heartbeat detection" task) [ $r = -.047$ , ( $p = .799$ )]. The moderator regression analyses did not show significant results ( $b = -.0160$ ,  $se = 0.0574$ ,  $p = .7824$ ) for whether VMIQ and MAIA-2 were impacted by sport types. Future studies should focus on the neural mechanisms and indicators linking MI and interoception together in both psychological and physiological perspective.

## P393

### The role of bystanders in addressing athlete harassment and abuse: What do we know so far?

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When studying survivor narratives and case reports of in sports, all too often one or more adults were aware of certain signs but did not intervene. They have left victims feeling alone, abandoned, misunderstood and uncared for, and allowed the abuse to continue. Educating and activating bystanders to properly respond is a promising avenue in campus violence intervention programs but largely unexplored in sports. Bystanders are defined as individuals who are not directly involved in the situation as a victim or perpetrator. By their presence, they have the ability to react positively (i.e., support the victim) or negatively (i.e., making fun of the victim) before, during, or after a sign, suspicion or incidents.

Over the past years, our research group developed and evaluated multiple bystander educational programs in Belgian sports, targeting (1) coaches in grassroots-, elite-, and disability sports, and (2) young sports participants. The preliminary results have shown promising outcomes. Coaches for example acknowledged the value of being a positive bystander, felt more comfortable being a positive bystander and believed that doing so would improve the situation. Among sport participants, there was an increase in understanding of concepts of consent and boundaries, as well in their intention to report situations of harassment and abuse.

These pioneering studies underpin the importance of educating and empowering the entourage of sports participants, and sports participants themselves. Activating bystander behaviors to appropriately detect and respond to harassment and abuse will break the silence around abuse, create safer sports climates and support the cultural change needed. Incorporating bystander education in the overall safeguarding strategies in sport organizations, would be beneficial for all sports members. Safeguarding officers and sports psychologists can play an important role in the sustainable implementation of bystander and safeguarding education at club level.

**P394**

**Testing the effects of perfectionism on running performance in a prospective design**

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**Objectives:** Only a handful of studies explored the relationship between perfectionism and performance in the context of real sports competition. Even fewer studies tested whether the higher-order dimensions of perfectionism - perfectionistic strivings and concerns - interact in predicting sports performance (Mallinson-Howard et al., 2021). Filling this gap was the main purpose of this study.

**Methods:** The study followed a prospective design of a natural quasi-experiment. Athletes completed two measures of perfectionism (Performance Perfectionism Scale-Sport; PPS-S; Hill et al., 2016, and Multidimensional Perfectionism Scale-2; S-MPS-2; Gotwals & Dunn, 2009) in the week before the running competitions. A total of 167 athletes (54 females, 113 males) aged 19 to 65 (M = 39.32, SD = 9.35) took part in the study.

**Results:** Regression analyses showed that perfectionistic strivings were a positive predictor of the runners' performance, while perfectionistic concerns showed no significant associations with performance. However, a more in-depth exploration of the significant interaction term between perfectionistic strivings and concerns with the Johnson-Neyman technique revealed that the beneficial effects of high perfectionistic strivings are no longer significant when accompanied by high levels of perfectionistic concerns. Furthermore, the higher the perfectionistic strivings, the higher the performance-lowering effects of perfectionistic concerns. These results support the notion that perfectionistic concerns may be detrimental to sports performance even if their direct effects are not significant, adding pioneering evidence on the existence of perfectionistic tipping points in the context of sports performance (see Hill, 2021).

**Conclusion:** While more research is needed to explain the mechanisms through which perfectionistic concerns hinder the beneficial effects of perfectionistic strivings on performance, the fact that these effects were significant even in a sample characterized by rather low levels of perfectionism underlines how detrimental perfectionistic concerns can be to athletes' functioning in sport; even for athletes who are not highly perfectionistic.

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## P395

### Elite UK Paralympic Athlete Mental Health: Exploring the Views of Sporting Stakeholders

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**Objectives:** Mental health is defined as “a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community” (World Health Organization, 2022). While recognised as important for efficient practice and competitive performance among elite sports performers, there is limited understanding of the demands that impact the mental health of elite Paralympic athletes (Swartz et al., 2019), particularly in relation to the individual, microsystem (e.g., coaches), exosystem (e.g., national governing bodies), and macrosystem (e.g., general public) levels of the Paralympic sport ecosystem (Purcell et al., 2019). This understanding is important given the role that sporting stakeholders play in preventing, signposting, and supporting mental health issues within sports settings. The current study aimed to explore stakeholders perspectives on the occurrence and management of mental health issues within elite UK Paralympic sport.

**Methods:** Purposive sampling was used to recruit 23 stakeholders, including sports practitioners, coaches, and those in leadership positions, who currently work within elite UK Paralympic sport programmes across 12 sporting organisations. Participants took part in a single semi-structured interview (lasting between 49-83 minutes). Thematic analysis was used to establish key themes in relation to Paralympic athlete mental health across different levels of the sporting ecosystem.

**Results:** Interpretive data analysis revealed three higher order themes, which were observed across all four levels of the sporting ecosystem: Misrepresenting the Paralympic Difference; Inconsistent approaches to mental health, support, and management in Paralympic sport; and Navigating the demands of Paralympic sport.

**Conclusions:** Identified themes indicated the presence of specific challenges and opportunities relating to the prevention, occurrence, and management of mental health issues among UK Paralympic athletes. These findings will inform mental health strategies targeting the individual, micro-, exo-, and macro- system levels of the UK para-sport system.

Purcell, R., Gwyther, K., & Rice, S. M. (2019). Mental health in elite athletes: increased awareness requires an early intervention framework to respond to athlete needs. *Sports medicine-open*, 5(1), 1-8.

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## P397

### Eye-tracking and teachers' professional vision: A scoping review as basis for physical education studies

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** The concept of professional vision (PV; Sherin, 2001) comprises the two components of noticing (selective attention) and reasoning (knowledge-based interpretation). Experts have shown superior PV when compared to novices by applying qualitative interviews (van Es & Sherin, 2002). Our scoping review synthesizes research focussing on teachers' PV using eye-tracking as a direct quantitative assessment of visual perception, which helps to further understand teacher's expertise in complex and dynamic surroundings of physical education.

**Methods:** Initial results (n = 2141) from a title/abstract search of eight databases were reduced according to PRISMA guidelines. Finally, n = 16 eye-tracking studies were identified that compared various visual attention measures during lessons or while watching videos among pre-service and in-service teachers.

**Results:** Different analytical procedures have been applied on the gaze measures collected in the studies included, such as fixation, duration, frequency, and position. Most studies have been performed within STEM subjects and languages. Overall, in-service teachers tended to demonstrate longer fixation sequences and more consistent gaze patterns than pre-service teachers. In addition, the gaze of in-service teachers was more evenly distributed, whereas pre-service teachers showed shorter coherent gaze on less relevant areas indicating less appropriate selective noticing. Evidence from the included studies is limited due to mostly small sample sizes per expertise group (novices Mdn = 22,5, MAD = 8; experts Mdn = 20, MAD = 8) and heterogeneous study designs.

**Conclusion:** In the reviewed studies, PV is studied and discussed regarding classroom management, recognition of inattentive, off-task students, but not yet in a subject-specific way for the individual challenges and needs of physical education. Applying mixed-method designs could help to account for the high dynamics and complexity inherent to physical education lessons by studying both processes of PV (i.e noticing and reasoning) through contextualizing gaze data with regards to teachers' reasoning.

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## P398

### The Flight Line or Regular Order? A Reflection on the Origin of the Sport Embodiment

**Chungyi Wu**<sup>1</sup>

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

Athletes through the intertwining of the body and the world, skills, experiences, and knowledge are shaped and used to achieve victory. The famous contemporary philosopher Deleuze (Gilles Louis René Deleuze, 1925-1995) and Guattari (Pierre-Félix Guattari, 1930-1992) developed both the concept of the “Body without Organs” as a counterpoint to Freudian and Lacanian ideas, and the concept of “The Flight Line” refers to paths or trajectories that escape established structures, norms, or constraints. This idea is highly relevant to the phenomenon of sport. Purpose: this research wants to disclose how the athlete’s experience involves a dynamic interplay between Deleuze’s concepts of becoming, the Body without Organs and the Flight Line, and expects to break the structure of existing representations of sport and to find a new way of expressing it. Method: this study will have two approaches: One, exposing the uncertainty and variability of the phenomena in the sports scene by manipulating the phenomenological description, suspension, eidetic reduction, and transcendental reduction in the phenomenological methodology. Two, manifesting the constructing status of sports experiences by means of Body without Organs and The Flight Line. The preliminary results of this study are as follows: Subject to the interaction of emotion and environment, virtual, differential dispersion acts as a molecule to contribute to differences and changes in the movement process; In the process, the athlete will go through the molar or rigid segmentary line, which will bring the existing order together temporarily; and then through the molecule or supple segmentary line, which will make the variety and nomadicism to break the existing order; and finally, he will stand at threshold, forming lines of flight, thus breaking the existing frameworks and constraints, forming a new gesture, and creating rich meaning.

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## P399

### Therapeutic alliance in electronic sports

**Natalia Zakalski Valerio**<sup>1</sup>

<sup>1</sup>Team Liquid, Sao Paulo, Brazil

Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** Assess concepts that have been relatively underexplored in both traditional sports psychology and electronic sports psychology: the therapeutic relationship between practitioner and athlete. Although this topic has been extensively studied in clinical psychology, there is a paucity of research on it in sports’ science, and even more in esports science.

When recognizing the fact that esports have become an extremely competitive environment, it is possible to perceive the need and possibility for psychological support focused on the performance of athletes who engage in it (Kemp, Pienaar, & Rae, 2020; Vaamonde & Chirivella, 2020; Kocadag, 2021). Considering this, it is essential to ponder the relationship between electronic sports players and psychologists as one of the avenues for bringing benefits through practical interventions.

**Methods:** Through an integrative review of these concepts, providing a synthesis of knowledge built latterly, thinking about the applicability of said studies in sports’ science, especially esports.

**Results:** Given the relatively recent emergence of sports psychology, there are limited specific studies concerning therapeutic relationships within this context. Noteworthy works by Petitpas, Giges, and Danish (1999), Winstone and Gervis (2006), Andersen and Tod (2012), Andersen and Kolt (2004), Sharp and Hodge (2013), Sharp and Hodge (2014), and Moore (2021) contribute to our understanding. These studies not only highlight the distinction between the experiences of clinical psychologists and sports psychologists but also extend the exploration of therapeutic relationships beyond concepts such as transference and countertransference.

**Conclusions:** Even though there are few studies in the field of sports psychology specifically addressing this topic, and even fewer within the realm of electronic sports, it remains a subject of significant discussion among psychologists working in both areas. Particularly considering that the fundamental tool of this profession lies in the relationship between both parts, the need for further exploration of this theme is evident.

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## P400

### Dual careers in elite sport - a resource for mental health

**Zsuzsanna Zimanyi**<sup>1</sup>, Stefan Reiter<sup>2</sup>, Jürgen Willrett<sup>1</sup>, Sebastian Beitz<sup>2</sup>

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Poster Session IV, Juli 19, 2024, 09:30 - 10:30

**Objectives:** The qualitative study focuses on coping with stressors and their effects on mental health by dual careers in elite sports. It examines the extent to which dual careers can play a significant role in health and performance. Furthermore, the aim of this work was to identify factors that athletes perceive as stressful or relieving in their experience of the dual career.

**Methods:** Eight semi-structured interviews were conducted with summer and winter athletes (age: M = 32.5, SD = 5.17) involved in individual sports. At the time of data collection, they were either actively engaged in a dual career (n = 4), approaching the end of their competitive sports career (n = 1), or reflecting retrospectively on a dual career (n = 3). The interviews covered a) their biography and sociocultural background, b) factors influencing a successful dual career and mental health, and c) the elite-level sports performance system and the support from the Olympic Training Center. The data was collected and analyzed using the Grounded Theory Method.

**Results:** As a central outcome, it was found that a dual career can have a balancing effect on various levels. It can serve as a balance 1. between physical and cognitive strain, 2. between the freedom to pursue competitive sports and the security provided by education, 3. within the context of forming one's own identity, 4. in terms of time resources, 5. within the social environment and 6. between sport-related and education-related thoughts.

**Conclusion:** A dual career therefore has the potential to positively impact an athlete's mental health and overall performance on an individual basis. Dosed appropriately for each athlete, it can make an important contribution to positive personal development through the cultivation of self-regulation skills.

# POSTER PRESENTATIONS YOUNG PRACTITIONER AWARD

## YPA P01

### The Improv Self-Efficacy and Skills Programme (ISESP): A Novel Treatment to Reduce Public Speaking Anxiety

**Alexander McWilliam<sup>1</sup>**, Stuart Beattie<sup>1</sup>, Nichola Callow<sup>1</sup>

<sup>1</sup>Bangor University, Bangor, United Kingdom

Poster Session Young Practitioner Award, Juli 18, 2024, 09:00 - 10:30

**Objectives:** Public speaking anxiety is commonplace both in occupational and educational settings. Although numerous treatments are available to treat anxiety (e.g., exposure therapy, cognitive modification), the problem persists, particularly in university environments. One particular treatment that may reduce anxiety is via actor and improvisation training. Actor and improvisation training involves the development of verbal and non-verbal communication skills, along with regular exposure to social performance situations in a graded format. The purpose of the present study was to determine the effectiveness of the Improv Self-Efficacy and Skills Programme (ISESP), an innovative intervention rooted in the principles of acting and improvisational theatre training on university students.

**Methods:** Participants were recruited from a UK university (n = 22, Mage = 26.55 years, SD = 7.50 years; n = 12 Female, n = 10 Male). The experimental group (n = 11) received six, 2-hour workshops, conducted bi-weekly over three weeks. Each workshop began with a warm-up before working through a series of solo, pair, and group acting and improvisation exercises. Exercises aimed to not only develop the skills necessary for effective public speaking (e.g., vocal, physical, storytelling), but also the reduction that influential threatening stimuli have on the individual. After the 6-month follow-up, the wait-list control group (n = 11) were offered a ½ day condensed version of the program (3 hours).

**Results:** The results indicated that participation in the 12-hour ISESP led to statistically significant reductions in public speaking anxiety, discomfort, public speaking threats along with significant increases in self-efficacy and speech duration. Results were maintained at 6-month follow-up.

**Conclusions:** The present research contributes to a growing body of evidence suggesting that actor and improvisation theatre training can be used as an efficacious and cost-effective methodology for reducing public speaking anxiety and increasing public speaking self-efficacy.

**Keywords:** public speaking anxiety, fear of public speaking, self-efficacy, theatrical improvisation

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## YPA P02

### Psychosocial risks in elite and professional French athletes: an analysis of the links between socio-environmental context and transdiagnostic psychological processes

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Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

**Objectives:** Socio-environmental conditions may increase the risk to develop psychological disorders in athletes (Reardon et al., 2019). Transdiagnostic psychological processes are common to several mental disorders (Philippot et al., 2019). The aim of this study is to identify the links between socio-environmental context and transdiagnostic psychological processes of elite and professional athletes.

**Methods:** A total of 451 athletes aged between 18 and 49 years old (52% female; mean: 25 ± 6 years old) participated in a one-time online survey. Socio-environmental context of athletes (sporting status, gender, socio-professional status, dual career, exposure to violence) and transdiagnostic psychological processes (motivation to practice sport, emotions, cognition, metacognition beliefs, behaviors) were measured self-reported.

**Results:** Group comparisons showed that having a precarious sports contract, being in a dual career (as a student or a worker) or having experienced violence are associated with significantly higher scores of psychological processes: external motivation, ruminations, negative metacognitive beliefs, impulsivity, and maladaptive perfectionism. Furthermore, group comparisons show that having a high income, having a work contract with limited working hours outside the sporting activity, or having school accommodations are associated with significantly higher scores on psychological processes: intrinsic motivation, emotional competencies, self-efficacy, and adapted perfectionism.

**Conclusion:** This study highlights the associations between some elements of the elite and professional athletes' socio-environmental context and transdiagnostic psychological processes. Identifying socio-environmental factors associated with transdiagnostic psychological processes allows to make adaptations in the sporting environment to limit the risk of developing psychological disorders. Athletes can also develop psychological skills to help them to cope with such conditions.

**Keywords:** mental health, socio-environmental conditions, psychological processes, elite sport, professional sport

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# POSTER PRESENTATIONS YOUNG RESEARCHER AWARD

## YRA P01

### Designing acute physical activity for children's cognition: Effects of cognitive challenge, bout duration, and positive feedback

**Sofia Anzeneder<sup>1</sup>**, Cäcilia Zehnder<sup>1</sup>, Jürg Schmid<sup>1</sup>, Anna Lisa Martin-Niedecken<sup>2</sup>,  
Valentin Benzing<sup>1</sup>, Mirko Schmid<sup>1</sup>

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Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

**Objectives.** Acute physical activity (PA) can transiently enhance children's cognition (Ludyga et al., 2016). Still, the heterogeneity in effect sizes warrants further investigations of moderators of these effects, such as PA task characteristics, contextual factors, and related affective states (Lubans et al., 2022). Among PA task characteristics, the cognitive challenge level has attracted increasing interest, but methodological differences lower study comparability (Schmidt et al., 2021). Moreover, among the biological/physiological, behavioral, and affective factors that have been proposed to mediate the effects of acute PA on cognition (Lubans et al., 2022), the role of positive affect has still received limited attention (Schmidt et al., 2016). Thus, the research program aimed to investigate: (1) which cognitive challenge level in acute PA may affect children's EFs and attention ("cognitive challenge" study); (2) which bout duration of the identified optimal cognitive challenge level is necessary to reap largest benefits ("bout duration" study); and (3) the effect of different feedback forms during PA and related affective states on cognitive performance ("feedback" study).

**Methods.** Three within-subject experimental design studies were conducted with 5th-6th graders (N= 103, 104, and 100, respectively; determined by a-priori power analyses). Each study used an exergame (i.e., active video game) as an intervention, performed at 65% HRmax. Experimental conditions were:

- "Cognitive challenge" study: three 15-min PA sessions with different cognitive challenge levels (low, mid, high), continuously adapted to the individual ongoing performance.
- "Bout duration" study: four PA sessions with the most efficacious cognitive challenge level, chosen according to the results of the previous study, and different durations (5-, 10-, 15-, 20-min).
- "Feedback" study: three PA sessions with the most efficacious cognitive challenge level and duration, chosen according to the results of the two previous studies, and different affect-eliciting feedback forms (no feedback [NO-FB], standard acoustic environment [ST-FB], positive personal feedback [PO-FB]).

Sessions were performed individually once a week during school hours, with children wearing motion-based trackers and an HR sensor. Perceived physical and cognitive

challenges, as well as positive affect were assessed every 5 min of activity. After the exergame, executive control, alerting, and orienting performances were assessed by a child-adapted attention network test (Fan et al., 2009). Repeated measures ANOVAs were run to analyze intervention effects on reaction times (RTs) and accuracy, followed by post-hoc Bonferroni-adjusted comparisons.

**Results.** Effects emerged for RTs but not for accuracy. “Cognitive challenge” study: A significant cognitive challenge effect emerged on executive control ( $\eta^2p = 0.07$ ), with best performances after the high-challenge condition ( $\eta^2ps > 0.01$ ).

“Bout duration” study: A significant duration effect emerged on overall RTs ( $\eta^2p = 0.11$ ), with significantly faster RTs after the 15-min compared to the 10-min condition ( $\eta^2p = 0.09$ ).

“Feedback” study: A significant feedback effect emerged on executive control ( $\eta^2p = 0.09$ ), with best performances after PO-FB ( $\eta^2ps > 0.06$ ). A main effect emerged also for positive affect ( $\eta^2ps > 0.06$ ), with highest values in PO-FB ( $\eta^2ps > 0.04$ ). In PO-FB, positive affect was associated with executive control ( $r = -0.21$ ) but did not mediate feedback effects on executive control (95%CI [-5.51, 14.03]).

In all studies, alerting and orienting performances were unaffected by PA task or contextual variables ( $\eta^2ps < 0.08$ ).

**Conclusion.** The high-challenging bout benefited children’s executive control the most (“cognitive challenge” study), supporting the hypothesis that PA designed to generate cognitive engagement may enhance performance in subsequent EF tasks (Pesce, 2012). Consistent with previous aerobic PA studies (van den Berg et al., 2018), attentional alerting and orienting were unaffected.

Compared to other durations, a 15-min cognitively high-challenging bout benefited children’s overall information processing speed the most, with no duration-dependent differences for executive control, alerting, or orienting (“bout duration” study). Results extend to acute cognitively challenging PA the duration-dependent effects found for acute aerobic PA on overall information processing, but neither on EFs (Hatch et al., 2021), nor on alerting and orienting (van den Berg et al., 2018).

Extending the focus to contextual factors, positive personal feedback created favorable conditions for the joint promotion of children’s affective states and executive control (“feedback” study). Contrary to previous evidence (Schmidt et al., 2016), affective states were associated with but did not mediate feedback effects on executive control. Results support the assumption that feedback that encourages competence enhances affective states that, in turn, may broaden cognitive functioning, leading to more efficient conflict resolution (Stanley & Schutte, 2023).

In sum, the present studies allowed to systematically investigate the influence of PA task and contextual characteristics on children’s EFs and attention. More research is needed to explore how cognitively challenging PA breaks can be designed and implemented in the school context.

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## YRA P02

### Empathy as a Key Personality Trait for Success in Professional Dancers

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<sup>1</sup>*Academy Of Performing Arts In Prague, Prague, Czech Republic*

Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

**Objectives:** According to McConachie (2012) and Blair (2009), empathy is a key personality trait for artists in performative genres. It helps them to empathise with the role they play. Such an assumption implies that a performer who is able to tune into the role has increased levels of empathy and is seen as a successful artist by the audience. This suggests that there is a correlation between the levels of empathy and the success of a performer. The aim of this research was to test the correlational hypothesis through quantitative research and to determine the perceived importance of empathy through qualitative research in the field of professional dance.

**Methods:** The quantitative part consisted of the Questionnaire of Cognitive and Affective Empathy (QCAE) and the Perceiving Emotions and Understanding Emotions subtests of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). These data were evaluated using statistical analysis. The qualitative part consisted of semi-structured interviews in which participants were asked about important characteristics for the performance. The statements were analysed using Interpretative Phenomenological Analysis.

The sample consisted of professional dancers (success was quantified by a set of qualifying conditions: working in a multi-ensemble theatre or in a company supported by state, winner of selected prestigious awards). The number of participants was: QCAE (n = 116, 75 women), MSCEIT (n = 111, 76 women), semi-structured qualitative interviews (n = 32, 16 women). For the interviews, geographical diversity across the Czech Republic and hierarchical diversity within ballet companies were considered aspects.

**Results:** Professional dancers did not differ statistically significantly from the general population on the Perception of Emotions subtest ( $z = .133$ ;  $p = .894$ ) or the Understanding Emotions subtest ( $z = -.987$ ;  $p = .324$ ) but differed statistically significantly from the norm in the negative direction in QCAE ( $U = 11,824$ ;  $p < .001$ ;  $r = .216$ ). A weak negative, non-significant correlation was found between empathy and the length of professional experience (Perception of emotions MSCEIT:  $r(109) = -.07$ ,  $p = .468$ ; Understanding of emotions MSCEIT:  $r(109) = .06$ ,  $p = .562$ ; QCAE:  $r(114) = -.05$ ,  $p = .611$ ) and between empathy and the position in the ballet company (Perception of Emotions MSCEIT:  $r(109) = -.09$ ;  $p = .550$ ; Understanding Emotions:  $r(109) = -.03$ ;  $p = .839$ ; QCAE:  $r(114) = -.05$ ;  $p = .739$ ). This means that the longer the professional dancers had been working and the higher up in the ensemble hierarchy they were, the lower

their scores on the tests (with the knowledge of the statistical non-significance of the results).

In the qualitative part participants reported a total of 20 clusters of important characteristics. These clusters were created because of the significant semantic overlaps of the characteristics mentioned by participants. Empathy was included in the cluster “feeling for others” (empathy, sensitivity and responsiveness) and mentioned by a total of 12 participants (37.5%). Only 4 (12.5%) mentioned empathy specifically. The “feeling for others” cluster ranked only 9th in overall perceived importance out of the 20 characteristics mentioned. When asked directly about the importance of empathy, 26 participants (81.25%) considered this characteristic to be a key for success, 6 (18.75%) considered empathy to be beneficial but not important, and 2 (6.25%) considered empathy to be a residual characteristic for success.

**Conclusion:** Both the quantitative and some aspects of qualitative research demonstrated, with awareness of all the limitations (i.e., number of participants, non-random sampling, social desirability bias, non-standardized translations of QCAE etc.), that professional dancers do not excel in cognitive or affective empathy compared to the general population. Nevertheless, when asked directly for empathy, there is a strong belief that empathy is an important quality.

Most theoretical concepts of empathy include a cognitive and affective component, not a motor component (Bekkali et al., 2021). Dance is a physical activity, and it seems no coincidence that participants scored lowest on MSCEIT Understanding Emotions subtest, which is based on complex verbal expressions. In the Perceiving Emotions subtest of MSCEIT, performers were within the norm – this involves judging visual material, i.e., inferring emotions from facial expression. It could be assumed that dancers encounter this kind of empathy based on visual cues more often and therefore scored higher.

Thus, the original correlational hypothesis about the importance of empathy cannot be completely confirmed, but neither can it be completely rejected. At least in the case of professional dancers, it is necessary to consider the motor empathy as a potential underlying factor of success.

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## YRA P03

## Bayes on the court: Evidence for continuous prior-knowledge integration in virtual tennis returns

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Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

**Objectives:** Due to noisy signals in the sensorimotor system, our perception is constantly subject to uncertainty. This is particularly evident in highly dynamic situations, such as returning a tennis serve. In fundamental research taking on a Bayesian approach to decision-making and sensorimotor control, it is argued that uncertainty is reduced by continuously updated reliability-weighted integration of current sensory information and accumulated prior knowledge (Körding & Wolpert, 2006). To the best of our knowledge, empirical evidence is still sparse on this issue and completely missing when it comes to continuously updating weights of prior knowledge and kinematic information (for a respective scoping review, Beck et al., 2023). Therefore, the objective of this study was to investigate whether the same Bayesian mechanism also holds to explain human behaviour in more complex real-world situations, as it is common in the world of sports.

**Methods:** To guarantee high ecological validity while ensuring experimental control at the same time, participants performed tennis returns in a custom life-sized virtual-reality CAVE environment. As an indicator of participants' expectation of the ball-bounce location in action, we assessed the location of their gaze fixation immediately before the bounce. As an indicator of the participants' conscious perception of the ball-bounce location after the action, they were asked to explicitly indicate where they perceived the ball bounce with a virtual laser pointer.

On two days, participants implicitly learned (i.e., through playing) two mirrored distributions of the serves' impact locations in a within-subject design. On both days, 320 serves had to be returned, which followed a Poisson distribution with a central tendency closer either to the left or the right side of the service box. Importantly, the kinematic information to be extracted from the serving motion remained identical throughout the experiment due to exactly the same avatar simulation.

With this experimental setup, two studies were conducted, each involving 32 young adults aged between 18 and 30 years. In the second experiment, the visual uncertainty substantially rose as the ball speed increased from 180 km/h in the first experiment to 260 km/h, while all other specifics remained unchanged.

**Results:** In both experiments, a statistically significant shift of the gaze fixation in relation to the actual ball location towards the current distribution's central tendency was detected. On top of this, the shift increased over the acquisition period when analysing the intraindividual differences from the overlapping zones of the

mirrored distributions, meaning that the compared serves were kinematically identical in both distributions. Moreover, increased shift differences were revealed in the second experiment, providing strong evidence that the weight of prior knowledge increased with growing reliability and as a function of visual uncertainty due to higher ball speeds. In contrast, no shift differences in the explicit guesses of the ball's location after the return were found which implies that prior knowledge only affects gaze behaviour in the early phase of the ball-flight trajectory, i.e., when the kinematic information on the ball flight is still unreliable. After the actual bounce could be observed, prior expectations were "overwritten" by the more reliable kinematic information resulting in explicit estimations that were not affected by to-be-expected bounce locations anymore.

**Conclusion:** Taken together, our results provide empirical evidence for Körding and Wolpert's (2006) claim – made in their seminal paper for illustrative purposes only – that prior knowledge is integrated according to Bayesian principles when returning tennis serves. Moreover, our findings show that this integration must be understood as a dynamic process in which the eye movements are affected by prior knowledge in the early phase of the return movement. In contrast, prior knowledge becomes increasingly useless when more reliable sensory information is available. Further, our findings show that prior knowledge gets increasingly more weight with the accumulation of task-specific experience (e.g., when gaining information on the opponent) and that this effect is enhanced when kinematic information is less reliable (e.g., when balls are fast). Overall, Bayesian prior-knowledge integration provides a functional explanation of how the sensorimotor system can cope with seemingly impossible challenges at the limit of human performance, such as returning a tennis serve at 260 km/h.

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## YRA P04

### Better Together: A Cross-Cultural Examination of Shared and Identity Leadership in Sports Teams

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Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

**Objectives:** In the domain of sports leadership research, the quest to delineate the essence of effective leadership remains a central endeavour. The research from my doctoral thesis adds to this body of work. Specifically, the central aim across the four research papers that will be presented during the award session is to further cross-cultural understandings of leadership effectiveness in sport through the lens of both the shared leadership approach and the social identity approach to leadership.

**The Shared Leadership Approach:** Over the past three decades, the focus of research on leadership has shifted from hierarchical to shared leadership (Nicolaidis et al., 2014). In sports teams, leadership can be shared by both formal leaders (i.e., individuals who have formally designated leadership responsibilities, including coaches and team captains) and informal leaders (i.e., individuals who emerge as leaders based on their natural interactions with team members; Loughhead et al., 2006). In addition, leaders can take on different leadership roles, including task, motivational, social, and external leadership roles (Fransen et al., 2014). In fact, research has shown that when leadership is shared across levels of formality and leadership roles, it can yield a range of motivational, cognitive, affective, and behavioural benefits both for sports teams and individual athletes (Fransen et al., 2017). But while shared leadership spells out the 'who' of leadership, it does not answer the question of 'how' leadership should be done.

**The Social Identity Approach to Leadership:** The social identity approach to leadership helps in answering the 'how' question, postulating that leaders are only effective to the extent that they represent, advance, create, and embed a sense of 'we' and 'us' (i.e., a shared team identity; Haslam et al., 2020). In the last decade, a sizeable body of research confirms the benefits of this approach (known more specifically as identity leadership) in sports settings. For instance, identity leadership has been found to be positively associated with team effectiveness, team functioning, and athlete mental health.

**What is Missing?** Most of the aforementioned research has been conducted within broadly similar Western cultures, raising questions about their generalisability to sports teams and athletes in non-Western cultures. Filling this gap, the first two research papers examined the extent to which leadership—across task, motivational, social, and external leadership roles—is shared and beneficial (i.e., cohesion and performance) across cultures (operationalised as power distance). In the next two papers, we explored whether identity leadership (on the part of coaches, team captains, and informal athlete leaders) was associated with both mental health and performance indicators across cultures high and low on collectivism.

**Method:** We conducted a cross-sectional study and collected data from 178 (N = 3,037) football teams in nine countries (i.e., Japan, Iran, India, Belgium, Spain, the UK, Canada, Poland, and Australia).

#### Results

**Paper 1:** Results indicated that in general, leadership structures reflected shared leadership across both high- and low-power distance cultures. We did, however, find that the leadership quality of the team and the coach was perceived to be higher in high-power distance cultures, while the leadership quality of the three best leaders within the team was comparable cross-culturally. In general, these results hold for task, motivational, social, and external leadership roles.

**Paper 2:** Data analyses for research paper 2 are currently underway, where we are using polynomial regressions with response surface analyses to examine how two measures of shared leadership (i.e., network density and centralisation) together predict team effectiveness.

**Paper 3:** Results showed that identity leadership on the part of coaches and athlete leaders (formal and informal) is associated with team identification. This, in-turn, correlates with social support, ultimately contributing to enhanced well-being and reduced burnout. With some minor variations, these patterns were observed across both high and low collectivist cultures.

**Paper 4:** We found that coaches' and athlete leaders' (formal and informal) identity leadership is positively associated with all performance indicators via both team identification and cohesion. While these relationships hold cross-culturally they tend to be even stronger in high collectivistic cultures.

**Conclusion:** Leadership is shared across cultures both high and low on power distance. Identity leadership has the potential to improve athlete well-being and enhance team performance cross-culturally.

This presentation will shed light on the universality of certain effective leadership practices, highlighting how leadership that is participatory and identity-focused transcends cultural boundaries in ways that foster enhanced team identification, cohesion, performance, and well-being. Furthermore, it will provide practical insights for coaches, team captains, and policymakers from diverse cultures seeking to enhance their teams' effectiveness.

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## YRA P06

### Examining the Applied Value of Narratives for Professional Practice: An Exploration of Sports Injury Narratives in Action

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Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

**Objectives:** Heeding calls to expand the resources and approaches to psychologically support injured athletes, this study explored the applied value of socio-cultural sports injury narratives for athletes, coaches, and practitioners.

**Methods:** Underpinned by interpretivism, and informed by narrative inquiry and pedagogy, six evidence based sports injury narratives were shared and discussed with 69 elite participants (i.e., athletes, coaches, and practitioners) across 11 focus group interviews. Data were analysed using reflexive thematic analysis.

**Results:** Five themes were identified. The first theme, Forewarned is Forearmed, describes how sports injury narratives can act as route maps in helping athletes navigate their future injury experiences. Moreover, this theme highlights how sports injury narratives can act to decrease the risk of injury by forewarning athletes of the consequences of risk-taking behaviour. The second theme, Building Blocks to Constructing Meaning (s), illustrates how sports injury narratives can act as templates for injured athletes to enable them to make sense of, construct, and communicate their own injury story. The third theme, Fostering Interpersonal Connections, illustrates how sports injury narratives can support athletes' psychological well-being and enhance interpersonal relationships by normalizing athletes' injury experiences and facilitating empathy and understanding. The fourth theme, A Common Language, depicts how sports injury narratives can promote greater communal dialogue around injured athletes' experiences, thus creating more interdisciplinary conversations. The fifth and final theme, Promoting Communal Responsibility, describes how sports injury narratives can promote a broader duty of care to injured athletes by prompting consideration of how the wider socio-cultural contexts influences their experiences.

**Conclusion:** Overall, these themes advance empirical understandings of how narratives can inform professional practice by supporting injured athletes across personal (e.g., meaning making), social (e.g., enhancing interpersonal relationships), and cultural levels (e.g., promoting communal responsibility). Moreover, this study extends the practical lens by providing an illustrative example of a novel and alternative injury management resource that diversifies from the predominant cognitive based interventions within sport injury psychology.

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## YRA P07

**Design of mobile phone and smartwatch running apps that better motivate and fit user's needs: A user-centred, participatory research**

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Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

**Objectives:** Today, a plethora of running commercial apps exist that provide athletes with numerous functions to support training programmes. However, most of these apps have been designed and developed neglecting human motivation aspects, even though research shows that interventions and designs based on theoretical frameworks seem to be more effective than those that are not based upon any theory (Aldenaini et al., 2020). The purpose of the present study was to design a mobile phone and smartwatch running app that better suits subsequent individually-tailored intervention programmes that include motivational-related, health and performance parameters. To that end, a multi-study, user-centred design with a participatory approach was carried out.

**Methods:** After gaining ethical approval, the present study developed in three different phases. Participants were recruited via the mailing lists of the university and running clubs in France, and through social media. In Phase 1, individual interviews (n = 37) were carried out to gain knowledge and understanding of both the different facilitators and barriers that would come into play when using running apps and of the content expected to feature motivational-related, health, and performance parameters. In Phase 2, we ran applied workshops with different participants (n = 10; three groups) to develop and design different wireframes (mobile app and smartwatch sketches) that include the necessary user-friendly interactions and functions that a running app should ideally display. Lastly, in Phase 3, focus group workshops were run with different participants (n = 9; three groups) to discuss and further develop the different wireframes developed in Phase 2 to produce final designs. In the three phases, we had both recreational runners, individual who run from one to three times a week, and experts, individuals who were part of a running club and run from four to seven days a week.

**Results:** Firstly, from the content analysis of the individual interviews in Phase 1, information regarding the facilitators and potential motivational content in relation to one's own routines and goals emerged; that is, tailored to the individual and not generic as usually displayed in existing running apps. Secondly, from the inductive thematic content analysis of the applied workshops in Phase 2, six categories of motivational aspects were identified: reward, gamification, social, personalisation/configuration, interface/ergonomics, and features/notifications. Lastly, inductive thematic content analysis of the focus group interviews in Phase 3 further suggested

that personalisation and gamification, particularly for novice runners, were crucial for motivation and engagement aspects with the mobile app. Moreover, we were able to identify specificities concerning the motivational potential of the mobile app content related to individuals' expertise level of the activity (i.e. running); for instance, if the mobile app proposes challenges, experts would tend to prefer rather competitive challenges in nature whereas novices would rather like to take on collaborative in nature challenges. We found that some motivational levers were valid for all users, regardless of the level of engagement with the activity, such as receiving weather updates at the specific time of a scheduled running session.

**Conclusion:** An approach based on motivation theories and participatory design was developed to inform the design of a tailored motivational app. Such an approach will help avoid a "one-size-fits-all solution" that has traditionally been developed, which findings suggest being ineffective in engaging individuals (Alslaity et al., 2023). The perspectives of this work are to consider the dimensions of personality relevant to motivation that would allow the tailoring of mobile apps and to combine these dimensions with individual preferences that emerged from this study (Higgins, 2008; Pfeffer, 2013; Ryan & Deci, 2017).

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## YRA P08

### Can a Picture Speak a Thousand Words? A Longitudinal Photo-Elicitation Exploration of Football Coaches' Well-Being Experiences and Sensemaking

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Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

**Objectives:** Well-being is considered complex and multi-faceted, encompassing but not limited to, biopsychosocial, temporal, and contextualised aspects (Mead et al., 2021; Rush & Grouzet, 2012). Exploring the collective person-context interaction of well-being 'in-the-world' (e.g., socio-contextual interactions) and how temporality (e.g., past, present, and future) shapes well-being is of great value because it is dynamic and ever-changing (Higham et al., 2023a; 2023b). From a socio-contextual standpoint, male professional football environments are frequently conveyed as volatile and demanding which can impede coaches' optimal functioning and well-being (Higham et al., 2023a; 2023b). Historically, male football's masculine culture has habitually caused the suppression of emotive-expressive behaviours (e.g., help-seeking), which in turn has led to inhibition and withholding health-related concerns (Manley et al., 2016). Considering football coaches are known to suppress thoughts and feelings, and well-being is not easily expressed or understood, a photo-elicitation approach was implemented to harness and evoke richer discussions (Duara et al., 2018). The use of visual stimuli offers researchers the opportunity to engage with participants' tacit (e.g., taken for granted or background) experiences, such as well-being states or how one inhabits their environment (Burton et al., 2017). Thus, given the complexity of well-being and the dearth of longitudinal experiential research with coaching populations (Higham et al., 2023a; 2023b), the present study aimed to explore how football coaches experience and make sense of well-being throughout a competitive season. The objective was to implement a combined photo-elicitation and longitudinal interpretative phenomenological analysis (LIPA) approach to capture the temporal nature of coaches' well-being.

**Methods:** Eight football coaches (7 male, 1 female) based within male English Premier League and Football League clubs were recruited and interviewed at four time-points across the 2022-2023 season (e.g., Aug: Preseason and the start, Dec: Winter World Cup, Feb: Close of the transfer window, May: Play-offs and end of season). A combined LIPA and photo-elicitation approach was implemented, due to their ability to make sense of and convey the temporal flow of experiences (Burton et al., 2017). LIPA has phenomenological, hermeneutic, and idiographic underpinnings which are befitting to explore subjective lived experiences over time (Nizza et al., 2021). An 'auto-driven' photo-elicitation approach (Heisley & Levy, 1991) was adopted, with participants sourcing their own (i.e., literal) and copyright-free (i.e., abstract) images to

facilitate collaborative interpretations. This gave the participants greater voice and authority to interpret their social contexts and provided an insider perspective on their lives (Duara et al., 2018). To mitigate coaches' busy work schedules and to enhance the exploration of well-being experiences and sensemaking, 32 online interviews (Mduration = 87 ± 18 minutes) were conducted, resulting in 84 images being sourced. The interviews were analysed using a LIPA approach (Nizza et al., 2021) and a Bioecological theoretical lens facilitated socio-contextual interpretations (Bronfenbrenner, 2005).

**Results:** Well-being experiences fluctuated in line with socio-contextual and seasonal changes (e.g., work demands at those timepoints), and past experiences and future anticipations shaped well-being sensemaking. Prompting coaches to source images that captured their well-being stimulated reflection on multiple aspects of their lives they often overlooked. Thus, three group experiential themes were established: (i) Striving to be present and true to self; (ii) Well-being sensemaking and experiences shaped by time; (iii) Navigating the (in)stability of football coaching and life. Findings highlighted that coaches' well-being experiences were shaped by whether they felt an authentic self or not. Coaches yearned for a 'third space' outside of work and home-life so they could rest and prioritise themselves. Familial interactions helped mediate coaches' well-being and performance, specifically via dissociation of the coaching role. Well-being was also perceived to have contagion qualities. Coaches disclosed study participation benefits, with the methodology inadvertently serving as a well-being management tool and prompting behaviour change (e.g., altering practices and routines).

**Conclusion:** The present study captured the contextual and temporal (i.e., bioecological) nature of well-being as reciprocal socio-contextual interactions shaped it over time. Past experiences, future anticipations, and organisational events greatly moulded coaches' present well-being experiences and sensemaking. Employing a combined LIPA and photo-elicitation approach broadened coaches' well-being understanding, enhancing reflection and sensemaking capabilities through visual stimuli. Several coaches affirmed that using photo-elicitation increased awareness and management of well-being. Consequently, researchers and applied practitioners who aim to explore or support well-being could benefit from using photo-elicitation with participants or clients as it can enhance the mutual interpretation of lived experiences and helps convey complex and sometimes hard to define concepts like well-being.

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## YRA P09

### Acute Concurrent Exercise Improves Inhibitory Control and Its Non-Mediation Role of Lactate: An ERP Study

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Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

**Objectives:** Concurrent exercise (CE), an emerging exercise modality characterized by sequential bouts of aerobic exercise (AE) and resistance exercise (RE), has demonstrated acute benefits on executive functions (EFs) and neuroelectric P3 amplitudes related to the allocation of attentional resources (Chen et al., 2023; Li et al., 2024). However, while acute CE was found to facilitate cognitive flexibility (Li et al., 2024), its effects on inhibitory control, another sub-component of EFs, and P3 amplitudes remains inconclusive (Chen et al., 2023; Wen & Tsai, 2020).

Moreover, exploring the mechanisms underlying the effects of acute exercise on EFs contributes to scientific comprehension (Chang et al., 2019), with lactate recognized as a crucial candidate positively correlated with EFs (Li et al., 2024).

Therefore, the present study aims to determine the effects of acute CE on inhibitory control through behavioural and neuroelectric approaches and to examine its potential mediating role of lactate.

**Methods:** Seventy-eight younger adults (Age: mean = 22.95, SD = 1.75 years) were randomly assigned to either CE, AE, or control (CON) group. Participants in CE group and AE group respectively engaged in a 12-minute AE at moderate intensity (40%–59% of heart rate reserve [HRR]) coupled with a 13-minute RE at moderate intensity (1 set, with 75% of 10-repetition maximum, and 12 repetitions of 8 movements) and a 25-minute AE at moderate intensity (40%–59% HRR) along with a 5-minute warm-up and cool-down, wherein CON group read books for 35 minutes. Lactate concentrations were measured at timepoint of 0-, 17-, and 30-minutes relative to the treatment onset. Response time (RT) and accuracy in Stroop test, as well as P3 amplitudes, were assessed before and after the treatment.

**Results:** Both CE and AE groups had significantly shorter RTs compared to CON group, with no significant differences in accuracy in each Stroop conditions among groups. A decrease in P3 amplitudes was observed for CE group compared to AE and CON groups in the congruent condition. The mediating effects of lactate between acute exercise and inhibitory control were found to be insignificant.

**Conclusion:** Our behavioural findings suggest that acute CE improves inhibitory control by reducing RTs while maintaining accuracy, without entailing a speed and accuracy trade-off (Chen et al., 2023; Oberste et al., 2019). Novel neuroelectric findings indicate that acute CE enhances the efficiency of attentional resources allocation (Li

et al., 2024), as reflected in reduced P3 amplitudes in the congruent conditions, while maintaining P3 amplitudes in the incongruent conditions. However, the lack of a significant mediating effect of lactate prompts further exploration of the underlying mechanisms.

In conclusion, acute CE emerges as a promising exercise, positively impacting inhibitory control and optimizing attentional resource allocation efficiency, with the mediator of this relationship requiring further explanation.

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## YRA P10

### Measuring Nonverbal Behaviour during Matches in Elite Football from Different Video Sources

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Juli 18, 2024, 09:00 - 10:30

**Objectives:** Football is the most popular sport around the world (International Olympic Committee, 2024). To make sure elite teams perform at their top level, clubs have designated football analysts. The focus of these analyses are usually based on tactical, physical and technical performance (Memmert & Rein, 2018). One area that has yet to be included in game analysis is psychology, even though psychological factors are considered important for sport performance (Lochbaum et al., 2022). Communication has for example been found to be related to team performance (Lausic et al., 2009). Nonverbal behaviour (NVB) is a sub-category of communication, and it is stated that around 65 to 95 per cent of communication happens nonverbally (Matsumoto et al., 2013). In recent years, there has been a growing interest of research on nonverbal behaviour (NVB) in sport (Furley, 2021). However, limited information exists on how athletes use NVB during real competition performance, and there is no research on how different video sources might influence such investigations. Therefore, the aim of this study was to explore elite level footballers' use of nonverbal behaviour (NVB) during real match events, and to compare different camera views (tactical, broadcast, close-up) for investigating this.

**Methods:** The NVB of eight football players representing their national team in one game were analysed. Each player was videotaped using close-up camera view (player zoomed in full figure). Tactical view (all outfield players in view at all times) and broadcast view (TV video footage) of the same game were collected for each participant enabling comparisons between the three camera views. NVBs were divided into a tactical and an emotional category, and the emotional category was divided into positive and negative. Two repeated measures ANOVA tests were performed to investigate differences in camera view and NVB for the players, where tactical NVB and emotional NVB were compared, and positive and negative emotional NVB were compared.

**Results:** Results indicate that we captured significantly more registrations of NVB from close-up view videos compared to both tactical view (mean difference = 23.44,  $p = .004$ ) and broadcast view (mean difference = 64.19,  $p = .012$ ). Compared with close-up view, tactical view captured about 78% of all NVB, and broadcast view captured about 38%. Furthermore, players use significantly more tactical NVB compared to emotional NVB (mean difference = 83.04,  $p = .001$ ), but they do not differ significantly in terms of positive and negative emotional NVB. Significant interaction effects between type of NVB and type of video source were found. Contrasts performed

revealed a significant difference when between broadcast view and close-up view when comparing tactical and emotional NVB, ( $F(1,7) = 12.49$ ,  $p = .01$ ,  $\eta^2 = .64$ ).

Conclusion: The current findings show that footballers differ in their display of tactical and emotional NVB, specifically that they use more tactical behaviours. Moreover, different camera views enable us to capture different amounts of NVB, with close-up view producing most registrations and broadcast view producing the least registrations. However, interaction effects revealed that broadcast view seems better at capturing emotional expressions of players compared to their tactical expressions. Even though there are some limitations with the present study (e.g., sample size), the findings hold important implications for future research and practice.

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## YRA P11

### The Mediating Effect of Autonomous Motivation between Human Values and Physical Activity

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Purpose: Regular physical activity is linked to positive health outcomes (e.g., Centers for Disease Control and Prevention, 2018). Personal values can be defined as abstract ideals that serve as important guiding principles in one's life and act as powerful motivational drivers to understand human behaviors (Sagiv & Schwartz, 2022). Several studies have shown that values are linked to physical activity (e.g., Liang et al., 2024). Specifically, research has shown that a stronger attachment to the value of openness to change is associated with a higher level of increased physical activity in Chinese college students (Liang et al., 2024). Moreover, numerous studies have been conducted to understand the relationship between self-determined motivation and physical activity. Motivation is defined as the psychological forces that determine the direction of a person's effort and their level of persistence in the face of obstacles (Kanfer, 1990). Self-Determination Theory (SDT) is a well-established psychological theory that explains human motivation. Self-Determination Theory (SDT) suggests that motivation can be conceptualized as a continuum of distinct types, including autonomous motivation, controlled motivation, and amotivation (Standage & Ryan, 2020). Research has consistently shown that self-motivation to participate in physical activity tends to predict a higher level of increased physical activity and greater persistence (e.g., Teixeira et al., 2012). Furthermore, the positive correlation between autonomous motivation and physical activity has been demonstrated in China (e.g., Wang et al., 2022). Several studies have revealed a direct correlation between Schwartz's human values and physical activity. To the best of our knowledge, there is no research that explores the psychological mechanisms underlying between human values and physical activity. Nevertheless, motivation is considered an important mediator between human values and behavior. To the best of our knowledge, three studies have focused on the relationship between values and autonomous motivation. To be specific, the value of self-transcendence is positively related to autonomous motivation compared to controlled motivation (Barni et al., 2019). On the other hand, research by Vechionnes and Schwartz (2022) has shown that openness to change is positively related to autonomy motivation compared to conservation value. The aim of the present study is to analyze whether self-transcendence and openness to change values could predict physical activity through exercise motivations. We hypothesize that the values of openness to change and self-transcendence could positively predict physical activity indirectly through relative autonomous motivation.

**Method:** The study involved 319 Chinese college students, including 99 female participants and 220 male participants (Mage=20.45, SDage=1.09). Participants completed the International Physical Activity Questionnaire (Craig, 2005), the Portrait Values Questionnaire (PVQ-21, Schwartz, 2021) and the Sport Behavior Regulation Questionnaire (BREQ-2, Markland & Tobin, 2004). A structural equation model was used to examine the relationship between human values and physical activity, specifically through relative autonomous motivations.

**Result:** The analysis of the Structural Equation Model indicates that the hypothetical model fits the data adequately:  $\chi^2/df=2.873$ , NFI=0.931, RFI=0.862, IFI=0.954, TLI=0.906, CFI=0.953, RMSEA=0.077,  $p<0.01$ . Specifically, self-transcendence values positively predict physical activity through relative autonomous motivation ( $\beta=0.04$ ,  $p<0.05$ ), while openness to change values also positively predict physical activity through relative autonomous motivation ( $\beta=0.054$ ,  $p<0.05$ ).

**Discussion:** The findings of the present study suggest that Chinese college students prioritize openness to change (independence of thought, action, and feeling, and readiness for change) and self-transcendence (concern for the welfare and interests of others) in association with a higher level of physical activity. We believe that self-transcendence is positively associated with prosocial intentions and contributes to promoting physical activity on a global scale. On the other hand, college students who prioritize being open to change are eager to experience the stimulation and hedonistic emotions in life, making them more likely to pursue sensation-seeking through sports participation.

**Conclusion:** We encourage physical education practitioners to promote a willingness to embrace openness to change and self-transcendence in college sports education to enhance autonomous motivation in sports participation. Given the limited number of participants, we advise caution in presenting the results and recommend further research to delve into this topic in the future.

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## YRA P12

### Reciprocal Relationships Between Teamwork Execution, Emergent States, and Perceived Team Performance: A Longitudinal Study

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**Objectives.** The purpose of this study was to analyze the reciprocal relationships between teamwork execution (i.e., communication, cooperation, and coordination), emergent states (i.e., including group cohesion and collective efficacy), and perceived team performance among sport teams over the course of a competitive season. We also examined whether (a) emergent states mediated the relationship between teamwork execution and perceived team performance, and (b) teamwork execution mediated the relationship between emergent states and perceived team performance. **Method.** We adopted a longitudinal design, taking measures of each variable near the beginning (November), middle (January-February), and end of teams' seasons (April-May). Participants included a total of 1,615 players (427 professionals, 588 semi-professionals, and 600 amateurs) aged from 16 to 43 years ( $M = 24.45$ ,  $SD = 5.49$ ; 1,162 men and 451 women), and from a range of team sports (i.e., soccer, volleyball, basketball, handball, indoor soccer, and rugby). The American Psychological Association's ethical standards (2019) were followed in the conduct of this investigation and the Bioethics Committee's approval from the first author's university was obtained. In addition, after approval from the coaches and informed consent from athletes, players completed the online questionnaires individually (taking approximately 15 minutes to complete questionnaires) with their mobile phones in the locker room before a training session, and in the absence of their coach. All statistical analyses were performed with Mplus version 7.3 (Mplus COMPLEX instruction and robust maximum likelihood estimation were used; Muthén & Muthén, 1998–2019), using ten structural equation models and four cross-lagged panel models to test our hypotheses. **Results and discussion.** Results showed teamwork execution was positively and reciprocally related to collective efficacy (Fransen et al., 2020; McEwan, 2020) as well as task cohesion (but not social cohesion; Filho et al., 2014; McEwan, 2020; McEwan & Beauchamp, 2014), and predicted perceived team performance over time (but a reciprocal effect was not evident; Fransen et al., 2020; Leo et al., 2023; McEwan, 2020). These findings suggest that players who perceive that their teammates coordinate actions well, work together in a unified manner, and communicate effectively during gameplay believe in their team's abilities and show a

greater sense of cohesiveness in their efforts to achieve objectives during training and matches (and vice versa), and do indeed lead to team performance. However, teamwork execution is not significantly impacted by previous team performance. Finally, task cohesion and collective efficacy mediated the longitudinal association between teamwork execution and perceived team performance (McEwan, 2020). These results suggest that if players perceive effective coordination, cooperation, and communication between teammates at the beginning of the season, this translates into greater unity around the team's task objectives as well as greater confidence in the team's capabilities in the middle of the season and, in turn, greater perceptions of the team's performance near the end of the season. However, teamwork execution did not mediate the relationship between those emergent states and perceived team performance (Benson et al., 2016; Leo et al., 2023; McEwan, 2020). Hence, we might interpret the results of this research alongside other studies (e.g., Benson et al., 2016) to suggest that group cohesion or collective efficacy might have a direct (and reciprocal) effect on team performance, but not an indirect effect via teamwork execution over time. **Conclusion.** We found that teamwork execution was longitudinally and reciprocally associated with task cohesion and collective efficacy, and predicted perceived team performance over the season. From an applied perspective, the results provide an important contribution to our understanding of teamwork and team effectiveness. It appears important that coaches and practitioners focus on developing teamwork execution from the outset of their team's season as this appears to translate over time into greater task cohesion and collective efficacy and, in turn, team performance.

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## YRA P13

### Conceptualizing Parental Secure Base Support Across Youth Sport Contexts

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**Objectives:** Participation in organized sport can have numerous physical, psychological, and social benefits for children and youth. However, the extent to which young people gain these benefits is dependent upon the support they receive from significant others – particularly parents (Knight et al., 2017). Increasing research attention is focusing upon youth sport parents, however, studies are limited by a lack of theoretical underpinning, and often focus on parents and children separately (Knight, 2019). To overcome these limitations, the current study drew upon attachment theory and the notion of secure base support (Bowlby, 1988; Feeney & Thrush, 2010) to develop an in-depth understanding of what constitutes a secure base across different sporting contexts (i.e., training, competition, home) from the perspectives of children and their parents. It is only with this information that appropriate guidance and support can be implemented on a practical level in order to optimize parental involvement in sport.

**Methods:** Using an Interpretive description methodology (ID; Thorne, 2016), interviews were conducted with 13 family triads and 1 family dyad, comprised in total of 14 children (7 males, 7 females) aged 12-15 years and their respective parents (n=27; 14 mothers, 13 fathers). The interview guide was structured around three main themes according to secure base concept, (a) availability, (b) encouragement and (c) non-interference. Drawing upon ID, analysis was performed to illuminate associations, patterns, and relationships within the sample.

**Results:** Data analysis led to the identification of parental behaviors that align with the secure base support framework. Specifically, nine categories of parental behaviors aligned with availability, encouragement, and interference/non-interference were identified across competition, practice, and outside the context of sport. Availability was comprised as physical presence and support provision, being responsive, and developing positive mental representations. Encouragement encompassed demonstrating that sport participation is valued, motivating to explore sporting endeavours, and reinforcing and rewarding persistence in sports. Finally, interference was described as unrequested interference, requested interference, and intentionally constrained involvement. Importantly, across these three areas, there were two additional categories that warranted consideration. Specifically, it was apparent that communication between parents and children was a key behavior that was influential in displaying availability, encouragement, and interference/non-interference.

Furthermore, it was evident that the ability for parents to display different behaviors and the means through which these behaviors were fulfilled was influenced by cultural and individual factors.

**Conclusion:** Overall, the findings provide a theoretical explanation for a range of different support behaviors that have been identified as beneficial through previous literature (e.g., Knight & Holt, 2014; Pynn et al., 2019). For instance, we acknowledge the importance of parents being physically present, responsive and autonomy supportive. Additionally, our findings provide pertinent insights regarding the value of interference from parents and the benefits of constrained interference, neither of which have been considered previously. Moreover, certain contextual factors that influence the desire for, and perception of, these behaviors were also identified. At the broadest level, these findings provide information about ways in which parents can provide secure base support, thus, facilitating children's explorative journey and long-term involvement in sport. Ultimately, we are positive that this study will provide a sound theoretical framework that can underpin a myriad of future research. For instance, utilizing the findings from this study, we are now developing a validated measurement tool (the Parental Secure Base Scale for Sport, PSBS-S), enabling the evaluation of evidenced based interventions.

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## YRA P14

### Social Identification on Relational Efficacy Beliefs in Sports Teams and Training Groups

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Introduction. Bandura (2006) states that “people achieve the greatest personal efficacy and productivity when their psychological orientation is congruent with the structure of the social system” (p. 325). Accordingly, when athletes are psychologically aligned with their team (social identification) high levels of self-efficacy may be achieved. All Black’s player Andy Ellis has stated a similar view, “That black jersey is something so special. You put it on and there is a sense of belief we should win, that’s how it feels” (Newbould, 2023). Preliminary evidence has demonstrated that social identification is positively related to self-efficacy and collective efficacy (Evans et al., 2023; Fransen et al., 2015; Strachan et al., 2012). However, a full understanding into the influence that social identity has upon efficacy is still unclear. This is because, within social groups, an athlete does not only acquire a set of beliefs about their own competence but also a complementary network of interrelated beliefs about themselves and others (Habeeb, 2020). The tripartite network of efficacy beliefs (Lent & Lopez, 2002) outlines two additional relational perceptions that are prominent in social settings, namely other-efficacy (confidence in one’s teammates) and relation-inferred self-efficacy (RISE; estimations of how confident teammates are in oneself). Understanding the effects of social identification on relational efficacy beliefs is essential given that these relational efficacy beliefs influence psychological, behavioral, relational, and performance outcomes (Habeeb, 2020). Therefore, the purpose of this study was to investigate (1) if social identification with one’s team or training group is related to perceptions of self-efficacy, other-efficacy, and RISE and (2) if the relationship between social identification and self-efficacy are indirectly associated through other-efficacy and RISE. The final aim of this study was to assess if any associations differed for team and individual sport athletes.

Methods. Participants were invited to take part in an online survey for athletes who regularly train with a team (team sports) or training group (individual sports). A total of 185 athletes, from a range of individual (n = 96) and team sports (n = 89), completed surveys on social identification, self-efficacy, other-efficacy, and RISE. Using structural equation modelling, social identity was entered as a predictor variable of self-efficacy while other-efficacy and RISE were entered as indirect effects of the social identification to self-efficacy relationship. A series of invariance tests were conducted to test model differences for team and individual athletes.

Results. Fit for the final model was acceptable,  $\chi^2(102) = 197.16$ ,  $p < .001$ , CFI = .96, TLI

= .95, and RMSEA = .100 90% CI [.079, .121]). Results demonstrated that social identity had a significant direct effect on RISE ( $\beta = .52$ ,  $p < .001$ ) and other-efficacy ( $\beta = .59$ ,  $p < .001$ ) for team and individual sport athletes. The final model resulted in releasing the constraint to freely estimate different coefficients for team and individual sport athletes from social identity to self-efficacy, and from RISE to self-efficacy. Social identity was observed to have a significant direct effect on self-efficacy in individual sport athletes ( $\beta = .36$ ,  $p = .04$ ), but not team sport athletes ( $\beta = -.12$ ,  $p = .25$ ). This means the hypothesized association between social identity and self-efficacy was only observed for individual sport athletes. Bootstrapped testing of indirect effects provided support for a significant indirect pathway from social identity to self-efficacy through RISE for both team and individual sport athletes ( $\beta_{\text{team}} = .60$ , 95% CI [.286, 1.574];  $\beta_{\text{individual}} = .31$ , 95% CI [.139, 1.005]). Contrary to our hypothesis, the indirect pathway from social identity to self-efficacy through other-efficacy was non-significant in both subgroups ( $\beta_{\text{team}} = .011$ , 95% CI [-.155, .105],  $\beta_{\text{individual}} = .005$ , 95% CI [-.128, .094]).

Conclusion. Bandura (2006) postulates that social groups can affect behavior largely through their impact on people’s aspirations, sense of efficacy, and other self-regulatory influences. Findings contribute and extend these contentions by drawing on social cognitive theory, the tripartite network, and the social identity approach (Abrams & Hogg, 1990). Results demonstrate that when athletes are socially identified, higher levels of self-efficacy, other-efficacy, and RISE can be achieved. Additionally, findings provide a unique insight into how social identification and RISE relate to athlete self-efficacy in team and individual sport athletes. For team sport athletes, RISE beliefs may be more pronounced for athlete self-efficacy because performance and training are reliant upon relational partners. For individual sport athletes, social identification with one’s team can be used to directly informed self-efficacy beliefs. In sum, through identification with social groups, athletes can achieve higher levels of self and relational efficacy that, in turn, can improve athlete performance.

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## YRA P15

### Development of a cross-cultural training programme for sports coaches: A Delphi study

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Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

Increasing diversity in sports calls for sports coaches to regularly interact with athletes and staff from different cultural backgrounds. Cultural intelligence (CQ) becomes a crucial skill for coaches, enabling them to adapt and function effectively in cross-cultural settings. Previous research demonstrates CQ can be improved through cross-cultural training, yet there is no such training specifically designed for sport coaches. Using the Delphi method, the aim of this study was to obtain a consensus among experts (specialists in sport psychology, coach educators, and CQ facilitators) on the content and characteristics of a cross-cultural training programme for sports coaches. Three iterative rounds were conducted with 25 experts, and the data were analysed using content analysis. A cross-cultural leadership module and its respective indicative content were identified, which pertained to cultural self-awareness, cross-cultural verbal and non-verbal communication, and sports leadership in multi-cultural contexts. A consensus was further achieved on the delivery type, activities and learning resources, and ideal duration of the training programme. The findings are presented and discussed in the context of coaching education programmes and the use of positive coaching.

Key words: Delphi method, coaching education, cross-cultural skills, cultural diversity

## YRA P16

### Maximizing Performance Under Pressure: A Comprehensive Multidisciplinary Approach to Individualizing Pressure Training in Elite Sport

**Joseph Varga**<sup>1</sup>, David Young<sup>2</sup>, Matt Barlow<sup>1</sup>, Lew Hardy<sup>1</sup>, Tim Woodman<sup>1</sup>, Andy Cooke<sup>1</sup>, Stuart Beattie<sup>1</sup>, Ross Roberts<sup>1</sup>, James Hardy<sup>1</sup>

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<sup>2</sup>England and Wales Cricket Board, National Cricket Performance Centre, Loughborough, England, United Kingdom

Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

Pressure training is designed to improve elite performers' performances by systematically introducing stressors in a controlled training environment. Previous research has shown that pressure can hinder performance (see Yu, 2015, for a review). Equally, previous work has revealed pressure training can improve performance and decision-making in elite performers (see Low et al., 2021, for a meta-analysis). However, not all elite performers derive benefits in the same way from such generic pressure training. We theorized that stand-alone generic pressure training could be beneficial for one elite performer, yet equally unsuitable for another, depending on a range of personality and individual difference variables. Based on previous research and theory, we hypothesized several possible worthwhile mechanisms via which performance may deteriorate or improve under pressure, including (but not limited to): reinvestment, cognitive interference, narcissism, attentional control, ironic effects, threat detection, and impulsivity. For any given elite performer, a singular explanation or group of explanations (and the interactions between them) could be relevant for understanding their performance under pressure.

Objective: We investigated the potential benefits of our novel individualized intervention approach utilizing a comprehensive multidisciplinary profiling procedure and compared this approach to generic pressure training. We incorporated self-report, informant report, observation, and psychophysiological testing in our profiling procedure to triangulate data and to develop a deep and bespoke understanding of the individual mechanisms that contributed most to maximizing each individual's performance under pressure.

Method: Elite English County cricketers either received individualized interventions designed to maximize performance under pressure (n = 17) or participated in generic pressure training (n = 19) across a 2-year period. We collected cricket performance data for 20-Over, 50-Over, and Championship formats. Specifically, we used the following performance statistics from the 2016 and 2018 seasons as dependent variables: batting average score (total runs scored divided by total number of innings in which one has been out), batting strike rate (mean runs scored per 100 balls faced), bowling average score (total runs conceded divided by wickets taken), and bowling

strike rate (total balls bowled divided by wickets taken). We created a data set for each of 20-Over, 50-Over, and Championship cricket, as the demands of each discipline vary; 20-over and 50-over (white ball) cricket is fast, intense and has short, key moments, whereas Championship (red ball) cricket is slower and played for longer (i.e., fewer match-critical moments).

We devised the individualized interventions after case conferencing each of the 17 players with a research advisory team consisting of academic researcher-practitioners with expertise in personality, performance psychology, sport psychology, psychophysiology, and neuroscience. We case conferenced each player's inter- and intra-individual scores across the range of variables we had collected and formulated bespoke interventions to maximize players' performances under pressure. For this, players completed a battery of validated and reliable psychometrics measuring personality, behavior, and mental strategies, and completed a sport-specific emotional Stroop test coupled with psychophysiological measurement. At the same time, we sought quantitative informant report data from coaches on the behaviors that they had seen their players display under normal and stressed conditions. Finally, we conducted a semi-structured interview to follow-up on coaches' informant report data and to discuss their observations of each player.

Results: We standardized and combined the batting and bowling data as the sample size of each would have been too small to analyze. We reverse-scored the standardized bowling data, as high strike rates and average scores signify poor performance for bowlers and good performance for batters. MANCOVAs revealed that the intervention group performed significantly better than the traditional pressure training control group at post-test, for the 20-Over and 50-Over formats. The analyses revealed moderate effect sizes of  $\eta^2 = .24$  and  $\eta^2 = .20$ , for 20-Over and 50-Over, respectively). Follow-up ANCOVAs revealed that the intervention group performed significantly better than the control group for both strike rate and average score, in the 20-Over and 50-Over formats. The lack of an effect in Championship formats is most likely accounted for by fewer incidences of stressful match-critical moments, which are less frequent in the Championship format compared to the shorter (20-Over & 50-Over) formats.

Conclusion: The findings provide the first evidence for the effectiveness of an individualized multidisciplinary profiling approach to maximizing performance under pressure. This intervention formed the basis of the intervention that we then conducted with the England team that won the World Cup in 2019.

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## YRA P17

### Running on anxiety: emotion dysregulation drives exercise dependence in alexithymic ultrarunners

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<sup>1</sup>Bangor University, Bangor, United Kingdom

Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

Objectives: Alexithymia has been suggested as a transdiagnostic risk-factor for affective disorders due to the associated emotional difficulties (Preece et al., 2022). As such, alexithymia has been linked to many maladaptive coping behaviours, such as self-harm (Norman et al., 2020) and substance abuse (Honkalampi et al., 2022). Certain types of sport, such as high-risk sports (Barlow et al., 2013) and ultra-endurance sports (Woodman & Welch, 2021), have been found to provide a relatively more adaptive environment for satisfying an emotion regulation function for those high in alexithymia. Such sports provide an additional emotional pressure that appeals to the alexithymic individual for its capacity to draw out emotions that are not otherwise available in everyday life (Barlow et al., 2013; Woodman & Welch, 2021). Indeed, extreme forms of exercise provide opportunities to experience intense sensations (e.g., anxiety, fear, pain) that are external and easily identifiable, and controlling these sensations allows participants to feel a sense of agency over their emotions that they do not normally have. This sense of emotional wellbeing and agency may be briefly transferable into everyday life, however as the underlying alexithymia-derived negative affect has not been addressed it is unlikely to be long-lasting (Barlow et al., 2013). Hence, without access to normal emotion regulation strategies, alexithymic individuals may need to exercise with increasing frequency and intensity to achieve the desired emotion regulation benefit. This cyclical process would explain the reported risk of alexithymia leading to increased risk of exercise dependence (Dell'Arte & Lenzo, 2021).

In the present study, we aimed to investigate the mechanism that underpins the relationship between alexithymia and exercise dependence within an emotion regulation framework. We theorized that because individuals who are high in alexithymia have difficulties regulating their emotions in everyday life, they will turn to ultra-endurance running to regulate their anxiety (see Woodman & Welch, 2021). As such, the degree to which they are able regularly to participate in their sport will affect their generalized anxiety. This reliance on endurance running to alleviate their anxiety will lead to greater exercise dependence. Such a framework suggests that alexithymia leads to exercise dependence because of the difficulties that such individuals have with alternative emotion regulation.

Methods: We used a cross-sectional online questionnaire to collect data on 422 ultrarunners' alexithymia (TAS-20; Bagby et al., 1994), emotion regulation difficulties (DERS-16; Bjureberg et al., 2016), anxiety (adapted TAI-Short Form; Zsido et al., 2020)

and exercise dependence symptoms (EDS-21; Hausenblas & Symons Downs, 2002).

Results: We used Mplus to perform latent variable structural equation modelling to explore the relationship between alexithymia and exercise dependence. We tested a multiple mediator model which showed a significant indirect effect of alexithymia on exercise dependence through difficulties regulating emotions and anxiety ( $b = .090$   $p < .001$ ). When accounting for the mediating role of difficulties regulating emotions and anxiety, the direct alexithymia-exercise dependence path ( $c'$ ) was no longer significant ( $b = -.010$   $p = .817$ ), indicating full mediation.

Conclusion: Our findings provide support for the emotion regulation function of exercise, which explains the relationship between alexithymia and exercise dependence in sports such as ultrarunning. Such sports appear to provide a pathway for the experience of emotions that are otherwise unavailable for some people. A clearer picture of the emotion regulation processes that underpin the relationship between alexithymia and exercise dependence allows us to better understand the benefits and risks of exercise as a coping strategy for dysregulated emotions. When provided as a comparative to the alternative coping behaviours in the literature (i.e., self-harm or substance abuse), exercise appears a relatively adaptive strategy. However, more research is needed to investigate the long-term risks and benefits of such high-pressure sports further.

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## YRA P18

### physiological and behavioral change at various levels of psychological pressure: a new experimental design study

**Kagari Yamada**<sup>1</sup>, Kazutoshi Kudo<sup>1</sup>

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Young Researcher Award Poster + Young Practitioner Award Poster,  
Juli 18, 2024, 09:00 - 10:30

Usually, we perform better when the potential payoff is larger. However, once potential rewards become excessively high, performance paradoxically decreases, which has been observed in many situations, such as sports, performing arts, and examinations, even though the goal is to improve their performance. This decline of performance is known as “choking under pressure.” Many studies have investigated the psychological and behavioral changes under pressure and most studies have employed an experimental design that compares two conditions: a pressure condition and a non-pressure condition (often called “control”). However, some factors are considered to vary linearly with the pressure, while others are considered to vary nonlinearly, such as performance as proposed in the “inverted U hypothesis.” It is difficult to accurately grasp nonlinearly changing factors in the experimental design that compares the two conditions, which is currently the mainstream. This study aimed to devise and evaluate a new experimental design which compares three or more conditions with various levels of pressure.

Fifteen participants (Mage = 22.5 ± 3.52, 19~32) were instructed to succeed 10 times in a row in the task which requires them to product 10% MVC force with their index finger, and the relative error from the target force and ECG data in each condition of how many consecutive successes they achieved at that point was measured. We hypothesized that participants would become more tense up as the number of consecutive successes increased, and if this hypothesis was correct, heart rate, a physiological measure of tension, would be expected to increase with the number of consecutive successes. On the other hand, performance was expected to be best at the intermediate number of consecutive successes, and performance was expected to be lower at small or large number of consecutive successes.

Correlation Analysis revealed that heart rate increased with the number of consecutive successes ( $r = 0.37$ ,  $p < 0.01$ ). The R wave amplitude of the ECG data was also found to increase with the number of consecutive successes ( $r = 0.34$ ,  $p < 0.05$ ). However, the relative error from the target value decreased linearly with the number of consecutive successes ( $r = -0.30$ ,  $p < 0.05$ ) and was not expressed by “inverted-U” shape unexpectedly.

Previous studies with two conditions of pressure have demonstrated that heart rate go up high under pressure. The ECG data in the present experiment are consistent with previous studies, and supports the idea that pressure gradually increases with

the number of consecutive successes. This indicates that the primary objective of this study, which was to devise an experimental design with three or more conditions of pressure, was achieved.

Although few studies have directly examined the relationship between psychological pressure and R wave amplitude, it has already been reported that sympathetic nerve activity and stroke volume are related and that there is a relationship between s stroke volume and R wave amplitude. Considering these studies, the fact that R wave amplitude increases with pressure is convincing and can provide some signposts toward clarifying physiological changes under pressure.

On the other hand, the result of the present study supports the idea that performance increases monotonically with pressure, which is different from the expectation that performance improves with increasing pressure, but when it seems performance should matter the most, performance paradoxically declines. One possible reason why their performance did not decrease under high pressure is that when they succeed multiple times in a row, participants might improve their skill at the task, or their state anxiety might decrease. In addition, there is a theory called "predictive processing" that suggests that anxiety leads to a state where prediction making is less certain and sensory errors dominate. In this study, the task requires feed-forward control, which is less influenced by sensory input in comparison with the one that requires feedback control, and psychological factors such as anxiety could not be reflected in their performance.

The experimental design devised in this study has the potential to reveal physiological and behavioral changes under pressure that cannot be accurately grasped by comparing two conditions such as "pressure vs control." Specifically, it will enable us to compare the performance-increasing phase and the performance-declining one of the "inverted U hypothesis" within the same study and to analyze the performance-declining phase in more detail. At present, there is no clear explanation for the mechanism of performance declining under pressure. However, we believe that the experimental design we have devised will lead to a better understanding of "choking under pressure."

Pre-Congress

PERFORMANCE UNDER PRESSURE IN SPORTS,  
MILITARY/POLICE, PERFORMING ARTS, MEDICINE,  
BUSINESS AND DAILY LIFE

# PRE-CONGRESS WORKSHOP



## My best tools for coaching elite teams on the road to the Olympic Games 2024 in Paris!

**Peter Haberl<sup>1</sup>**

<sup>1</sup>Peter Haberl, LLC, Colorado Springs, United States

Precongress Workshop (applied) 01: Elite sports and expertise,  
Hall Brüssel, Juli 15, 2024, 10:00 - 12:30

This workshop addresses some of the psychological challenges faced by elite team sports on the road to the Olympic Games. From a psychological perspective, teams prefer the role of the underdog. Yet, elite teams almost always find themselves in the role of the Olympic favourite (Haberl 2009). Another challenging role is the role of being the defending Olympic Gold medallist. Elite teams are expected to win, anything but a medal is considered a failure, thus pressure is unavoidable. Teams that are expected to win the gold medal face a unique set of psychological circumstances that can affect their performance at the Games. Participants will come away with an in-depth understanding of the unique psychology of elite teams at the Olympic Games. This workshop will explore the psychological landscape of team sports and how that landscape changes from initial preparation, to pool play, to knock out rounds. Participants will specifically get to experience novel mindfulness tools labelled social mindfulness as developed by Horn and Folk (see Gleig 2018). In social mindfulness participants practice together aloud with the aim of increasing task at hand attention. Social Mindfulness lends itself to working with team sports.

Gleig, A. (2019) American Dharma. Buddhism Beyond Modernity. Yale University Press; New Haven, CT

Haberl, P. (2009) The Psychology of Being an Olympic Favorite. In Schinke, R. (Ed.) Contemporary Sport Psychology. Nova Science Publishers, Inc. New York pp. 33-53

## Best practice coaching in E-Sports

**Katharina Hänsch<sup>1</sup>**

<sup>1</sup>Sportpsychological Training, Cologne, Germany

Precongress Workshop (applied) 02: E-Sports,  
Hall Igls, Juli 15, 2024, 10:00 - 12:30

Contrary to regular athletes, E-athletes are often required to maintain maximum concentration over the extensive period of time. Online and offline qualifications as well as E-tournaments regularly last up to twelve hours.

“How do E-athletes manage to stay and maintain focused and perform at their best over such a long period of time?”

During the associated workshop this challenge will be examined using the best practice example of a young EA SPORTS FOOTBALL CLUB professional.

Participants will be given insights into applied sports psychology work with e-athletes. Those will include but are not limited to conveying the specifics on E-sports and coaching in E-sports, present a best-case coaching and share the professional practice strategies. Participants will also be encouraged to become active coaches themselves and develop approaches and interventions of their own for a given situation later to be discussed in the course of the workshop.

In the context of the given case, teaching methods such as energy- and break- management as well as theory and graphs about concentration and focus will be presented and the implementation of the applied methods will be demonstrated by virtue of visualizations.

The “change and resource timeline method” will be used to work out how a competition can be divided into different phases of concentration and consciously mastered using the available resources.

For instance a competition day is e.g. divided into multiple consecutive phases requiring extremely high concentration „in game“. During phases of low concentration e.g. in half time breaks conscious mental recovery or emotional regulation can be achieved by an individually developed breathing rhythm. Furthermore highly stressed body parts such as eyes can be selectively targeted to recover using „in game“ micro breaks. In addition, the implementation of an anchor or ritual to return back to the optimal competition tension after relaxation is developed and practiced.

After the presentation of the case and the interventions, the practice strategies, the procedures and the special features of sports psychology work in E-sports and with E-athletes will be discussed.



# ROUNDTABLES

## On the Same Team: A Roundtable Discussion to Enhance Global Researcher-Practitioner Collaborations

**Lauren McHenry**<sup>1</sup>, E. Earlynn Lauer<sup>2</sup>, Rebecca Zakrajsek<sup>3</sup>, Larry Lauer<sup>4</sup>, Kristen Diefenbach<sup>5</sup>, Dan Gould<sup>6</sup>

<sup>1</sup>McHenry Mental Performance, LLC, Atlanta, United States <sup>2</sup>Lauer Mental Training, LLC, Orlando, United States <sup>3</sup>University of Tennessee, Knoxville, United States <sup>4</sup>USTA Player Development, Orlando, United States <sup>5</sup>West Virginia University, Morgantown, United States <sup>6</sup>Michigan State University, East Lansing, United States

Roundtable (research) 01: Best practice,  
Hall Maximilian, Juli 16, 2024, 14:40 - 15:40

Over the last several decades, authors in sport and performance psychology have called for more meaningful connections between research and practice (Gould, 2016; Martindale, Collins, & Daubney, 2005). These calls have continued in recent years, with researchers across the globe advocating for more practical theories (Keegan, Cotterill, Woolway, Appaneal, & Hutter, 2017), better knowledge translation (Holt, Camiré, Tamminen, Pankow, Pynn, Strachan, MacDonald, & Fraser-Thomas, 2018), and more practitioner-friendly research designs (Ely, O, & Munroe-Chandler, 2021). We propose that meaningful research and evidence-based practice are both enhanced when researchers and practitioners work together. The purpose of this roundtable is to promote transnational discussion on how researcher-practitioner collaborations can be developed and optimized. Six sport psychology professionals will lead the roundtable. Three currently hold academic positions at universities in the United States, and three currently hold positions as applied practitioners. All panelists have experience in both applied and academic roles. They have worked with athletes and coaches, ranging from individual consultation to partnerships with national and international sport associations. During the roundtable discussion, panelists will share their perspectives on the current landscape of collaboration between academics and practitioners, particularly in the United States, while inviting attendees to share their own experiences and perspectives on the research-to-practice connection worldwide. The interactive discussion will include examples of effective collaborations in which researchers, practitioners, and sport organizations have partnered to implement and evaluate evidence-based interventions. Panelists will also discuss challenges they have experienced when navigating gaps between research and practice including, for example, institutional and practical barriers, limitations around knowledge dissemination, and personal biases. Attendees will engage in discussion around possible solutions to these challenges with opportunity to ask questions and share ideas. The panelists hope participants will leave with new ideas for researcher-practitioner collaborations to advance the science-practitioner model within sport and performance psychology.

Gould, D. (2016). Conducting impactful coaching science research: The forgotten role of knowledge integration and dissemination. *International Sport Coaching Journal*, 3(2), 197–203.

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## Psychological Risk Factors of Early Talent Identification Programming for Athletes in Mid-Childhood

**Katie Castle<sup>1</sup>**

<sup>1</sup>Castle Psychology, Sherwood Park, Canada

Special Session Roundtable (applied) 01: Youth,  
Hall Strassburg Süd, Juli 16, 2024, 14:40 - 15:40

Objectives- Talent identification and specialized training within mid-childhood (6-11 years) is increasingly common within youth sports. Given their developmental vulnerabilities, this shift justifies an examination of the effectiveness and potential costs of Talent Identification and Development Systems (TIDS). Adult-style training applied in mid-childhood shifts psychosocial experiences and increases susceptibility to negative psychological outcomes in both the short and long-term. Given the popularity of TIDS, which factors are more likely to cause psychological harm rather than athletic success?

Method- Theoretical Review

Results- Review of the literature reveals several factors commonly found in TIDS that are correlated with negative psychological outcomes, especially in mid-childhood.

- Decreased interaction with non-sport peers (Brenner et al., 2019)
- Explicit or implicit focus on performance outcomes (Côté et al., 2014)
- Labeling as either talented or not (Edison et al., 2021)
- Excessive adult control and structure (Barriero & Howard, 2017; Davids et al., 2023; Malina, 2010)
- Exposure to frequent evaluation and performance stress (Campbell et al., 2018; Visek, 2013)
- Program demands increase environmental stress (Brenner et al., 2019; Harwood & Knight, 2015)

Sports programs implemented without consideration of the developmental limitations of mid-childhood increases risk of mental illness, vulnerability to all forms of abuse, and decreased protective factors. These risks should be held against the evidence showing that there is no increased chance of success from sports-enhancement programs that focus on technique, competition, and conditioning; even with the increased cost and commitment demanded (Brenner, et al., 2019; Till & Baker, 2020).

Conclusions- Athletes in mid-childhood lack developmental capacity to adapt to training intended for older athletes and are more susceptible to environmental stressors. Parents and coaches should consider the risk factors of TIDS in choosing and designing programs for young athletes to maximize the benefit and minimize potential costs.

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## Working with Sport Clients in Transitions: A Multicultural Scientist-Practitioner Perspective across Nine Countries

**Natalia Stambulova**<sup>1</sup>, Roy David Samuel<sup>2</sup>, Miquel Torregrossa<sup>3</sup>, Stilian "Ani" Chroni<sup>4</sup>, Mariana Kaiseler<sup>5</sup>, Alessandro Quartirolli<sup>6</sup>, Saša Cecić Erpić<sup>7</sup>, Ohad Nahum<sup>8</sup>, Elizabeth Ludwig<sup>9</sup>, Louise Storm<sup>10</sup>

<sup>1</sup>Halmstad University, Halmstad, Sweden <sup>2</sup>Reichman University, Herzliya, Israel <sup>3</sup>Universitat Autònoma de Barcelona, Barcelona, Spain <sup>4</sup>Inland Norway University of Applied Sciences, Elverum, Norway <sup>5</sup>Manchester Metropolitan University, Manchester, United Kingdom <sup>6</sup>University of Wisconsin – La Crosse, La Crosse, WI, United States <sup>7</sup>University of Ljubljana, Ljubljana, Slovenia <sup>8</sup>The Academic College of Tel Aviv-Yaffo, Tel Aviv, Israel <sup>9</sup>Leipzig University, Leipzig, Germany <sup>10</sup>University of Southern Denmark, Odense, Denmark

Special Session Roundtable (applied) 02: Transitions in and out of sport/dual career, Hall Brüssel, Juli 16, 2024, 16:10 - 17:10

The two organizers of this Special Session Round Table are guest editors, and the eight discussants are the authors of the *Journal of Sport Psychology in Action* Special Issue (JSPA SI) entitled "Working with sport clients in transitions" (in progress). The participants, both males and females, represent nine countries, and have diverse educational, research, and applied sport psychology experiences. The Round Table is aimed at discussing intervention case studies authored by the discussants from the scientist-practitioner perspective to further promote this perspective in the transition-related interventions. Schinke et al. (2024) defined a scientist-practitioner as someone who is trained as both scientist and practitioner; consume, evaluate, and apply up-to-date theoretical and empirical advancements; possess investigation and intervention competences; have a scientific viewpoint and research orientation in practice; reflect on and bridge the science and professional practice, for example, by publishing and disseminate practice-based ideas and evidence. The organizers will begin with a short introduction to the JSPA SI, and the scientist-practitioner definition (6 min.) Then, the discussants will briefly present themselves and their cases outlining the client, context, theoretical/research ground, content, and outcomes of their interventions (8 min. each) The cases to be presented deal with diverse clients (e.g., athletes, coaches), in different transitions (e.g., athletic retirement, injury, COVID-19 pandemic) and grounded in various frameworks (e.g., the meta-model of adaptation in sport by Samuel et al., 2023; the transition environment models by Henriksen et al., 2023). In the conclusive part (20 min.) two questions will be suggested for general discussion: (a) how the scientist-practitioner perspective can be further promoted in transition interventions? (b) how sport psychology evidence-based experiences of working with clients in transitions might be useful in assisting other groups of performers (e.g., in arts, army, police)? Engagement from the audience will be encouraged, and the discussants' collective wisdom summarized.

Henriksen, K., Stambulova, N., Storm, L., & Schinke, R. J. (2023). Towards an ecology of athletes' career transitions: Conceptualization and working models. *International Journal of Sport and Exercise Psychology*. <https://doi.org/10.1080/1612197X.2023.2213105>

Samuel, R. D., Stambulova, N., Galily, Y., & Tenenbaum, G. (2023). Adaptation to change: A me-

ta-model of adaptation in sport. *International Journal of Sport and Exercise Psychology*. <https://doi.org/10.1080/1612197X.2023.2168726>

Schinke, R., Wylleman, P., Henriksen, K., Si, G., Wagstaff, C., Zhang, L., Tshepang, T., Noce, F., & Li, Y. (2024). ISSP position stand: scientist practitioners. *International Journal of Sport and Exercise Psychology*, 22(1),1-23. <https://doi.org/10.1080/1612197X.2023.2174681>

## Mindfulness- and acceptance-based approaches: Current state, challenges and misunderstandings

**Karin Moesch**<sup>1,2</sup>, **Daniel Birrer**<sup>3</sup>, Kristoffer Henriksen<sup>4,10</sup>, Kristel Kriens<sup>5</sup>, Henrik Gustafsson<sup>6,7</sup>, Göran Kenttä<sup>8,9</sup>

<sup>1</sup>Department of Sports Sciences, Malmö University, Malmö, Sweden <sup>2</sup>Swedish Sport Confederation, Stockholm, Sweden <sup>3</sup>Swiss Federal Institute of Sport Magglingen, Magglingen, Switzerland <sup>4</sup>Department of Sports Science and Clinical Biomechanics University of Southern Denmark, Odense, Denmark <sup>5</sup>Tallinn University, Tallinn, Estonia <sup>6</sup>Department of Educational Studies, Karlstad University, Karlstad, Sweden <sup>7</sup>Department of Sport and Social Science, Norwegian School of Sport Sciences, Oslo, Norway <sup>8</sup>Swedish School of Sport and Health Sciences, Stockholm, Sweden <sup>9</sup>The School of Human Kinetics, University of Ottawa, Ottawa, Canada <sup>10</sup>Team Denmark, Brøndby, Denmark

Special Session Roundtable (applied) 03: Best practice,  
Hall Orangerie, Juli 16, 2024, 16:10 - 17:10

Mindfulness- and acceptance-based approaches (MABI) have exponentially gained attention in the past 10 years, both in the application and in research in sport psychology. The approaches have been used as a working model when it comes to performing under pressure, but also to optimize mental health in athletes. Whenever new ideas and concepts from psychology enter sport psychology, they are further modified, watered down and presented in a new light. In order to establish them in the long term, the underlying concepts and terminology need to be challenged, conceptually clarified and refined and then transferred back into application where their usefulness is confirmed. During this roundtable, six experienced European sport psychologists, working in national, professional and Olympic sport organizations as well as in higher education, will discuss a series of questions related to the use and hype of MABIs in elite sport. More specifically, questions in line with the following will be raised and discussed: Are MABIs a temporary hype or a sustainable and permanent component of effective psychological interventions? What are the proposed mechanisms of action of MBIs and what is their importance in the application of MABIs? Are MABIs suitable for every intervention group, every sport and every intervention problem? Is there a golden standard for the use of MABIs? What are common misunderstandings and misconceptions of MABI? What are common challenges when working with MABI? When discussing, the experts will identify and critically debate emerging trends and concerns in the application of MABIs from both an applied as well as a theoretical and conceptual perspective in a roundtable format. The aim is to help practitioners and academics identify difficulties and pitfalls in working with MABIs, to outline possible solutions for the applied work, and to identify gaps in knowledge that can be addressed in future research.

## Sport and Performance Psychology Practitioners' Self-Care: From Science to Practice

**Alessandro Quartiroli**<sup>1</sup>, Heather Hunter<sup>2</sup>, Dawn-Marie Armstrong<sup>3</sup>, Dan Martin<sup>4</sup>, Sebastian Brueckner<sup>5</sup>

<sup>1</sup>UW - La Crosse / University of Portsmouth, La Crosse / Portsmouth, United States / United Kingdom <sup>2</sup>University of Gloucestershire / University of Portsmouth (United Kingdom), Gloucester / Portsmouth, United Kingdom <sup>3</sup>Loughborough University, Loughborough, United Kingdom <sup>4</sup>Newcastle University, Newcastle, United Kingdom <sup>5</sup>Private Practice, Münster, Germany

Special Session Roundtable (applied) 04: Ethics in applied settings, Hall Igls, Juli 19, 2024, 11:00 - 12:30

Self-care is essential for promoting the well-being among psychology professionals and is deemed an ethical imperative for practitioners. Sport and performance psychology professionals (SPPPs) have noted the importance of self-care for an effective, ethical, and long-lasting career. The Round Table aims to discuss the growing body of work focused on self-care in sport and performance psychology professionals to further promote awareness of this critical aspect of professional training, development, and practice. Organizers will pay special attention to the intrinsic link between self-care and who we are as professionals, our intersecting identities, and the personal and organizational contexts within which we exist and practice. Framed in the scientist-practitioner perspective (Schinke et al., 2024), the session will start with a short introduction to the current state of knowledge regarding self-care in SPPPs (Quartiroli et al., 2024) and its relevance in ensuring effective, competent, and ethical practice (10 minutes). Then the discussants will offer each an insight into different dimensions of self-care (Quartiroli et al., 2022), starting with the inextricable connection between self-care and individual values (10 mins), moving to how each professional's understanding and experience of self-care may differ given the varying levels of applied experience and the cultural and contextual diversity that may exist (10 mins). Next, we will discuss how self-care can be a foundational element of the SPPPs' applied experience while delivering services in sport contexts and organizations (10 mins) and other performance domains (10 mins). Following this conversation, the audience will be encouraged to engage in discussion: (a) What are key principles / best practices for SPPPs' self-care? (b) How can self-care be integrated in (graduate) training? (c) On whom does the responsibility for SPPPs' self-care rest? To conclude, key reflections based on current evolving lines of inquiry will be shared.

Quartiroli, A., Martin, D. R., Hunter, H., & Wagstaff, C. R. (2024). A thematic-synthesis of self-care in sport psychology practitioners. *International Journal of Sport and Exercise Psychology*, 1-25.

Quartiroli, A., Wagstaff, C. R., & Thelwell, R. (2022). The what and the how of self-care for sport psychology practitioners: A Delphi study. *Journal of Applied Sport Psychology*, 34(6), 1352-1371.

Schinke, R., Wylleman, P., Henriksen, K., Si, G., Wagstaff, C. R., Zhang, L., ... & Li, Y. (2024). International Society of Sport Psychology position stand: scientist practitioners. *International Journal of Sport and Exercise Psychology*, 22(1), 1-23.

## The Latest Science and Practice of Flow

**Cameron Norsworthy**<sup>1</sup>, Susan Jackson

<sup>1</sup>University of Western Australia & The Flow Centre, Mosman Park, Australia

Special Session Roundtable (applied) 05: Elite sports and expertise, Hall Tirol, Juli 19, 2024, 13:30 - 14:30

Flow is often talked about by elite performers as the holy grail of optimal performance. Research on psychological flow is well established, though no gold standard flow training program exists. In this roundtable, we discuss how the latest research on flow can help flow attainment and our findings on the practicalities of working with elite professionals to find flow intentionally. By bringing together the disciplines of psychology, neuroscience, physiology, and coaching, the discussion will highlight key advancements to how flow is conceptualised and utilised in practice.

Norsworthy, C., Jackson, B., & Dimmock, J. A. (2021). Advancing our understanding of psychological flow: A scoping review of conceptualizations, measurements, and applications. *Psychological bulletin*, 147(8), 806.

Norsworthy, C., Dimmock, J. A., Nicholas, J., Krause, A., & Jackson, B. (2023). Psychological Flow Training: Feasibility and Preliminary Efficacy of an Educational Intervention on Flow. *International Journal of Applied Positive Psychology*, 1-24.

Norsworthy, C., Gorczyński, P., & Jackson, S. A. (2017). A systematic review of flow training on flow states and performance in elite athletes. *Graduate Journal of Sport, Exercise & Physical Education Research*, 6(2), 16-28.

## Better Together?! On the Value, Challenges, and Best Practices of Research-Practice Integration

**Svenja A. Wolf**<sup>1</sup>

<sup>1</sup>Florida State University, Tallahassee, United States

Special Session Roundtable (applied) 06: Best practice,  
Hall Grenoble, Juli 19, 2024, 13:30 - 14:30

With its growing contribution to performance, adherence, and health, sport psychology is gaining traction as a research discipline and practical domain. With their growth, both fields are further proliferating into areas of specialized expertise. Whereas expertise is essential to develop knowledge and intervention, this roundtable session will focus on the integration of practice and research (Wolf et al., 2020). We are convinced such integration benefits both research and practice. Yet, we observe that it is insufficient for practitioners and researchers to recognize this value; to enact integration, they also need to have the necessary skills and capacity (Vroom, 1964). On this path, researchers and practitioners encounter numerous barriers such as too little time, exchange, and mutual understanding (Haddow & Klobas, 2004). Therefore, the aims of this roundtable session are to (a) facilitate conversation among practitioners and researchers about an integration of efforts, (b) create awareness for existing barriers, and (c) collect and discuss best practices and success strategies. Accordingly, we invite all interested researchers and practitioner to attend and contribute their perspectives. We will start the roundtable with perspectives from four invited contributors across the practice-research continuum: Sue Jackson, a former academic (Jackson et al., 2023) turned practitioner in Brisbane (Australia); Karin Moesch, a senior lecturer at Malmö University and sport psychology consultant with the Swedish Sport Confederation; Michael Schmid OLY, a postdoctoral researcher at the University of Bern (Switzerland) and former European rowing champion, and Svenja Wachsmuth, a field- and university-based researcher from the University of Tübingen (Germany). Each of these contributors has experience in practice and research and in attempting, failing, and succeeding in their integration. Following these perspectives, we will open the roundtable to discussion among all attendees in the hopes of collectively taking a step closer to integration efficacy and implementation.

Haddow, G., & Klobas, J. E. (2004). Communication of research to practice in library and information science: Closing the gap. *Library & Information Science Research*, 26(1), 29–43. <https://doi.org/10.1016/j.lisr.2003.11.010>

Vroom, V. H. (1964). *Work and motivation*. John Wiley & Sons.

Wolf, S. A., Steiner, S., Jokuschies, N., & Hesselmann, T. (2020). Zusammen sind wir stärker: Ein Aufruf zur Integration von Forschung und Praxis in der Sportpsychologie. *Zeitschrift für Sportpsychologie*, 27(4), 139–152. <https://doi.org/10.1026/1612-5010/a000301>

PERFORMANCE UNDER PRESSURE IN SPORTS,  
MILITARY/POLICE, PERFORMING ARTS, MEDICINE,  
BUSINESS AND DAILY LIFE

**SLAM**



## The monster of failure and how to trick it A case study: Understanding and overcoming anxieties

Heike Torggler<sup>1</sup>

<sup>1</sup>Counseling, Mentalcoaching, Somatic Experiencing, Biofeedback In Merano (ita), Mölten, Italy

FEPSAC Young Practitioner Presentation, BÖP-Award & Slam Session,  
Juli 16, 2024, 18:30 - 21:00

In my presentation today I would like to share an athlete story with you. It's all about taming a monster.

Some years ago, I was approached by a biathlon athlete. We started working together and soon found out that after 'failing' as last leg runner in the Olympic relay event, she had developed a huge failing anxiety. The reactions of the team manager and media had been devastating. She described feeling traumatized. Coaching her involved more than goal setting for the new season, focusing on her progression and improving her training conditions – it largely involved helping her to recover and overcoming the ever-present monster of failure.

Over the previous few years I had been specializing in somatic experiencing, which gave me some effective tools. The idea of competing again and fighting for a place in the national team was enough of a trigger to release a whole range of emotions such as anxiety, shame and self-hate. The athlete described what she was feeling in her body, like tightness in her stomach, and fingers starting to shake - she even drew a picture of the 'monster of failure'. Together we found a way to tame that monster by approaching it with curiosity.

Looking back over this case, our work included very specific topics and methods, that I would like to share. I asked the athlete for her permission to tell her story. She was happy and sent me a message about her last season:

"My goal for the past season was to qualify for international competition again, but also to find FUN and TRUST! Due to being honest with myself, having the will to go forward, having psychological support, I found a new and better way of viewing the old traumatic experiences and felt free-minded again."

Methods used and referring too: analysis of motivation and potential, Monitoring of success and progress, Biofeedback and somatic experiencing as key elements, work on routines and mental images, preparing for the biggest challenge, thinking beyond, self-regulation (based on ACT)

## (S)He says – (S)He understands: Insights of Coach–Athlete Relationship and Communication – From Research into Practice

Nadja Walter<sup>1</sup>

<sup>1</sup>Leipzig University, Leipzig, Germany

FEPSAC Young Practitioner Presentation, BÖP-Award & Slam Session,  
Juli 16, 2024, 18:30 - 21:00

As core task, coaches are responsible for creating ideal conditions that enable athletes to unleash their full potential. Beyond physical training, coaches also contribute to the social, psychological, and pedagogical development of their athletes (Borggreffe et al., 2006). In this context, a positive coach–athlete relationship is considered essential and therefore making coaches key figures (Jowett & Shanmugam, 2016). Coaches' significance is highlighted by initiatives and projects supporting the development and evaluation of education programs addressing psychological aspects, such as the coach–athlete relationship and their communication (DOSB, 2016; Fabinski et al., 2023). With a focus on this theme, diverse workshops for coaches working in high-performance sports position were designed. The workshops are theoretically based on the 3+1 C Model and the COMPASS Model (Jowett & Lavalley, 2007; Jowett & Rhind, 2010) and address not only communication, but also leadership and conflict situations. Methodically, typical sport-specific scenarios encountered in training and competition serve as basis for reflection exercises and social, psychological, and pedagogical knowledge transfer (Sygusch et al., 2020). To date, more than 130 coaches (aged 18 to 65 years, 33 % female) from the competitive sport setting took part in either online or in-person workshops. The workshops were evaluated both quantitatively and qualitatively. The applied slam serves to illuminate opportunities and challenges of implementing theory-driven workshops for coaches in competitive sports. The slam will provide the audience with insights of coaches' experiences with sensitive issues and communicative challenges such as weight management or menstrual cycle, but also with daily demands such as expectations and role clarification. The aim of the applied slam is to facilitate the discussion from multiple perspectives: research and applied practice but also coaches' and athletes' perspective – contributing to a better understanding of potential challenges in terms of what is said and what is understood.

DOSB (2016). Neustrukturierung des Leistungssports und der Spitzensportförderung – Gemeinsames Konzept des Bundesministeriums des Innern und des Deutschen Olympischen Sportbundes unter Mitwirkung der Sportministerkonferenz [Reorganization of high-performance sports and elite sports promotion – Joint concept of the federal ministry of the interior and the German Olympic Sports Confederation with the participation of the Sports Ministers' Conference. Download: [https://cdn.dosb.de/user\\_upload/Leistungssport/Dokumente/Konzept\\_Neustrukturierung\\_des\\_Leistungssport\\_und\\_der\\_Spitzensportfoerderung.pdf](https://cdn.dosb.de/user_upload/Leistungssport/Dokumente/Konzept_Neustrukturierung_des_Leistungssport_und_der_Spitzensportfoerderung.pdf)

Fabinski, W., Morlang, K., Witusch, C. & Zehner, E. (2023). TrainerIn Sportdeutschland. Ein umfassendes Organisationsentwicklungsprojekt als Investition in die Zukunft [Coaching in sports Germany: A comprehensive organizational development project as an investment in the future]. Leistungssport. Sonderdruck: Schlüsselpersonen im Sport: TrainerInSportdeutschland, 5-9

Jowett, S. (2017). Coaching effectiveness: The coach-athlete relationship at its heart. *Current Opinion in Psychology*, 16, 154-158. <https://doi.org/10.1016/j.copsyc.2017.05.006>

Jowett, S., & Shanmugam, V. (2016). Relational coaching in sport: Its psychological underpinnings and practical effectiveness.

Rhind, D. J. & Jowett, S. (2010). Relationship maintenance strategies in the coach-athlete relationship: The development of the COMPASS model. *Journal of applied sport psychology*, 22(1), 106-121. <https://doi.org/10.1080/10413200903474472>

Sygyusch, R., Mucho, M., Liebl, S., Fabinski, W., & Schwind-Gick, G. (2020). Das DOSB Kompetenzmodell für die Trainerbildung – Teil 1 [The DOSB competence model for coach education – Part 1]. *Leistungssport*, 1, 41-47.

## Succeeding Against All Odds: How Psychological Flexibility Helped a Division 1 Men's Basketball Team Win Their First Championship in 12 Years

Hyejin Song

*California State University Long Beach, Saecheon, South Korea*

FEPSAC Young Practitioner Presentation, BÖP-Award & Slam Session,  
Juli 16, 2024, 18:30 - 21:00

This presentation aims to share how I helped an NCAA Division 1 Men's Basketball team reach their full potential using a Psychological Flexibility model, which refers to an individual's ability to cope with, accept, and adjust to difficult situations (Burton & Bonanno, 2016). I was privileged to be a part of the team's journey during the 23-24 season when they won their first Championship in 12 years.

Before the playoffs, the team was in a difficult situation. They had lost five games in a row, and the university had announced one day before the playoffs that they would be parting ways with the head coach after the season. To support the team's growth, I utilized three components of psychological flexibility including values, committed action, and contact with the present moment.

At the beginning of the season, the players identified their team values. We then discussed improving communication as an action plan to achieve values. Based on this, I developed a communication tracking system, recorded their communication in every game, and collaborated with coaches and players to provide feedback on the records. In the playoffs, the team's instructional and motivation communication increased by 535% and 220% compared to the regular season. Contact with the present moment was the fundamental mindset that helped the team overcome challenges and ultimately led to their success. I discussed being present with the team during a filming session. It was emphasized that they could utilize breathing to be present during the pre-game imagery session.

In conclusion, by practicing mental skills from the beginning of the season, the team not only improved their mental performance but also built inner strength to overcome unpredictable challenges. These experiences highlight how theory can be applied to practice with measurable impact through the psychological flexibility model and related mental skills.

## Walking Before Walking: Not for Babies Only

Amit Abraham<sup>1</sup>, Yifat Ratzabi<sup>1</sup>, Silvi Frenkel Toledo<sup>1,2</sup>, Ahmad Fareed Mawasie<sup>2</sup>, Amir Haim<sup>2</sup>

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FEPSAC Young Practitioner Presentation, BÖP-Award & Slam Session,  
Juli 16, 2024, 18:30 - 21:00

**Background:** Individuals with below knee amputation experience motor and non-motor challenges, including those related to function, pain, and prosthesis embodiment. One cognitive approach for motor retraining is motor imagery (i.e., the cognitive process of creating a movement experience in the mind; MI).<sup>1,2</sup> This cognitive process involves retrieving information regarding the task from long-term memory, thus relying on previous experience with the imaged task.<sup>3,4</sup> However, whether individuals can benefit from mentally imaging tasks they have no previous experience with, is yet to be revealed.<sup>2-4</sup> Specifically, could individuals with below knee amputations benefit from mentally practicing walking with a prosthesis prior to initially having such an actual experience? Answering this question holds potential for important discoveries related to rehabilitation of various populations.

**Methods:** Helsinki approval was granted prior to commencement of the study. Ten participants with acute below knee amputation in a rehabilitation hospital underwent eight 30-min MI sessions focusing on gait and balance retraining with a prosthesis, concurrently with conventional physical therapy. Participants were randomly allocated into one of two groups, based on timing of MI intervention: before or along with initial acquaintance with a prosthesis. Outcome measures included: function, pain, prosthesis embodiment, and mental imagery ability. Data were collected in four different timepoints: pre- and 3 post-intervention. Intervention's feasibility was also assessed.

**Results:** The intervention was successfully delivered to 100% of participants. Seventy percents of participants completed the study. Participants expressed high satisfaction and gains from the MI intervention. Both groups exhibited gains in all measures, with no significant differences between groups.

**Conclusion:** The current results highlight the potential of MI as an adjunct rehabilitative method for gait retraining among acute below knee amputees, including prior to prosthesis initial acquaintance. Further research is needed for establishing MI's specifications in this population.

1. Holmes P, Calmels, C: A neuroscientific review of imagery and observation use in sport. *J Mot Behav* 2008;40(5):433-45.

2. Frank, C., Land, W. M., Popp, C. & Schack, T. Mental Representation and Mental Practice: Experimental Investigation on the Functional Links between Motor Memory and Motor Imagery. *PLoS ONE* 9, e95175 (2014).

3. Munzert, J., Lorey, B. & Zentgraf, K. Cognitive motor processes: The role of motor imagery in the study of motor representations. *Brain Research Reviews* 60, 306-326 (2009).

4. Toussaint L, Blandin Y: On the role of imagery modalities on motor learning. *J Sports Sci* 2010;28(5):497-504.

## Cats, ass drills, and positive vibes

Franziska Lautenbach<sup>1</sup>

<sup>1</sup>Humboldt-Universität zu Berlin, Berlin, Germany

FEPSAC Young Practitioner Presentation, BÖP-Award & Slam Session,  
Juli 16, 2024, 18:30 - 21:00

**Objectives:** Sport psychology has traditionally focused on negative emotions like anxiety, often overlooking the potential advantages of positive emotions such as happiness (McCarthy, 2011). Drawing on the Broaden-and-Build Theory, positive emotions are thought to broaden individuals' perceptual and behavioral repertoires and bolster personal resources. Additionally, they may expedite recovery following stressors, as suggested by the undoing hypothesis (Fredrickson & Levenson, 1998). Thus, positive emotions could be beneficial for athletes and their performance. In this Science Slam presentation, I will discuss two studies demonstrating the benefits of positive emotions for cognition (Study 1: Lautenbach, in preparation) and recovery (Study 2: Lautenbach & Zajonc, 2023).

**Methods & Results:** In Study 1 (within-subject design), 37 athletes (Mage = 21.38) were subjected to false feedback on balancing performance (Moen et al., 2018), inducing positive emotions ( $p = .01$ ,  $\eta^2 = 0.180$ ). Their cognitive flexibility, measured by the number-letter task (Rogers & Monsell, 1995), significantly improved compared to the control condition ( $p = .029$ ,  $d = 0.427$ ). Study 2 (between-subject design) involved 13 female high diving athletes (Mage = 13). They faced stress due to an unexpected qualifying competition, leading to significant increases in psychophysiological stress (valence:  $p = .001$ ,  $\eta^2 = 0.71$ ; heart rate:  $p = .041$ ,  $\eta^2 = 0.35$ ). Following this, the intervention group watched a kitten video, resulting in a significant decrease in arousal levels ( $p = .014$ ,  $d = 3.33$ ), while the control group showed no such change ( $p > .99$ ) when exposed to a dripping water tap video (Nigbur & Ullsperger, 2020).

**Conclusion.** Overall, the findings from both studies suggest that harnessing positive emotions may provide benefits for athletes. Enhanced cognitive flexibility, beneficial for team sports, facilitates quick adaptation to changing circumstances. Moreover, swift physiological recovery may contribute to improved subsequent motor, and thus, athletic performances (Lautenbach & Laborde, 2016).

Fredrickson, B. L., & Levenson, R. W. (1998). Positive emotions speed recovery from the cardiovascular sequelae of negative emotions. *Cognition & Emotion*, 12(2), 191-220.

Lautenbach, F., & Laborde, S. (2016). The influence of hormonal stress on performance. In M. Raab, B. Lobinger, S. Hoffmann, A. Pizzera, & S. Labode (Eds). *Performance Psychology-Perception, Action, Cognition and Emotion* (pp. 315-328) Amsterdam, Netherlands: Academic Press Elsevier.

Lautenbach, F., & Zajonc, P. (2023). The undoing-hypothesis in athletes-three pilot studies testing the effect of positive emotions on athletes' psychophysiological recovery. *Psychology of Sport and Exercise*, 66, 102392.

McCarthy, P. J. (2011, March). Positive Eemotion in sport performance: Current status and future directions. *International Review of Sport and Exercise Psychology*, 4(1), 50-69.

Moen, F., Myhre, K., Andersen, K. A., Hrozanova, M., & Moen, F. (2018). Emotions and performance

in elite women handball. *The Sport Journal*, 21.

Nigbur, R., & Ullsperger, M. (2020). Funny kittens: Positive mood induced via short video-clips affects error processing but not conflict control. *International Journal of Psychophysiology*, 147, 147–155.

Rogers, R. D., & Monsell, S. (1995). Costs of a predictable switch between simple cognitive tasks. *Journal of Experimental Psychology: General*, 124(2), 207.

PERFORMANCE UNDER PRESSURE IN SPORTS,  
MILITARY/POLICE, PERFORMING ARTS, MEDICINE,  
BUSINESS AND DAILY LIFE

# SYMPOSIA

## Sports officiating symposium: Mental health, decision making, and social factors

**Alexandra Pizzera**<sup>1</sup>, David Hancock<sup>2</sup>

<sup>1</sup>German Sport University Cologne, Cologne, Germany <sup>2</sup>Memorial University of Newfoundland, St. John's, Canada

Symposium 01: Other topics - Invited Participants Only,  
Hall New Orleans, Juli 15, 2024, 09:00 - 17:10

Referees, judges, and umpires (i.e., sports officials) are an essential component of sporting competition. Sports officials are tasked with ensuring fair competition, enhancing athlete safety, and adjudicating performances according to the rules and regulations of their respective sports (MacMahon et al., 2015). The tasks of sports officials encompass a variety of complex demands, shaping a more holistic picture of a profession that is highly underestimated and often undervalued. The aims of this multi-hour symposium are to (1) showcase recent research on sports officials, (2) provide an overview of the challenges sports officials are faced with, and (3) offer tangible guidance that researchers and practitioners can use to advance sports officiating. The symposium will feature presentations from 14 first-authors who represent 10 countries, 12 institutions, and diverse research/practical experiences. We will present current research in three main areas of the science and practice of sports officiating. The first area is on mental health and well-being, with topics to include the status of sports officials' mental health, experiences with abuse, coping responses and use of mental skills, and the development of intervention programmes in this context. The second area covers the decision-making of sports officials, including topics on biases and judgment noise, as well as virtual reality opportunities for sports officials' training. The third area is on social aspects and communication of sports officials, focusing on team decision-making, communication among all stakeholders, and social relational activity in sports officiating. The results of the symposium will help to support, develop, and train current and new officials in a more holistic way. This encompasses the mental, physical, and social aspects necessary for sports officiating, as well as using new technologies such as virtual reality for training purposes.

MacMahon, C., Mascarenhas, D., Plessner, H., Pizzera, A., Oudejans, R. & Raab, M. (2015). *Sports Officials and Officiating - Science and Practice*. Abingdon: Routledge.

## Oscillatory Brain Activity and Heart Rate Variability: Biomarkers of Peak Performance

**Arash Mirifar**<sup>1</sup>

<sup>1</sup>University of Florida, Gainesville, United States

Symposium 02: Psychophysiology,  
Hall Strassburg Nord, Juli 15, 2024, 13:30 - 14:30

Since the 1980s there has been a growing interest in the theoretical and applied issues surrounding psychophysiological processes underlying athletic performance (e.g., optimal vs suboptimal). Psychophysiological data can provide a foundation to determine an individual's affective and/or cognitive state based on the mind-body relationship, as well as their performance. Researchers in sport can employ such information to better understand the underlying processes of skill acquisition and motor execution and then to optimize performance.

To enhance our grasp of the psychophysiological mechanisms that underlie performance, this symposium aims to analyze and decode the neural activity and connectivity associated with the perceptual-motor processing and action anticipation. Accordingly, research will be presented that examines how the difficulty of action anticipation influences perceptual-motor processing among table tennis players with varying levels of expertise (Guan & Lu). Then, the focus will be on decoding the neural dynamics associated with integrating prior contextual information and kinematic information during action anticipation among university team basketball players compared to novices (Luan et al.). These two studies will provide evidence that particular types of brain oscillations (and event-related potential components) and regions are associated with successful perceptual-motor processing and action anticipation at different levels of task difficulty and different levels of expertise. Furthermore, a study will be presented that co-analyzed brain oscillatory activity and heart rate variability as preparatory mechanisms during golf putting (Gallicchio). This study will be followed by an investigation of the effectiveness of left-hand contractions on neurophysiological signals (i.e., EEG, HRV, and EMG) and on performance in a series of 3 independent studies (two golf putting and one dart-throwing), under an induced pressure condition (Mizuno & Masaki). The final presentation will be an investigation of oscillatory brain activity underlying performance in approach and avoidance conditions when individuals are in a time pressure condition (Mirifar et al.).

## The Potential of Virtual and Mixed Reality for Research and Application in Sport Psychology, Police, and other First Responder Settings

**Marie Ottilie Frenkel<sup>1</sup>**

<sup>1</sup>Hochschule Furtwangen/Furtwangen University, Freiburg i. Br., Germany

Symposium 03: Other topics,  
Hall Strassburg Süd, Juli 15, 2024, 13:30 - 14:30

Within the last years, virtual and mixed reality (VR/MR) has been hyped in sports, blue light contexts (medical/police/firefighting), medical education, performing arts, business and daily life. In both VR and MR digital stereoscopic 360° scenarios usually presented in head-mounted displays. Furthermore, in MR tangible real-world simulators are included. Only recently, sport psychological research started to utilize the theoretical/methodological advantages of VR/Understanding attention, decision-making and behaviour in VR/MR similar to real-life is a genuinely psychological, currently understudied topic (Wrzus, Frenkel & Schöne, 2023, preprint).

This talk therefore gives an overview on the current application of VR/MR in psychological research. The main part focuses on the topics “performance under pressure” and “stress training”. Results from empirical studies with police officers, medical first responders and firefighters (Heil, Owens & McDaniel, 2023; Voigt & Frenkel, 2023; Voigt, Hill & Frenkel, 2023; Giessing, Plessner & Frenkel, 2021) are used to derive implications for sport psychology. The aim of the present talk is to inform, update, and improve researchers’, trainers’, but also curriculum developers’ knowledge of VR/MR as a tool to address the need for representative stress training opportunities and strengths (e.g., realism, experimental control, effectiveness of educational interventions), while acknowledging its challenges and weaknesses (e.g., differences in experiencing presence, interacting with VR/MR content including avatars). The usefulness of technologies measuring performance and stress through dashboards, individually adapting VR/MR-scenario through smart scenario control or video debriefing tools are critically discussed.

For both research and application, VR/MR offers a contemporary extension of the sport psychological toolkit, offering new avenues to investigate and enhance core phenomena of psychology such performance under pressure and stress training. Still, it is crucial to exercise caution in its application as excessive and careless use of VR/MR can pose a significant risk to athletes’ mental and physical health.

## Charting mental health frontiers: Partnering with athletes, coaches, leaders, and organizations to collaboratively enhance well-being in sports

**Natalie Durand-Bush<sup>1</sup>**

<sup>1</sup>University Of Ottawa, Ottawa, Canada

Symposium 04: Well-being and quality of life,  
Hall Brüssel, Juli 15, 2024, 13:30 - 14:30

Research on mental health in sport has led to 13 position statements originating from various countries (Vella et al., 2021), demonstrating that mental health is a priority worldwide. Within Canada, the Mental Health Strategy for High Performance Sport in Canada provides sport leaders with a roadmap to set priorities to improve well-being within the sport community (Durand-Bush & Van Slingerland, 2021). This symposium offers a multifaceted exploration into ways that scholars and practitioners have collaborated to act on these priorities and advance how mental health can be strengthened across the sport system. Five presentations and a discussant will reveal proactive approaches that emphasize comprehensive discussions with athletes, coaches, leaders, and organizations. The first presentation focuses on Design Thinking, an innovative methodology used to empathically understand the mental health challenges faced by university student-athletes and to co-design dual-career resources. Shifting focus to athlete retirement and wellness, the second presentation similarly unveils the merit of using a Design Thinking approach to co-fabricate solution-driven prototypes to support elite athletes preparing for retirement. The third presentation delves into the impact of sport culture on the mental health of athletes selected and non-selected to compete in the 2020 and 2022 Olympic and Paralympic Games, underscoring the role of mental health literacy and supportive sport cultures. The fourth presentation tackles mental health literacy from a coaching perspective, highlighting the challenges inherent in creating an inclusive and accessible mental health literacy program for Canadian coaches. Finally, the fifth presentation spotlights Tennis Canada’s endeavor to collaboratively create a sport-specific framework to enhance the mental health outcomes of its participants. Together, these presentations position mental health as a critical asset and essential performance indicator in sport. Findings showcase the necessity of integrating collaborative and comprehensive research approaches to meet individual and organizational needs across the sport system.

Durand-Bush, N., & Van Slingerland, K. (2021). Mental health strategy for high performance sport in Canada. The Mental Health Partner Group [Canadian Centre for Mental Health and Sport, Canadian Olympic and Paralympic Sport Institute Network, Game Plan, and Own the Podium]. <https://bit.ly/MentalHealthStrategyforHPSportinCanada>

Vella, S. A., Schweickle, M. J., Sutcliffe, J. T., & Swann, C. (2021). A systematic review and meta-synthesis of mental health position statements in sport: Scope, quality and future directions. *Psychology of Sport and Exercise*, 55, 101946. <https://doi.org/10.1016/j.psychsport.2021.101946>



## Beyond the early versus late specialization debate: New research trends

**Louise Kamuk Storm**<sup>1</sup>, Nicklas Stott Venzel<sup>1</sup>, Charlotte Downing<sup>2</sup>, Jannicke N. Pettersen<sup>3</sup>, Bryan Charbonnet<sup>4</sup>

<sup>1</sup>University of Southern Denmark, Odense, Denmark <sup>2</sup>The Swedish School of Sport and Health Sciences, Stockholm, Sweden <sup>3</sup>Inland Norway University of Applied Sciences, Elverum, Norway <sup>4</sup>Institute of Sport Science, University of Bern, Bern, Switzerland

Symposium 05: Youth,  
Hall Igls, Juli 15, 2024, 13:30 - 14:30

The characteristics of the optimal pathway to elite sport performance is not a novel research issue but one that researchers have tried to shed light on for decades. No one disputes that reaching the elite level of sport does not demand large amounts of intensive training. But when to increase training loads and specialize in only one sport has been debated in the literature. There is consensus among researchers that late sport specialization is a sustainable pathway to sporting success (e.g., Güllich et al, 2022; DiSanti & Erickson, 2019; 2021), and it is recommended by national (e.g., Team Denmark, 2016) and international governing bodies (see also, Waldron et al., 2019), yet these recommendations do not appear to align with current trends in children and youth sport.

Studies of optimal specialization pathways inspire sports organizations and practitioners and thus hold considerable power in terms of how sporting environments organize their youth sport activities. The emphasis of the early versus late dichotomy can be criticized for losing important details and potential useful conclusions.

Therefore, this symposium aims to go beyond the early versus late debate, and through four presentations from four different countries, illustrate new trends in the study of specialization pathways.

First presenter will provide insights from a qualitative study of Danish elite athletes' pathways. Key findings of how environments impact on the sampling pathways are highlighted. The second presenter will highlight insights from a study of Swedish high-level athletes aged 18-24 who self-identified as early specializers. Based on youth sport coaches' perspectives, insights to athletes' transition into their specialization phase (from children sport to youth sport) in Norway is presented. Finally, a new framework is presented to move beyond the early versus late dichotomy. To conclude, we will summarize key messages and lessons learned, audience will be engaged in Q&A.

DiSanti J., & Erickson, K. (2021) Challenging our understanding of youth sport specialization: an examination and critique of the literature through the lens of Bronfenbrenner's Person-Process-Context-Time Model, *International Review of Sport and Exercise Psychology*, 14:1, 28-50

Güllich, A., Macnamara, B. N., & Hambrick, D. Z. (2022). What Makes a Champion? Early Multidisciplinary Practice, Not Early Specialization, Predicts World-Class Performance. *Perspectives on Psychological Science: a journal of the Association for Psychological Science*, 17(1), 6–29. <https://doi.org/10.1177/1745691620974772>

Waldron, S., DeFreese, J. D., Register-Mihalik, J., Pietrosimone, B. & Barczak, N. (2020) The Costs and Benefits of Early Sport Specialization: A Critical Review of Literature, *Quest*, 72:1, 1-18, DOI: 10.1080/00336297.2019.1580205

## Psychophysiological Studies of Performance under Pressure

**Andrew Cooke**<sup>1</sup>

<sup>1</sup>Institute for the Psychology of Elite Performance (IPEP), Bangor University, Bangor, United Kingdom

Symposium 06: Psychophysiology,  
Hall Strassburg Nord, Juli 15, 2024, 14:40 - 15:40

The ability to perform under pressure is key to sporting success. Pressure can stem from “any factor or combination of factors that increase the importance of performing well on a particular occasion” (Baumeister, 1984). Such factors could include, from a psychological perspective, the promise of rewards for success, or unpleasant consequences for failure. From a physical perspective, pressure-inducing factors could include the invasion of space from an attacking opponent, through to extreme physical fatigue. Psychophysiology concerns the scientific study of the reciprocal relations between mind and body. Characterized by an interdisciplinary and often multi-measure approach, psychophysiological experiments are well placed to tackle the important mechanistic questions at the core of performance science. In this symposium we are delighted to present a range of cutting-edge psychophysiological experiments that shed new light on the complex relationships between pressure and performance. The collection of studies showcase a range of psychophysiological measurements (e.g., brain, heart, eyes) and interrogate how the measures are impacted by psychological and physical pressures, and how they relate to behaviour. The first two presentations will investigate the interactive effects of personality on performance under pressure, exploring phasic heart rate reactivity to psychological pressure (presentation 1), and tonic cardiac reactivity plus eye-gaze behaviour (presentation 2) as the underlying mechanisms. The third presentation explores the effect of attacking versus defensive actions on eye-gaze behaviour in fencing to understand how visual attention relates to behaviour during varying physical pressure situations. The final presentation sheds novel light on the time-course of electrocortical changes during exhaustive physical exercise. This study will have important implications for all interested in the neural underpinnings of physical endurance and fatigue. This spectrum of talks and measures have been assembled to capture the essence of contemporary psychophysiology and pressure-performance research.

Baumeister, R. F. (1984). Choking under pressure: Self-consciousness and paradoxical effects of incentives on skillful performance. *Journal of Personality and Social Psychology*, 46(3), 610–620. <https://doi.org/10.1037/0022-3514.46.3.610>

## Beyond the Game: Unraveling Interpersonal Violence in Sports

**Laurie Schwab**<sup>1,2</sup>

<sup>1</sup>Swiss Federal Institute Of Sport, Magglingen, Switzerland <sup>2</sup>Institute of Sport Sciences of the University of Lausanne, Lausanne, Switzerland

Symposium 07: Other topics,  
Hall Brüssel, Juli 15, 2024, 14:40 - 15:40

Interpersonal violence is a pervasive issue in sport, with far-reaching consequences for the safety, integrity and health of athletes. From verbal abuse on the pitch to sexual violence in the locker room, incidents of interpersonal violence not only endanger athletes, but also undermine the fundamental values of fair play and sportsmanship. This symposium brings together five young researchers who are actively engaged in unraveling interpersonal violence in sport. Together, they provide a comprehensive overview of interpersonal violence in sports by exploring its operationalization, prevalence, underlying causes, impacts, and effective strategies for prevention and intervention. The first presentation delves into the development and extended use of the German version of the Perceived Instrumental Effects of Violence in Sport scale within a sample of coaches. The second contribution explores the heterogeneity of sexual violence experiences among athletes based on different personal and sport characteristics. The third presentation investigates the associations between sports-specific factors such as training time, competitive level, and early specialization with various forms of interpersonal violence in sports. The fourth contribution examines weight-related maltreatment and its influence on the eating behaviors of young athletes. Finally, the last presentation introduces the development and preliminary validation of the Individual Readiness to Change on Violence in Sport (IRCVS) scale, aimed at quantitatively assessing individuals' readiness to address interpersonal violence within sport contexts.

## The Ecology of Athlete Development

**Kristoffer Henriksen**<sup>1</sup>, Louise Kamuk Storm<sup>1</sup>

<sup>1</sup>University Of Southern Denmark, Svendborg, Denmark

Symposium 08: Developmental/lifespan perspectives,  
Hall Igls, Juli 15, 2024, 14:40 - 15:40

During the last decade, talent identification and development research that favored an individual perspective has been complemented by a holistic and ecological approach (HEA). Ecological means that this research focuses on the role of athletes' social environments in their development, and holistic means a view of the environment as a complex and dynamic whole (Henriksen, 2010). Today, HEA is matured as is witnessed in a recent review (Hauser et al., 2022).

A recent conceptual paper described an athlete's development as a journey through various athletic and non-athletic environments that support their striving for career excellence (Henriksen et al., 2023). This calls for research that goes beyond talent development and looks at the environments that come before and after.

In the present symposium, we present examples of such environments and how HEA has influenced practices in the world of sport.

The first presentation is of a study that explores the youth sport environments that come before talent development and argues for new methods to understand this target group. The second will present a dual career development environment (DCDE), a successful sport school in the UK, and demonstrate how they not only strive to develop athletes for athletic success but whole people for success in all domains. The third will argue for a more holistic view of good sporting environments that considers wellbeing and personal development, as is seen in a study in an Olympic sport. The fourth will take us further on the athlete journey, and present a study that looks at the nature of successful elite sport environments. Modern research should be of service to society, and the final presentation will share how the HEA has supported new national guidelines that promote an ecologically informed dual career system across Swedish sports universities.

## Sport, exercise and performance psychology: old challenges and new opportunities for the professional field

**Anastasiya Khomutova**<sup>1</sup>

<sup>1</sup>University Of Brighton, Eastbourne, United Kingdom

Symposium 09: Professional development and mentoring,  
Hall Strassburg Süd, Juli 15, 2024, 16:10 - 17:10

This symposium will explore the state of applied sport and exercise psychology in a European context, with the aim of connecting bridges between theoretical education and applied practice. In recent years, research in the area of professional development in sport and exercise psychology has made great progress, including discussions on professional identity, self-care, challenges and opportunities in our fast-developing field. This symposium aims to provide a perspective from different angles in order to facilitate a thought-provoking discussion on what is next for our field of sport, exercise and performance psychology?

The first presentation will provide an overview of qualitative data from 10 European countries, collected by FEPSAC and ENYSSP within their international research project 'Career trajectories in applied sport psychology in Europe'. Presenters will discuss educational experiences and professional development journeys along individuals' career pathways. Following this research-focused presentation, there will be a reflective account from an early-career practitioner, who will discuss his experience in bridging the gap between his formal academic education and applied work in a highly competitive market. Next will be a presentation on the philosophical underpinning of our role as applied practitioners, addressing how developing one's philosophy can help with professional development in sport and exercise psychology, but also beyond it. The penultimate presentation will provide a reflective perspective from two supervisors working with a new generation of sport and exercise psychologists. Finally, this symposium will end with an interactive discussion on the future trajectory of our profession, in which the audience will be encouraged to participate.

## Safeguarding I - Advancing understandings and prevention of interpersonal violence and abuse in sport

**Melanie Lang**<sup>1</sup>

<sup>1</sup>Edge Hill University, Ormskirk, United Kingdom

Symposium 10: Well-being and quality of life,  
Hall Brüssel, Juli 15, 2024, 16:10 - 17:10

Sport has been recognized as a locus of violence and abuse for almost 30 years, but much of the research on this topic has, until recently, focused on understanding sexual forms of violence (Brackenridge, 2001; Lang, 2021). The wide range of harms athletes are exposed to is now becoming clear, as is recognition that all sport stakeholders have a role to play in addressing this.

This symposium aims to advance understandings of forms of interpersonal violence and abuse in sport and provide an evidence base for how sport stakeholders, including psychologists, can prevent this. The symposium comprises five presentations from researchers from Europe and North America.

Parent and colleagues set the scene, presenting the results of a study into the prevalence of interpersonal violence against teens in sport in Quebec. Only in knowing the extent of the problem can we begin to effectively address it. Meanwhile, Adriaens and colleagues report on a study that explored knowledge, attitudes and confidence in managing harassment and abuse among athlete health and medicine professionals globally – a group often omitted from work in this area. Next, Muhonen and colleagues discuss the impact of athletic identity on the normalization of emotional abuse and reporting decision-making among athletes in Finland. Laureys and colleagues continue on emotional/psychological abuse. They identify athletes' and coaches' perceptions of behaviors in the 'grey zone' between acceptable-unacceptable conduct in sport in Belgium. Finally, Ohlert and colleagues discuss the impact of an education e-learning platform on understandings of safeguarding among volunteers in small sports organizations in Germany.

In all, the symposium offers new insights into how interpersonal violence and abuse are understood by a range of sport stakeholders across various cultural contexts and the concomitant consequences of this in order to support development of effective prevention strategies in sport.

Brackenridge, C., 2001. *Spoilsports: Understanding and Preventing Sexual Exploitation in Sport*. London: Routledge.

Lang, M. (ed.), 2021. *Routledge Handbook of Athlete Welfare*. London: Routledge.

## An external focus enhances performance: is it as black and white as we think?

**Vicky Gottwald**<sup>1</sup>, Robin Owen<sup>2</sup>, David Marchant<sup>3</sup>, Thomas Simpson<sup>3</sup>, Henrik Herrebrøden<sup>4</sup>, Kevin Becker<sup>5</sup>

<sup>1</sup>Bangor University, Bangor, Wales, United Kingdom <sup>2</sup>Liverpool Hope University, Liverpool, England, United Kingdom <sup>3</sup>Edge Hill University, Liverpool, England, United Kingdom <sup>4</sup>Kristiania University College, Oslo, Norway <sup>5</sup>University of Tennessee, Tennessee, United States of America

Symposium 11: Motor development,  
Hall Igls, Juli 16, 2024, 11:00 - 12:00

Coaching instruction is one of the most common and effective methods of conveying information to athletes. Effective instructions can guide an athlete's attention but if done incorrectly, can inhibit or constrain skill learning and performance. To date, most literature has universally advocated for an external focus of attention (i.e., focus on environmental movement effects), but this remains at odds with internal focus benefits (i.e., focus on body movements) often perceived within coaching environments. Recent attentional focus literature has begun to present a more nuanced picture of instruction, which moves away from the traditional 'one-size-fits-all' approach of an external focus of attention. Similarly, traditional theoretical accounts of mechanisms underpinning the attentional focus phenomenon are arguably rigid (e.g., constrained action hypothesis and OPTIMAL theory) and insufficiently flexible to explain instructional nuances when considering situational complexities. The purpose of the present symposium is to address some of the complexities of effective instruction, propose guidance for practitioners, and suggest new directions for focus of attention research. Specific talks will address: 1) the applied context and introduction to the field, as well as current challenges and research directions; 2) the significance of inconsistencies in language used to direct an internal and external focus of attention and the reporting of instructional content across the knowledgebase; 3) the value of qualitative approaches to better understand mechanistic nuances of the attentional focus effect using an OPTIMAL framework; 4) the ecological validity of adopting internal and external foci in tandem for task success; 5) the practicality of utilizing other focus strategies (e.g., holistic focus) that fall outside of the traditional internal/external focus paradigm; and 6) closing remarks. If practitioners are to deliver instructions effectively, then they must be provided with the tools to amend their language to suit the coaching context and ideally understand why they are doing so.

Wulf, G., & Lewthwaite, R. (2016). Optimizing performance through intrinsic motivation and attention for learning: The OPTIMAL theory of motor learning. *Psychonomic Bulletin & Review*, 23, 1382-1414.

## Health and safeguarding in youth sport: implications for sport psychology

**Víctor J. Rubio**<sup>1</sup>, Gretchen Kerr<sup>2</sup>, Kat V. Adams<sup>3</sup>, Robert J. Booth<sup>4</sup>, Giulia Cosi<sup>5,6</sup>

<sup>1</sup>University Autonoma Madrid, Madrid, Spain <sup>2</sup>University of Toronto, Toronto, ON, Canada <sup>3</sup>Utah State University, Logan, UT, United States <sup>4</sup>Loughborough University, Loughborough, Leicestershire, United Kingdom <sup>5</sup>University "G. d'Annunzio" of Chieti-Pescara, Chieti, Italy <sup>6</sup>Sapienza University of Rome, Rome, Italy

Symposium 12: Youth,  
Hall Aalborg, Juli 16, 2024, 11:00 - 12:00

Sport provides important benefits to young people -- promoting physical health, fostering socialization among peers, cultivating acceptance of rules and goal orientation attitude, enhancing tolerance to frustration, facilitating socioemotional development, etc. Regrettably, in recent years cases of young athletes who have experienced physical, sexual and/or psychological abuse have emerged, raising concerns about these positive benefits. However, the threats to youth safety and wellbeing in sport extend beyond the most flagrant examples of abuse, as athletes are regularly exposed to dangers which are normalized as ordinary burdens or usual practices. Maltreatment and abuse pose serious concerns -- but so do several other emerging issues such as the increase in severe sports injuries, the presence of peer-bullying, the rise of burnout and the incidence of mental health problems among young athletes. This symposium highlights the importance of promoting safe and healthy youth sport environments. This means preventing any kind of physical, psychological and sexual abuse, and striving for settings that are free-from-harm-and-threats and that nurture mental health and well-being. Attention will be devoted to the role of sport psychology in promoting safe sport environments.

The symposium consists of five presentations. Gretchen Kerr and Sophie Wensel (University of Toronto, Canada) draw links between controlling coaching and psychological abuse. Kat Adams and colleagues (Utah State University, USA) give attention to how emotional abuse perceptions are nuanced and depend on contextual factors. Robert Booth and colleagues (Loughborough University, UK) considers banter, bullying and their blurred boundaries in light of complex social relationships among young people. Giulia Cosi and colleagues (Sapienza University and University "G.d'Annunzio", Italy) present their Safe Place, Safe Play project. Finally, Víctor Rubio and colleagues (University Autonoma Madrid, Spain) make a contribution focused on the early detection of threats to a safe, healthy and enjoyable sport environment.

## Single and Team Cognitive Processes and Performance Under Environmental Constrains

**Gershon Tenenbaum**<sup>1,2</sup>, Roy Bedard<sup>4</sup>, Hila Sharon-David<sup>5</sup>, Thomas Schack<sup>3</sup>, Shih-Chuen Chiou<sup>3</sup>, Jonas Kämpfer<sup>3</sup>, Ludwig Vogel<sup>3</sup>

<sup>1</sup>Reichman University, Herzliya, Israel <sup>2</sup>Ariel University, Ariel, Israel <sup>3</sup>Bielefeld University, Bielefeld, Germany <sup>4</sup>RRB Systems International, United States <sup>5</sup>Ono Academic College, Kiryat Ono, Israel

Symposium 13: Other topics,  
Hall Orangerie, Juli 16, 2024, 11:00 - 12:00

Covered areas: The symposium consists of four presentations which together present the notion of “information processing, decision-making, and performance” under conditions which vary in scope and nature. The first presentation centers on teamwork of law enforcement personnel encountering situations which unfold under sudden, tense, and rapidly changing conditions. Under such conditions, teamwork becomes imperative for the safety of the officers and those they police. The core components of effective teamwork include leadership, mutual performance monitoring, reliance on backup, adaptability, and team orientation. The second presentation centers on developing a method which generates a model of memory-dependent movement mental representations which mimics the model held in LTM. The methodology was used for developing a Mobile Adaptive Assistance System (MAAS) in the form of intelligent glasses that provide unobtrusive, anticipative, and intuitive mental support for athletes who compete under temporal and emotional stressful conditions. The third presentation introduces an information processing framework underlying observational learning and provides some examples illustrating how the design of modal demonstration (e.g., sequence length, maintenance delay, spatiotemporal organization) can affect visual perception and working memory for a whole-body movement. The final presentation shifts from the scope of the motor and security domains into the exercise domain. The presentation focuses on the pivotal role of exercise as a coping strategy, which offers individuals a constructive outlet to manage stress and adapt to changing life circumstances. The decision-making process surrounding the adoption and maintenance of regular exercise is discussed. Overall conclusion: Together, the symposium integrates knowledge and research findings from several independent domains which establish a psychobiological framework of perceptual-cognitive skills required for motor performance. Intended audience: Academicians and practitioners. Keywords: Cognition, stress/pressure, decision-making, performance.

## A brief contact intervention for novice applied training: A pyramid of parallel processing for optimal performance in a pressure cooker

**Julie Hayden**<sup>1</sup>, Vicki Tomlinson<sup>2</sup>, Michael Gerson<sup>3</sup>, Michael Gonzalez<sup>4</sup>, Alexa Garratt<sup>5</sup>, Neftali Beltran<sup>6</sup>

<sup>1</sup>National University, Martinez, United States <sup>2</sup>National University, Redondo Beach, United States <sup>3</sup>National University, Alameda, United States <sup>4</sup>National University, Rossmead, United States <sup>5</sup>National University, Cambridge, United Kingdom <sup>6</sup>Ability First, Pasadena, United States

Symposium 14: Professional development and mentoring,  
Hall Strassburg Nord, Juli 16, 2024, 13:30 - 14:30

An international graduate program’s applied training specialization offers a supervised experience that provides developmentally appropriate hands-on learning for novice interns (Zimmerman, 2011). The supervision approach is conceptualized and executed as a two-week brief contact intervention built on Crust and Clough’s (2011) 4Cs Model of Mental Toughness.

CMPC mentors supervise teams of interns to create content and deliver mental performance training to varying populations: university students with developmental disabilities; and a sports team. Mental performance training includes psychoeducation, awareness-building, and intervention components designed to enhance confidence, control, challenge, and commitment (Crust & Clough, 2011) while stretching the interns’ and clients’ abilities to perform under pressure (e.g., academic, athletic, balance, stress management, facing adversity, societal discrimination, etc.).

This symposium of diverse CMPC supervisors, interns, and clients will discuss the pyramid of parallel processing commencing with a) the base of clients seeking to enhance academic and athletic performance; b) the stressors interns face in delivering an impactful and engaging experience while being evaluated as novice trainees, often lacking confidence and underutilizing problem-solving skills (Poczwardowski, 2019); c) the processing experienced by supervisors employing group management techniques to address and resolve conflict, maintaining cohesive intern teams, and overseeing an enriching, immersive, and culturally empowering endeavor (Foltz et al., 2015; Foronda et al., 2016); d) training directors tasked with ensuring the applied experience aligns with the highest standards of graduate training; and f) promoting the field of sport psychology to enhance buy-in, value, and accessibility for those who would benefit from future psychological and mental performance services.

Audience members will leave with insight into the perpendicular interventions employed across all levels of the parallel processing pyramid in this applied training space, addressing the unique stressors that occur, with the overarching intent to empower trainees, supervisors, and stakeholders to reach their respective pinnacles and thrive under pressure.

Andersen, M. B., Van Raalte, J. L., & Brewer, B. W. (1994). Assessing the skills of sport psychology supervisors. *Sport Psychologist*, 8(3), 238–247.



Andersen, M. A., Van Raalte, J. L., & Brewer, B. W. (2000). When sport psychology consultants and graduate students are impaired: Ethical and legal issues in training and supervision. *Journal of Applied Sport Psychology*, 12(2), 134–150.

Crust, L., & Clough, P. J. (2011). Developing mental toughness: From research to practice. *Journal of Sport Psychology in Action*, 2(1), 21–32.

<https://doi.org/10.1080/21520704.2011.563436>

Foltz, B. D., Fisher, A. R., Denton, L. K., Campbell, W. L., Speight, Q. L., Steinfeldt, J., & Latorre, C. (2015). Applied sport psychology supervision experience: A qualitative analysis. *Journal of Applied Sport Psychology*, 27(4), 449–463. <https://doi.org/10.1080/10413200.2015.1043162>

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Haynes, R., Corey, G., & Moulton, P. (2003). *Clinical supervision in the helping professions: A practical guide*. Brooks/Cole.

Lesyk, J. J., Clement, D. & Maher, C. (2020). CMPC mentor guidelines and best practice recommendations. Retrieved from [https://appliedsportpsych.org/site/assets/files/30047/cmpec\\_guidelines\\_and\\_best\\_practices\\_recommendations-1.pdf](https://appliedsportpsych.org/site/assets/files/30047/cmpec_guidelines_and_best_practices_recommendations-1.pdf)

Poczwardowski, A. (2019). Deconstructing sport and performance psychology consultant: Expert, person, performer, and self-regulator. *International Journal of Sport and Exercise Psychology*, 17(5), 427–444. <https://doi.org/10.1080/1612197X.2017.1390484>

Tod, D., Marchant, D., & Andersen, M. B. (2007). Learning experiences contributing to service-delivery competence. *Sport Psychologist*, 21, 317–334.

Watson, J. C., II, Zizzi, S. J., Etzel, E. F., & Lubker, J. R. (2004). Applied sport psychology supervision: A survey of students and professionals. *The Sport Psychologist*, 18(4), 415–429.

Zimmerman, B. J. (2011). Motivational sources and outcomes of self-regulated learning and performance. In B. J. Zimmerman & D H. Schunk (Eds.), *Handbook of self-regulation of learning and performance* (pp. 49–64). Routledge.

## Sport Psychology in the Real World – Appreciating the Complex

Jannis Friedrich<sup>1</sup>, Markus Raab<sup>1</sup>

<sup>1</sup>German Sport University Cologne, Cologne, Germany

Symposium (research) 15: Research methods (incl. qualitative & quantitative),  
Hall Grenoble, Juli 16, 2024, 13:30 - 14:30

Past research in sport has often focused on understanding performance by conducting research in sterile settings such as laboratories that do not resemble the situations athletes face in real life. Laboratory studies are effective at isolating determinants of behavior, and it is assumed that in learning about these, one can predict real life. Yet, real life is often more complex. What determines real life behavior cannot be predicted by looking at parts in isolation, because each part interacts with the others and each brain is embodied and acting in a situation (Ibanez, 2022; Maselli et al., 2023). Although challenging, it is not impossible to perform research that reflects the complexity of 'real life'. Some work in sport psychology has found success with novel approaches in theory and methodology that do not neglect, and even appreciate, this complexity.

Beginning with Antonella Maselli, appreciating the complexity of sport performance itself. She presents an 'embodied planning' climbing task, emphasizing the interplay of brain and body. Next, looking at methods that can capture the complexity, Christian Vater describes new developments in the intricacies of measuring gaze behavior that transfers outside of the lab. David Mann then takes an even closer look at the eye as an unfiltered window into the processes underlying anticipation; presenting work on pupil dynamics. Beyond changing what we measure, it is often also necessary to improve how to look at it. Nathan Sandholtz uses behavioral data to gain insight into beliefs of American football coaches. Lastly, Niklas Neumann applies a recurrence network analysis of soccer players, getting at the underlying structure of psychological and physiological factors, revealing individual-specific networks and dynamics. The talks are joined by presenting innovative developments in sport psychology, and how they appreciate the complexity of real life without sacrificing scientific rigor.

Ibanez, A. (2022). The mind's golden cage and cognition in the wild. *Trends in cognitive sciences*, 26(12), 1031–1034.

Maselli, A., Gordon, J., Eluchans, M., Lancia, G. L., Thiery, T., Moretti, R., ... & Pezzulo, G. (2023). Beyond simple laboratory studies: developing sophisticated models to study rich behavior. *Physics of Life Reviews*.



## Sustainably in the Profession of High-Performance Coaches – Utopia or within reach?

**Marte Bentzen**<sup>1</sup>, Joshua Frost<sup>2</sup>, Karin Hägglund<sup>3</sup>, Gavin Breslin<sup>4</sup>, Kristen Dieffenbach<sup>5</sup>, Göran Kenttä<sup>3</sup>

<sup>1</sup>The Norwegian School of Sport Sciences, Oslo, Norway <sup>2</sup>The University of Melbourne, Melbourne, Australia <sup>3</sup>The Swedish School of Sport and Health Sciences, Stockholm, Sweden <sup>4</sup>Queens University Belfast, Belfast, United Kingdom <sup>5</sup>West Virginia University, Morgantown, United States

Symposium 16: Elite sports and expertise,  
Hall New Orleans, Juli 16, 2024, 13:30 - 14:30

There has been a growth in research documenting and emphasizing that working as a high-performance (HP) coach is a highly demanding and includes a wide range of stressors (Norris et al., 2017; Potts et al., 2021) that ultimately can lead to negative outcomes such as burnout and mental health problems for coaches (Olusoga et al., 2019). In a recent position paper, a call for a shift in focus with a need to widen current perspectives on how to make the coaching profession more sustainable was highlighted (Kenttä et al., 2023).

The overall purpose of this symposium is to focus on mental health and well-being for the HP coach, considering the coach as an elite performer, but also with an emphasis on thriving in life as an individual. The speakers of the symposium will discuss opportunities and challenges related to sustainability within the profession from various perspectives.

The two first presentations will provide an overview of the current knowledge about mental health, recovery and self-care among HP coaches, by presenting their work of two systematic scoping reviews. The third presentation will give insights from a recent intervention conducted with elite coaches on the topic of self-compassion. The fourth presentation will share findings from a study implementing a mental awareness program to enhance coaches' self-awareness of their own mental health and how they can support their athletes who experience mental health problems. The final presenter will share novel insights from a study conducted with adolescent family members of HP coaches, discussing the negative ripple effects of the demanding HP coach job. In sum, the presenters will in joint effort share their understanding of, and raise important questions regarding, how and if coaching in the HP context could be developed to be more sustainable.

Kenttä, G., Dieffenbach, K., Bentzen, M., Thompson, M., Côté, J., Mallett, C., & Olusoga, P. (2023). Position Paper: Rationale for a Focused Attention on Mental Health of High-Performance Sports Coaches. *International Sport Coaching Journal*, 1(aop), 1-9.

Norris, L. A., Didymus, F. F., & Kaiseler, M. (2017). Stressors, coping, and well-being among sports coaches: A systematic review. *Psychology of Sport and Exercise*, 33, 93-112.

Olusoga, P., Bentzen, M., & Kenttä, G. (2019). Coach burnout: A scoping review. *International Sport Coaching Journal*, 6(1), 42-62.

Potts, A. J., Didymus, F. F., & Kaiseler, M. (2023). Psychological stress and psychological well-being among sports coaches: A meta-synthesis of the qualitative research evidence. *International Review of Sport and Exercise Psychology*, 16(1), 554-583

## The Shared Path to Success: Exploring Shared Leadership Across Sports, Cultures, and Academia

**Katrien Fransen**<sup>1</sup>

<sup>1</sup>KU Leuven, Leuven, Belgium

Symposium 17: Leadership,  
Hall Aalborg, Juli 16, 2024, 13:30 - 14:30

This symposium presents an in-depth exploration of shared leadership across diverse contexts, highlighting its significance for enhancing teamwork, performance, and well-being. Through five diverse studies, we delve into the multifaceted nature of shared leadership, ranging from its impact on athlete group dynamics and its significance in women's professional rugby to its applicability across cultures and even in academic realms.

Initially, Mason Sheppard and Todd Loughhead differentiate shared athlete leadership from teamwork through detailed measurement analysis, highlighting their separate but significant impacts on team achievements. Building on the understanding that these concepts are distinct, Eesha Shah et al.'s qualitative study uncovers how leadership across the team, and in particular those from task, motivational, and social leaders, manifests teamwork behaviours that maintain a team's interpersonal ecosystem and regulate its performance.

The symposium then broadens its lens to examine shared leadership in wider contexts. Stewart Cotterill and Richard Cheetham start with their exploration into women's professional rugby, thereby offering insights into the shared leadership dynamics among female athletes, highlighting their preference for non-hierarchical structures and the need for gender-specific leadership research. Following this, Radhika Butalia et al.'s cross-cultural analysis reveals that shared leadership transcends cultural differences in power distance, suggesting its universal applicability across diverse settings. Lastly, Katrien Fransen et al. extend the concept of shared leadership to our everyday lives as researchers in academic environments. More specifically, they identify key leadership roles for both formal and peer leaders in university contexts, advocating for a shared leadership model to enhance team effectiveness and individual job satisfaction.

Collectively, these presentations underscore the versatile and dynamic nature of shared leadership, advocating for its broader application and recognition as a pivotal factor in fostering cohesive, high-performing teams across various domains.

## Eating disorders in sport: Opening coaches' eyes

Saša Cecić Erpič<sup>1</sup>, Janja Usenik<sup>2</sup>, Renata Barič<sup>3</sup>

<sup>1</sup>University of Ljubljana, Ljubljana, Slovenia <sup>2</sup>University of Maribor, Maribor, Slovenia <sup>3</sup>University of Zagreb, Zagreb, Croatia

Symposium 18: Coaching,  
Hall Strassburg Nord, Juli 16, 2024, 14:40 - 15:40

One of the prominent mental health disorder diagnoses that occurs in the athletic population is eating disorders (ED; e.g., Mancine et al., 2020; Reardon et al., 2019). The estimated prevalence of ED and/or disordered eating among athletes in range from 1% to 19% in males and 6% to 45% in females (Bratland-Sanda & Sundgot-Borgen, 2013) and is significantly higher than in non-athletes. The strong stigma of ED and the assumption that they only occur in certain subpopulations make this topic taboo and delay athletes in recognizing symptoms and seeking help, especially in the sports world. Coaches play an integral role in an athlete's sporting life and are uniquely responsible for responding when an athlete is suspected of having issues related to ED or mental health in general (Moesch et al., 2018). Research shows that coaches often support the development of ED problems in their athletes, which can last for years (Gouttebarga et al., 2019). The symposium consists of four presentations and aims to raise awareness of the problem of ED in sport, based on the project "Eating disorders in sport: Opening coaches' eyes" (EDS-OCE) supported by the European Commission.

The first presentation will focus on the main aspects of the EDS-OCE project. Then, a second presentation will present coaches' perceptions of ED, shedding light on their awareness, understanding, and strategies in dealing with athletes who may be at risk. A third presentation will highlight the transitional nature of ED in a young ballet dancer and the role her teachers (i.e., coaches) played in the process of adapting to the consequences of ED. Finally, the symposium will conclude with a presentation focusing on ED in recreational sports and exercise addiction in male fitness athletes.

Mancine, R. P., Gusfa, D. W., Moshrefi, A., & Kennedy, S. F. (2020). Prevalence of disordered eating in athletes categorized by emphasis on leanness and activity type - a systematic review. *Journal of Eating Disorders*, 8(1), 1-9.

<https://doi.org/10.1186/s40337-020-00323-2>

Moesch, K., Kenttä, G., Kleinert, J., Quignon-Fleuret, C., Cecil, S., & Bertollo, M. (2018). FEPSAC position statement: Mental health disorders in elite athletes and models of service provision. *Psychology of Sport and Exercise*, 38, 61-71.

<https://doi.org/10.1016/j.psychsport.2018.05.013>

Reardon, C. L., Hainline, B., Aron, C. M., Baron, D., Baum, A. L., Bindra, A.,

Budgett, R., Campriani, N., Castaldelli-Maia, J. M., Currie, A., Derevensky, J. L.,

Glick, I. D., Gorczynski, P., Gouttebarga, V., Grandner, M. A., Han, D. H., McDuff,

D., Mountjoy, M., Polat, A., ... Engebretsen, L. (2019). Mental health in elite athletes: International Olympic Committee consensus statement. *British Journal of Sports Medicine*, 53(11), 667-699. <http://dx.doi.org/10.1136/bjsports-2019-100715>

## From A to B to C – stress and performing under pressure

Paul Mansell<sup>1</sup>, Katie Sparks<sup>1</sup>, Andrew Wilkinson<sup>1</sup>, Nanaki Chadha<sup>2</sup>, Liliana Fontes<sup>3</sup>

<sup>1</sup>Staffordshire University, Stoke-on-Trent, United Kingdom <sup>2</sup>Freelance Sport and Exercise Psychologist, Delhi, India <sup>3</sup>Universidade do Minho Freelance Sport and Exercise Psychologist, Porto, Portugal

Symposium 19: Cognition,  
Hall Grenoble, Juli 16, 2024, 14:40 - 15:40

Description of topic: Across all walks of life, pressure to perform leads to the experience of stress. However, the experience of stress is not always detrimental, and it is possible to utilise stress, and in turn, this can enhance wellbeing and performance under pressure (e.g., Crum et al., 2013). However, trait beliefs can interact with other cognitive antecedents to predict pre-competitive affective states among athletes in competitive environments (e.g., Chadha et al., 2019; 2023).

Significance of topic: Maladaptive stress experiences are said to increase the onset of poor mental health (Bor, 2014). In turn, this can maladaptively influence performance across all domains. As the negative experience of stress continues to rise, it may be that a different approach is required to support individuals' wellbeing. Indeed, although individuals may benefit from a short-term strategy to enhance their experience of stress, it may be that targeting their trait beliefs may be a more effective long-term strategy to facilitate wellbeing and performance under pressure.

Purpose of symposium: The purpose of this symposium is to discuss novel approaches to facilitating performance under pressure. From our scientist-practitioner perspectives of working with athletes, students and occupational workers, the symposium aims to highlight the components of two interventions that have demonstrated efficacy in enhancing wellbeing and performance. Specifically, discussing the intervention "Mindset: Performing Under Pressure", the symposium highlights the utility of deploying a multimodal intervention to utilise stress through the mediums of education about stress, ABC thinking, self-compassion and imagery (Mansell et al., 2023). Additionally, the "ProStress" intervention that is currently being conducted in Portugal will also be outlined as it seeks to alter cognitive appraisals and promoting adaptive stress management strategies as part of a life skills approach. The panel are keen to discuss the next steps for this line of research and practice.

Bor, R. (2014). *Overcoming Stress*. Hachette UK.

Chadha, N. J., Turner, M. J., & Slater, M. J. (2019). Investigating irrational beliefs, cognitive appraisals, challenge and threat, and affective states in golfers approaching competitive situations. *Frontiers in psychology*, 10, 2295.

Chadha, N. J., Turner, M. J., & Slater, M. J. (2023). Examination of cognitive appraisals, irrational beliefs, and challenge and threat evaluations in the prediction of tournament affective states and performance of competitive elite Indian golfers. *Stress and Health*.

Crum, A. J., Salovey, P., & Achor, S. (2013). Rethinking stress: the role of mindsets in determining the stress response. *Journal of Personality and Social Psychology*, 104, 716.

Mansell, P., Sparks, K., Wright, J., Roe, L., Carrington, S., Lock, J., & Slater, M. (2023). "Mindset:

performing under pressure”—a multimodal cognitive-behavioural intervention to enhance the well-being and performance of young athletes. *Journal of Applied Sport Psychology*, 1-20.

## Performing under new pressure: Post-experiences of young career scholars

**Lukas Linnér<sup>1</sup>**, Xavier Sanchez<sup>2</sup>, Milla Saarinen<sup>3</sup>, Kristel Kiens<sup>4</sup>, Marta Borrueco<sup>5</sup>

<sup>1</sup>Halmstad University, Halmstad, Sweden <sup>2</sup>Université d'Orléans, Orléans, France <sup>3</sup>Norwegian School of Sport Sciences, Oslo, Norway <sup>4</sup>Tallinn University, Tallinn, Estonia <sup>5</sup>Universitat Autònoma de Barcelona, Barcelona, Spain

Symposium 20: Developmental/lifespan perspectives,  
Hall New Orleans, Juli 16, 2024, 14:40 - 15:40

The aim of the symposium is to invite young career scholars, who finalized their within the last 3 years, to share their experience of transitioning into their post-career phase in life. In this symposium each presenter chooses a career theory/framework and applies it as a guide for sharing their post-career transition experience. Doing this we want to illustrate various career theories/frameworks (Stambulova et al., 2021) and exemplify different career trajectories both within and outside academia after PhD, as well as provide our experiences and coping for other scholars (e.g., PhD-students and/or supervisors) to learn from. After a short introduction, the first presenter will use Stambulova's (2009, 2020) transition model to share his experience of transitioning into the leadership-role at a sports university trying to practice what he preached in his about athletes' dual careers. The second presenter will share her transition to a postdoctoral position in a new country using Savickas's (2005) theory on career construction as a lens. The third presenter will reflect on her career trajectory post-and how openness and curiosity towards lived experiences (Harris, 2009), in both research and applied practice, has provided a sound foundation for a rich and meaningful, yet unpredictable and messy, career. The fourth presenter will follow providing an ecological examination (e.g., LaVoi, 2016) of a young woman's attempt to develop a career in academia outlining the challenges in trying to enter a high-performance and male-dominated context. After the presentations a general discussion will follow focusing on, for example, how the PhD-education prepared the presenters for the new pressures (i.e., challenges) in the post-phase and how career-theory and research knowledge helped them to cope. Major lessons learned will also be shared to support the development and successful transitions of future PhD-graduates in sport and exercise psychology.

Harris, R. (2019). *ACT made simple: An easy-to-read primer on acceptance and commitment therapy*. New Harbinger Publications.

LaVoi N. M. (2016). A framework to understand experiences of women coaches around the globe: The ecological-intersectional model. In N. M. LaVoi (Ed.), *Women in sports coaching* (pp. 13-34). Routledge.

Savickas, M. L. (2005). The theory and practice of career construction. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 42-70). John Wiley & Sons.

Stambulova, N. (2009). Talent development in sport: A career transitions perspective. In E. Tsung-Min Hung, R. Lidor, & D. Hackfort (Eds.), *Psychology of sport excellence* (pp. 63-74). *Fitness Information Technology*.

Stambulova, N. (2020). Athlete transitions as a result of the pandemic: Developmental sport psychology perspective. In *Proceedings of the 35th Annual Conference of the Association for Applied Sport Psychology* (p. 7). AASP. [https://appliedsportpsych.org/site/assets/files/1047/012\\_2020\\_aasp\\_conference\\_abstracts\\_final.pdf](https://appliedsportpsych.org/site/assets/files/1047/012_2020_aasp_conference_abstracts_final.pdf)

Stambulova, N., Ryba, T., & Henriksen, K. (2021). Career development and transitions of athletes: The International Society of Sport Psychology position stand revisited. *International Journal of Sport and Exercise Psychology*, 19, 524-550. <https://doi.org/10.1080/1612197X.2020.1737836>

## Courage in Sport Symposium

**Harvey Anderson**<sup>1</sup>, Erkut Konter<sup>2</sup>, Violetta Oblinger-Peters<sup>3</sup>, Daniel Birrer<sup>4</sup>

<sup>1</sup>Sheffield Hallam University, Sheffield, United Kingdom <sup>2</sup>Istanbul Gelişim University, School of Physical Education and Sports, Istanbul, Turkey <sup>3</sup>Institute of Sport Science, University of Bern, Bern, Switzerland <sup>4</sup>Swiss Federal Institute of Sport, Magglingen, Switzerland

Symposium 21: Other topics,  
Hall Orangerie, Juli 16, 2024, 14:40 - 15:40

This symposium looks to set the case to revive and further engage with the often forgotten virtue of courage (Corlett, 1996).

Dr Anderson sets the position of courage within the field and argues that the concept of courage may be more useful than the often used, but problematic concept of mental toughness, which Anderson suggests could be considered a potential 'jangle fallacy' (Martin et al., 2019). The field of existentialism is promoted as a framework for practitioners and researchers to work with the concept of courage within sport.

Dr Konter then reviews the extensive work that he and colleagues have carried out on sport courage. This review will cover defining and situating the concept, its measurement using the Sport Courage Scale-31 (Konter & Ng, 2012) and the Sport Courage Scale-28 for Children (Konter et al., 2013), the individual and situational variables that could be important for the concept of sport courage. Sport Courage also has implications in successful performance and coping for athletes and coaches.

Oblinger-Peters and Dr Ronkainen's contribution then focuses on meaning making through the use of courage by integrating principles from Acceptance and Commitment Therapy (ACT) and existential perspectives. ACT intends to enable the client to live a more meaningful life despite facing challenging situations. This aligns with the existential thought, which seeks to illuminate the givens of human existence, inevitably including navigating through difficult moments and potential suffering.

Finally, Dr Birrer and Oblinger-Peters dive further into the use of ACT. The uncertainty of competition can threaten athletes' need for control and for self-esteem protection, especially for those with a strong athletic identity (Albouza et al., 2022). Using case examples, the presentation will attempt to integrate approaches of existential psychology and ACT methods to help performance athletes overcome existential concerns in the line of competitive fire.

Albouza, Y., Chazaud, P., & Wach, M. (2022). Athletic identity, values and self-regulatory efficacy governing hypercompetitive attitudes. *Psychology of Sport and Exercise*, 58, 102079. <https://doi.org/https://doi.org/10.1016/j.psychsport.2021.102079>

Corlett, J. (1996). Virtue lost: Courage in sport. *Journal of the Philosophy of Sport*, 23(1), 45-57.

Konter, E. (2013). Towards Multidimensional Interactional Model of Sport Courage. *Energy Education Science and Technology Part B: Social and Educational Studies*. 5(2), 957-968.

Konter, E. Ng, J. (2012). Development of Sport Courage Scale. *Journal of Human Kinetics*. 33, 139-147.

Martin, J. J., Beasley, V. L., & Guerrero, M. D. (2019). Sport psychology research: Proper standards and limitations.

## Heart rate variability in sport & exercise psychology: Implications for training, performance, and well-being

**Sylvain Laborde**

<sup>1</sup>German Sport University Cologne, Cologne, Germany

Symposium 23: Psychophysiology,  
Hall Maximilian, Juli 16, 2024, 16:10 - 17:10

This symposium presents a comprehensive exploration into the psychophysiological implications of heart rate variability (HRV) within sport and exercise psychology. This collective body of research investigates the multifaceted role of HRV as a measure of autonomic regulation, specifically of the parasympathetic nervous system regulating cardiac functioning, coined "vagal-mediated HRV" (vmHRV).

vmHRV is here investigated with subjective psychological states in athletes, with relaxation techniques (slow-paced breathing), and with its application in esports and competitive exercise contexts. The first study examines the correspondence between vmHRV and subjective well-being indicators, enhancing the understanding of athletes' recovery and readiness. Transitioning to a novel domain, the second study evaluates the potential of vmHRV as a tool for self-regulation and performance monitoring in the rapidly growing field of esports, with a systematic review. The third presentation investigates the impact of slow-paced breathing on vmHRV, as well as on subjective emotional regulation. This research is particularly relevant for its practical implications regarding athletes' preparation and recovery. The last presentation explores the psychophysiological effects of competitive versus non-competitive exercise on aggression, highlighting effects on behavioral outcomes without corresponding physiological changes at the level of vmHRV.

Overall, this symposium offers an opportunity for interdisciplinary exchange, integrating psychological assessment with psychophysiological data (vmHRV) to advance training strategies, enhance performance, and foster athletes' well-being.

## Novel ways of thinking about motor imagery practice: the what, the when and the how?

**Stephan Frederic Dahm<sup>1</sup>**

<sup>1</sup>University Of Innsbruck, Innsbruck, Austria

Symposium 24: Cognition,  
Hall Iglis, Juli 16, 2024, 16:10 - 17:10

Motor imagery and action observation are two cognitive processes related to the mental representation and perception of actions. Exploring each of them and discussing their combination is a timely and prevalent opportunity. Motor imagery involves mentally simulating or imagining the execution of a movement without physically performing the movement (Jeannerod, 2001). Individuals create a mental image of themselves performing a specific action, going through the motions in their mind. Motor imagery can be used for skill rehearsal, motor learning, and cognitive preparation (Toth et al., 2020). Action observation is the process of visually perceiving and mentally processing actions. While watching an action, the brain mirrors the observed action. Action observation contributes to social learning, skill acquisition, and understanding of motor patterns. Research further suggests that combining motor imagery with action observation enhances motor learning and performance (Hardwick et al., 2013). For example, athletes may mentally rehearse a skill (action imagery) while simultaneously watching an expert performing the same skill (action observation). The first talk (from Poland) will address the question on how the ability to imagine situations in different time perspectives could be measured. The second talk (from Austria) will present mental chronometry data from a mental paper folding task. The third talk (from France) will focus on strength gains that follow embedded imagery practice. The fourth talk (from Israel) will discuss why dynamic motor imagery – the integration of physical movements into imagery – could be a valuable amendment. The final talk (from Canada) will address the impact of physical and observational experiences on subsequent (visual or kinesthetic) imagination of that action. The symposium will thus shed light on the effectiveness and the optimal conditions of motor imagery, before considering its concomitant use with action execution or action observation.

motor learning in the human brain. *NeuroImage*, 67, 283–297. <https://doi.org/10.1016/j.neuroimage.2012.11.020>

Jeannerod, M. (2001). Neural simulation of action: A unifying mechanism for motor cognition. *NeuroImage*, 14(1), 103–109. <https://doi.org/10.1006/nimg.2001.0832>

Toth, A. J., McNeill, E., Hayes, K., Moran, A. P., & Campbell, M. (2020). Does mental practice still enhance performance? A 24 year follow-up and meta-analytic replication and extension. *Psychology of Sport and Exercise*, 48(101672), 1–13. <https://doi.org/10.1016/j.psychsport.2020.101672>

## Rational emotive behaviour therapy (REBT) for performance under pressure

**Martin Turner<sup>1</sup>**, Stuart Carrington<sup>4</sup>, Anna Jordana<sup>2</sup>, Nanaki Chadha<sup>3</sup>

<sup>1</sup>Manchester Metropolitan University, Stoke-on-Trent, United Kingdom <sup>2</sup>Universitat Autònoma de Barcelona, Barcelona, Spain <sup>3</sup>Private Consultant, Noida, India <sup>4</sup>St Marys University, Twickenham, United Kingdom

Symposium 25: Consulting/counselling,  
Hall Grenoble, Juli 16, 2024, 16:10 - 17:10

This symposium brings together researchers and practitioners at the forefront of a new frontier in rational emotive behaviour therapy (REBT) who are extending the boundaries of REBT research and practice in sport. REBT is a cognitive behavioural approach to sport psychology, but far from being a niche school of psychotherapy, REBT offers a broad and flexible approach to working with clients that holds within it a rich vein of theoretical and applied views that can aid practice.

In the last decade, the reported application and study of REBT has grown considerably. The work published on REBT in sport includes cross-sectional studies (e.g., Chadha et al., 2019), experimental laboratory and field studies (e.g., Wood et al., 2017), applied studies (e.g., Turner & Barker, 2013), explanatory case studies (Turner & Bennett, 2018), professional practice pieces (e.g., Turner, 2019), measurement development (e.g., Turner & Allen, 2018), resource development (e.g., Smarter Thinking App; Turner, 2022), and a systematic review (Jordana et al., 2020). As a result of this research activity, many lessons have been learned, and from these lessons, we can formulate research and practice guidance and recommendations for REBT in sport.

In this symposium, speakers guide delegates through the fundamental tenets of REBT, the theoretical significance of REBT for understanding performance under pressure, the status of the global research pertaining to REBT in sport, the specific application of REBT to performance under pressure, and the future path of REBT research and practice. Speakers bring their research and applied learnings to the audience around themes that reflect advances in REBT for study and use within sport. Delegates will receive a contemporary portrayal of REBT, and speakers look towards the future of REBT, just over the horizon, where REBT is recognised as a flexible, theoretically-consistent but eclectic and pluralistic approach to practice.

Chadha, N., Turner, M. J., & Slater, M. J. (2019). Investigating irrational beliefs, cognitive appraisals, challenge and threat, and affective states in golfers approaching competitive situations. *Frontiers in Psychology*. doi: 10.3389/fpsyg.2019.02295

Jordana, A., Turner, M. J., Ramis, Y., & Torregrossa, M. (2023). Systematic mapping review on the use of Rational Emotive Behavior Therapy (REBT) with athletes. *International Review of Sport and Exercise Psychology*, 16(1), 231–256. doi: 10.1080/1750984X.2020.1836673

Turner, M. J. (2019). REBT in Sport. In M.E. Bernard & W. Dryden (Eds.), *Advancing REBT Theory, Research and Practice*. New York: Springer.



Turner, M. J. (2022). Smarter Thinking App: REBT for the 21st century. Paper presented at the BPS Division of Sport and Exercise Psychology annual conference, Swansea, 30th November 2022.

Turner, M. J., & Allen, M. (2018). Confirmatory factor analysis of the irrational Performance Beliefs Inventory (IPBI) in a sample of amateur and semi-professional athletes. *Psychology of Sport and Exercise*, 35, 126-130. <https://doi.org/10.1016/j.psychsport.2017.11.017>

Turner, M. J., & Barker, J. B. (2013). Examining the efficacy of Rational-Emotive Behavior Therapy (REBT) on irrational beliefs and anxiety in elite youth cricketers. *Journal of Applied Sport Psychology*, 25(1), 131-147. doi:10.1080/10413200.2011.574311

Turner, M. J., & Bennett, R. (2018). *Rational Emotive Behaviour Therapy in Sport and Exercise*. Routledge.

Wood, A. C., Barker, J. B., Turner, M., & Sheffield, D. (2018). Examining the Effects of Rational Emotive Behavior Therapy (REBT) on Performance Outcomes in Elite Paralympic Athletes. *Scandinavian Journal of Medicine & Science in Sports*. 28(1), 329-339. doi: 10.1111/sms.12926

## Beyond the whistle: Using coaches and athlete leaders to provide collaborative leadership to their teams

**Todd Loughead<sup>1</sup>**

<sup>1</sup>*University Of Windsor, WINDSOR, Canada*

Symposium 26: Leadership,  
Hall Aalborg, Juli 16, 2024, 16:10 - 17:10

This symposium explores the reciprocal relationship between coaches and athlete leaders emphasizing the impact on team leadership, team dynamics, and performance. Drawing on a comprehensive and unique collection of studies, this symposium underscores the importance of a collaborative leadership approach that incorporates both coaching and athlete influence. Overall, the findings from this symposium show that sport teams benefit significantly when coaches and athlete leaders work together, fostering a cohesive, inclusive, and fair environment. Coaches bring strategic vision, technical knowledge, and experience to their teams, providing essential guidance in training, game strategies, and overall team management. Simultaneously, athlete leaders contribute different perspectives where they foster effective communication, team cohesion, and peer motivation. The first presentation is an integrated systematic review and meta-analysis that investigates the influence of both coaches and athlete leaders on performance. The findings emphasize the significance of both coach and athlete leaders, indicating a stronger impact on team compared to individual performance. The second presentation employs a social network analysis to compare coach and athlete perceptions of leadership networks in a soccer team. The results indicate the discrepancies in perceived athlete leadership roles, suggesting coaches may lack accurate insights into athlete leadership relationships. The third presentation provides a triangulated perspective from successful leadership triads, highlighting effective behaviors in building relationships, developing team culture, and coordinating through athlete leaders. The fourth presentation implements a season long team building intervention that utilizes the interconnectedness of coach and athlete leadership to enhance athlete leadership and cohesion. Using the perspectives of coaches and athletes, the fifth presentation contributes a measure of athlete leader fairness that offers insights into the behaviors required to be viewed as a fair and just leader. Overall, these studies underscore the multifaceted impact of leadership on sports performance, emphasizing the importance of collaboration between coaches and athlete leaders.



## Mutual Influences and Co-operation in Sport Psychology - A Historical Perspective

Erwin Apitzsch<sup>2</sup>, **Roland Seiler**<sup>1</sup>, Sidonio Serpa<sup>3</sup>, Alberto Cei<sup>4</sup>, Jörn Munzert<sup>5</sup>, Natalia Stambulova<sup>6</sup>

<sup>1</sup>University of Bern, Bern, Switzerland <sup>2</sup>Lund University, Lund, Sweden <sup>3</sup>CIDEFES, Lusofona University, Lisbon, Portugal <sup>4</sup>San Raffaele University, Rome, Italy <sup>5</sup>Justus Liebig University Giessen, Giessen, Germany <sup>6</sup>Halmstad University, Halmstad, Sweden

Symposium 27: Other topics,  
Hall Strassburg Nord, Juli 17, 2024, 11:00 - 12:30

Ever since the beginning of sport psychology in Europe and worldwide, it was the exchange of ideas, theories and methods that brought the field forward. In this symposium, we aim at shedding light on some aspects of this exchange from a historical and wholistic perspective. Influences from major schools in psychology of the 20th century, for example, Behaviorism, Cognitivism, Gestalt psychology, or Activity theory, contributed to both theory development the entrance and application in sport psychology. Mutual exchange, however, depends on co-operation of persons, institutions, and countries within well-established and functioning structures and organizations. A historical view of the societal, organisational, and political framework conditions contributes to our understanding of the current state of our discipline and might help to shape its future more consciously. In Europe, right before the foundation of FEPSAC, the separation in a socialist eastern part and a capitalist western part of the continent, set high hurdles for exchange and cooperation, both on the political-ideological level and on the concrete organisational level. Erwin Apitzsch will discuss the role of FEPSAC in its efforts to encourage and facilitate the entrance for the new countries after the fall of the Soviet Union to become members of FEPSAC. Roland Seiler will analyse some concrete organisational difficulties in co-operation within the Managing Council during the Iron Curtain era. Sidonio Serpa and Alberto Cei will focus on the relationship between the two oldest international sport psychology organisations, namely ISSP (founded in 1965) and FEPSAC (founded in 1969). Jörn Munzert will present findings about the influence of Soviet psychology on motor control theories. Natalia Stambulova will elaborate on the supportive role of FEPSAC and the European Commission in the development of the dual career discourse in Europe.

## Parenting an elite sport athlete: The interconnectedness of experiences throughout career stages

**Valeria Eckardt**<sup>1,2</sup>, James Newman<sup>3</sup>, Philipp Koch<sup>4</sup>, Noémie Lienhart<sup>5</sup>, Nadja Ackeret<sup>6,7</sup>

<sup>1</sup>Dept. of Psychology and Psychotherapy, Witten/Herdecke University, Witten, Germany <sup>2</sup>Dept. of Performance Psychology, German Sport University Cologne, Cologne, Germany <sup>3</sup>Academy of Sport and Physical Activity, Sheffield Hallam University, Sheffield, United Kingdom <sup>4</sup>Institute of Sport Science, University of Bern, Bern, Switzerland <sup>5</sup>Université Grenoble Alpes, Grenoble, France <sup>6</sup>Swiss Federal Institute of Sport, Magglingen, Switzerland <sup>7</sup>Institute of Psychology, University of Bern, Bern, Switzerland

Symposium 28: Other topics,  
Hall Strassburg Süd, Juli 17, 2024, 11:00 - 12:00

Parents are an essential contributor to children's development in various performance domains (e.g., Kiewra, 2019; Witte et al., 2015). Over the course of an athletic career, parents need to adapt their behavior to dynamic environments and salient social relationships which shape parental experiences (Côté & Vierimaa, 2014). The purpose of the symposium is to highlight evidence on the intricate nature of parenting an elite sport athlete. The symposium will provide insights into the multidirectional influences and interconnectedness among key stakeholders in youth sport (Dorsch et al., 2022), as well as their associated outcomes. Specifically, the symposium will focus on delineating the intersection between persons (i.e., athletes, parents, and coaches) and contexts (types of sports, career stages, and transitions). As such, individual presentations will show how parents guide and support their children in relevant career stages and transitions such as entering an elite sport environment (Newman et al.) and investing in an elite career (Koch et al.). Complementing the notion of a reverse socialization (Snyder & Purdy, 1982), presentations will further consider what it means for parents to support an elite sport athlete. For example, how parents navigate an elite sport environment including associated challenges of parenting through the junior-to-senior transition (Ackeret et al.), and how they experience social determinants such as communicating and cooperating effectively with coaches (Lienhart & Teillet; Eckardt & Dorsch). Overall, the presentations will provide a compilation of qualitative and quantitative research conducted across various sport settings, countries, and sport cultures (France, Germany, UK, USA, and Switzerland).

## Bio- and Neurofeedback in Action: Bridging the Mind-Body Gap in Sports and Beyond

**Réka Zsanett Bondár**<sup>1</sup>, Andrew Cook<sup>2,3</sup>

<sup>1</sup>Department of Elite Sport, Swiss Federal Institute of Sport Magglingen, Magglingen, Switzerland <sup>2</sup>Institute for the Psychology of Elite Performance (IPEP) Bangor University, Bangor, United Kingdom <sup>3</sup>School of Psychology and Sport Science, Bangor University, Bangor, United Kingdom

Symposium 29: Psychophysiology,  
Hall Maximilian, Juli 17, 2024, 11:00 - 12:00

Biofeedback is a process by which individuals learn self-regulation skills that allow them to gain control over physiological responses. In recent decades, biofeedback and neurofeedback (a specific type of biofeedback concerning control of the brain) have gained increasing interest in sport and more widely as interventions with the potential to enhance performance and/or well-being. The aim of this symposium is to showcase novel bio- and neurofeedback research and applications in sport, and to provide insight into the transferability of such bio- and neurofeedback treatments to other movement and rehabilitation domains. The symposium will begin by discussing the practical applications of bio- and neurofeedback as a self-regulation technique in an elite sport population. Second, research will be presented on the effects of sensorimotor rhythm neurofeedback training (NFT) on performance and mental states associated with motor preparation. This training represents a promising approach to maintaining a calm mind during motor preparation for action. This will be followed by a perspective-based literature review of developing trends in the field of NFT in sport. Fourth, a novel pupil-biofeedback approach is described that makes the brain's arousal system accessible to volitional control; a finding that has significant potential for translation into applications not only to enhance athlete performance and well-being, but also to address stress and anxiety-related disorders. Finally, the symposium will present an experimental study exploring the benefits of NFT beyond sport. In this study, electroencephalographic NFT was well accepted by people with Parkinson's disease and showed promise as a non-pharmacological method to aid the initiation of movements. All presentations are interdisciplinary, and they will demonstrate some of the benefits of interdisciplinary approaches for research and applied practice. We hope the symposium will inspire more cutting-edge bio- and neurofeedback research in sport, wellbeing and health.

## Dual careers at the lower secondary education -a pathway to success or too much too early?

**Milla Saarinen**<sup>1</sup>

<sup>1</sup>Norwegian School Of Sport Sciences, Oslo, Norway

Symposium 30: Transitions in and out of sport/dual career,  
Hall New Orleans, Juli 17, 2024, 11:00 - 12:00

In recent years, there has been an increasing trend in Europe, particularly in the Nordic countries, to establish specialized lower secondary sports schools for talented adolescent athletes. Although often celebrated as a pathway to maximize both athletic and academic potential, research exploring how these specialized schools might influence adolescent development and wellbeing remains limited (Kårhus, 2016). Grounded in a critical perspective, this symposium aims to highlight current research on dual careers in lower secondary education contexts. Five presenters from three different countries will share their work, focusing on the correlates of psychological well-being, development, and performance outcomes in young student-athletes. They will also discuss how this translates into practice in the later stages of athletes' dual careers. Collectively, the presenters provide new insights into dual career systems designed for youth athletes. The first presenter will discuss the development of lower secondary sport schools in Finland, with a specific focus on the factors that shape the well-being of student-athletes throughout their lower secondary school journey and during the transition to upper secondary education. The second presenter will share her research on student-athletes' learning in Norwegian lower secondary sport school classes. The third presenter will share findings regarding how coach-created motivational climates influence student-athletes' motivation and perceived outcomes in sport across the three years of lower secondary school in Norway. The fourth presenter will discuss how demographic and individual factors are associated with sport and school burnout profiles among Norwegian lower secondary school athletes. The fifth presenter will share the lessons learned from the development of a theory-based dual career program in an Icelandic upper secondary school. Finally, the discussant will summarize the lessons learned and facilitate a critical dialogue based on the presented research conducted among lower secondary sport school athletes.

Kårhus, S. (2016). What limits of legitimate discourse? The case of elite sport as 'thinkable' official knowledge in the Norwegian national curriculum. *Sport, Education and Society*, 21(6), 811-827.

## Transferring humanistic psychology concepts into sport: Implication for enhanced wellbeing and performance success

**Rebecca Zakrajsek**<sup>1</sup>, Svenja Wachsmuth<sup>2</sup>

<sup>1</sup>University Of Tennessee, Knoxville, United States <sup>2</sup>Eberhard Karls University Tübingen, Tübingen, Germany

Symposium 31: Human factors,  
Hall Aalborg, Juli 17, 2024, 11:00 - 12:00

Humanistic psychology emerged as a movement to grasp the fullness of human potential (McHenry & Zakrajsek, 2023). Given the right environmental conditions, humanistic scholars assume that people have an innate tendency to self-actualize, meaning to strive for one's continual expansion of development and performance. Within the sport psychology literature, self-actualization has been likened to thriving defined as the joint experience of holistic wellbeing, personal development, and athletic success (Brown et al., 2024). Scholars within sport psychology have turned to humanistic frameworks and thriving as an antidote to the "win at all costs" culture that has been rampant within sport where (mental) health is at the expense of performance (McHenry & Zakrajsek, 2023). Using various methodological approaches, this symposium aims to explore early understandings of humanistic constructs such as psychological safety and unconditional positive regard within sport performance environments. Moreover, we seek to understand how these humanistic concepts may promote desirable outcomes such as individual thriving.

In presentation one, a qualitative study will be presented examining whether and how psychological safety is perceived as a precondition to individual thriving within football youth academies. Subsequently, the second and third presentations take a person-centered approach by investigating unconditional positive regard (UPR) within the coach-athlete relationship. Based on the development and validation of a coachUPR scale in sport, empirical results will be discussed that demonstrate the positive links between coachUPR and self-regard, thriving and resilience. Next, an intensive longitudinal study will be presented examining the training session-to-training session change processes in swimmers' experiences of thriving, and the impact of training load in those sessions on subsequent experiences of thriving. Finally, the utility of these humanistic concepts for future research avenues in sport psychology will be discussed.

Brown, D. J., Passaportis, M. J.R., Wagstaff, C.R.D., & Arnold, R. (2024). Systems that promote thriving. In L. Davis, R. Keegan and S. Jowett (Eds.) *Social Psychology in Sport* (2nd Edition). Human Kinetics.

McHenry, L. K. & Zakrajsek, R. A. (2023). Thriving in Elite Athletes. In I. Nixdorf, R. Nixdorf, J. Beckmann, S. Martin, and T. MacIntyre, (Eds.). *Routledge Handbook of Mental Health in Elite Sport* (p.12-30). Routledge

Taylor, J., Collins, D., & Ashford, M. (2022). Psychological safety in high-performance sport: Contextually applicable?. *Frontiers in Sports and Active Living*, 4, 169. Doi: 10.3389/fspor.2022.823488

Vella, S. A., Mayland, E., Schweickle, M. J., Sutcliffe, J. T., McEwan, D., & Swann, C. (2022). Psychological safety in sport: A systematic review and concept analysis. *International Review of Sport and Exercise Psychology*, 1-24.

## Helping police personnel better cope with work-related stress and perform under pressure: Novel methods, technologies, and interventions

**Rachel Arnold**<sup>1</sup>, Lee Moore<sup>1</sup>

<sup>1</sup>University Of Bath, Bath, United Kingdom

Symposium 32: Military, police and tactical populations,  
Hall Freiburg, Juli 17, 2024, 11:00 - 12:00

Description and significance of topic: The policing profession requires officers to execute complex and difficult tasks, often under intense pressure, with high stakes riding on performance outcomes. Such demands mean that performing as a police officer can be a stressful endeavour. The adverse consequences of work stress for police officers are well-documented, with relationships found between stress and mental ill-health, cardiovascular disease, reduced task performance, absenteeism, and staff turnover. A renewed emphasis, therefore, on improving the health, well-being, and performance of police officers is essential and timely.

Purpose of symposium: To showcase the latest research being conducted with police personnel to address work-related stress, wellbeing, and help them perform better under pressure. This research includes novel methods (i.e., stress audits), co-produced interventions, and emerging technology (e.g., eye-tracking).

Overview of presentations: Arnold et al. (England) commence the symposium by outlining a stress audit to detail the current "state of play" with regards to police personnel's work stress, health, and wellbeing. Additionally, the audit illuminates groups (e.g., control room staff) who are particularly vulnerable to deleterious stress-related outcomes (e.g., poor health), and officers' preferences for future organisational and training support. Focusing the lens specifically on control room staff, Oliver et al. (Wales; England) provide the second presentation which outlines the co-production of a longitudinal physical activity intervention to support police officers' health and wellbeing. Turning from efforts to support police wellbeing, the third presentation by Wimshurst et al. (England) discusses the potential of technologies such as eye-tracking to assist officers in performing optimally under pressure. Finally, Koerner et al. (Germany) present a systems analysis of 'performance under pressure' research in a police context and its implications for training, critically scrutinising the research-practice link. The symposium concludes with Moore (England) and Hutter (Netherlands) reflecting on the symposium's key take-home messages and next steps.

## Trauma and Performance. A Neuroexperiential Model: The Athlete' Super Brain. Working creatively with Adults, Young People and their system.

**Alessia Bruno<sup>1</sup>**

<sup>1</sup>*Performance Expansion, Riccione, Italy*

Symposium 33: Sports psychiatry and sports psychotherapy,  
Hall Igls, Juli 17, 2024, 13:30 - 14:30

People who perform at the highest levels must satisfy expectations and demands, demonstrate coping skills, manage their own judgment as well as those of others and deal with the consequences of their own results (Hays, 2009).

Most athletes think that the qualities required to achieve success are the “tough ones” such as perfectionism, rigidity, self-discipline, willingness to self-sacrifice, disregarding the fact that the brain also needs soft qualities such as compassion, understanding, creativity and flexibility.

Athletes are typically expected to excel and to achieve results. Top athletes not only are exposed to physical traumas, but also to emotional traumas.

Often, despite the injuries and risks some athletes are exposed to, there is a social expectation that they will shake them off and continue to persevere.

Athletes have a super brain; their commitment, perfectionism goes beyond their survival instinct.

Athletes face sport and non-sport traumas which often overlap. Moreover, performance issues have often underlying developmental and epigenetic transgenerational traumas which have profound roots in attachment and attunement. Disruption in attunement might also lead to the athlete' s inability to self-regulate creating performance anxiety, blocks and the yips.

Traumatic experiences are stored in the nervous system in a fragmented form and locked in the subcortex. Brainspotting is a revolutionary therapeutic approach based on a neuroexperiential model which access the subcortex to process trauma and creates a Neuro - integration allowing to reach a flow state.

As highlighted by Siegel (2010) cross-generational legacy, childhood and current traumas and the integration of the nervous system are key aspects for well being.

Objectives:

- An overview of the Neuroexperiential model of Performance as a new case conceptualisation.
- An overview of Brainspotting as a therapeutic approach to overcome performance issues (yips, blocks, anxiety, slumps, clinical symptoms) and further expands resilience and create an integrated brain.

American Psychiatric Association (2000). Diagnostic Criteria from DSM-IV-TR. Washington, DC, American Psychiatric Association.

Badenoch, B. (2018). The Heart of Trauma. Helaing the Embodied Brain in the Context of Relationships. Norton and Company, Inc., New York, NY.

Corrigan, F., Grand, D. Brainspotting: Recruiting the midbrain for accessing and healing sensorimotor memories of traumatic activation. Medical Hypotheses 80 (2013) 759-766. ww.elsevier.com/locate/mehy.

Dana, D. (2018). The Polyvagal Theory in Therapy. Engaging the Rhythm of Regulation. Norton and Company, Inc., New York, NY.

Dunn, E. C., Nishimi, K., Powers, A., Bradley, B. (2017). Is developmental timing of trauma exposure associated with depressive and post-traumatic stress disorder symptoms in adulthood? Journal of Psychiatric Research, 84, 119-127.

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Occupations. American Psychology Association, Washington, DC.

Hildebrand, A.,Grand, D.,Stemmler, M. A preliminary Study of the efficacy of Brainspotting – a new therapy for the treatment of Posttraumatic Stress Disorder. Journal for Psychotraumatology, Psychotherapy Science and Psychological Medicine, 2014, Version:4.1129.05.2012, 1-20.

Hildebrand, A., Grand, D., Stemmler, M. (2017). Brainspotting – the efficacy of a new therapy approach for thetreatment of Posttraumatic Stress Disorder in comparison to Eye Movement Desensitization and Reprocessing, Mediterranean Journal of Clinical Psychology, MJCP, 5, N.1, 2017, 1-17.

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Murphy, S.M. (Ed.) (2012). The Oxford Handbook of Sport and Performance Psychology. Oxford University Press: New York, NY.

Siegel, D. (2010). Mindsight. Transform your brain with the new science of Kindness.

Oneworld Publications, London, UK.

## The Role of Cognition in Development and Performance in Sports and Physical Activity

**Lisa Musculus<sup>1</sup>, Valentin Benzing<sup>2</sup>**

<sup>1</sup>German Sport University, Cologne, Germany <sup>2</sup>University of Bern, Bern, Switzerland

Symposium 34: Cognition,  
Hall Aalborg, Juli 17, 2024, 13:30 - 14:30

Cognition plays a crucial role in sports and physical activity (Kalén et al., 2021; Tomporowski & Pesce, 2019). Sport psychological research on the role of cognition either centers around the effects of sports and physical activity on cognition (Tomporowski & Pesce, 2019; Voss et al., 2010) or the effects of cognition on sports performance and/or expertise. For a better understanding of the role of cognition in sports and physical activity, a holistic developmental perspective is insightful (Musculus & Raab, 2022).

The four projects presented shed light on the cognitive performance of younger (talk by Bisagno) and older children (talks by Bisagno & Musculus) as well as adults (talks by Musculus, Vater, & Zehnder). In detail, the symposium covers different facets of cognitive performance, namely domain-general executive functions (talks by Bisagno, Zehnder, & Vater) and sport-specific skills (talk by Musculus).

Elisa Bisagno demonstrates an intervention study underlining the usefulness of motor activity for strengthening executive functioning in preschoolers and school-aged children.

Lisa Musculus presents two intervention studies that elicited positive effects of training interventions involving the motor system on climbing-specific embodied planning, especially benefitting older children.

Cäcilia Zehnder scrutinizes the interplay between and the effects of social interaction and physical activity on executive functions in a physical activity intervention.

Christian Vater reports a study on the role of inhibition in peripheral vision in basketball, suggesting that high-skilled players are better able to inhibit responses and to distinguish a cut of an attacker from a defender.

Altogether, the symposium provides insights into the state-of-the-art of cognitive research in sport and exercise psychology. The added value of findings for better understanding the role of cognition in sports and physical activity are discussed aiming to broaden the scope beyond the individual studies and to jointly discuss potential future directions.

Kalén, A., Bisagno, E., Musculus, L., Raab, M., Pérez-Ferreirós, A., Williams, A. M., Araújo, D., Lindwall, M., & Ivarsson, A. (2021). The Role of Domain-Specific and Domain-General Cognitive Functions and Skills in Sports Performance: A Meta-Analysis. *Psychological Bulletin*, 147(12), 1290–1308. <https://doi.org/10.1037/bul0000355>

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## Performance Psychology in the Military: reflections on, and lessons learnt working with military populations.

**Stewart Cotterill**<sup>1</sup>, Richard Keegan<sup>3</sup>, Sophie Bruce<sup>2</sup>, Kathryn Longshore<sup>4</sup>

<sup>1</sup>Aecc University College, Bournemouth, United Kingdom <sup>2</sup>Latitude Performance, London, United Kingdom <sup>3</sup>University of Canberra, Canberra, Australia <sup>4</sup>United States Military Academy, West Point, United States of America

Symposium 35: Military, police and tactical populations,  
Hall Freiburg, Juli 17, 2024, 13:30 - 14:30

In recent years there has been an expansion of specialist performance psychology programmes in military settings. This expansion has, in turn, led to an increased demand for research and case studies providing guidance for practitioners, leaders and policy makers alike. Across various nations different approaches have been adopted to the delivery of performance psychology programmes and support. However, while this increased focus is welcome there is still a lack of sharing and dissemination of 'real world' examples and case studies of work with military populations. As a result, the aim of this symposium is to present contemporary case studies and reflections that focus on the design and delivery of performance psychology services and the challenges in seeking to undertake research to develop a contemporary evidence base to influence processes, procedures, and approaches. The symposium is composed of four specific presentations exploring different perspectives on applying performance psychology in the military. The four presentations in the symposium will explore different perspectives on the application and development of performance psychology with differing military populations. In the first presentation Richard Keegan reflects upon the challenges experienced in conducting impactful research to enhance operator performance in the Australian Military. Second, Sophie Bruce reflects on her experiences working with soldier-athletes in the UK Army. Third, Kat Longshore reflects on lessons learnt delivering a performance psychology programme to US Army cadets. Finally, Stewart Cotterill exploring the experiences of practitioner psychologists who work with military populations drawn from a range of countries.

## Safeguarding II: Approaches to enhancing athlete safety

**Jeannine Ohlert**<sup>1</sup>

<sup>1</sup>German Sport University Cologne, Cologne, Germany

Symposium 36: Sexual violence, sexual harassment and sexual abuse,  
Hall Strassburg Süd, Juli 17, 2024, 14:40 - 15:40

Within the last years, the body of scientific literature on safeguarding athletes (especially children and adolescents) in sport has considerably grown. Within these years, the focus of research was often on measuring the magnitude of harassment, abuse and violence towards (young) athletes) using self-report prevalence studies, and identifying associated risk factors. The first aspect was necessary to convince stakeholders that interpersonal violence in sport is a relevant problem and not just isolated cases; the second was needed in order to assess which groups of athletes might be most vulnerable and thus needed the most protection. One important further step in research is now to explore which aspects are important when sport organizations want to engage effectively in safeguarding their athletes. This symposium thus aims to talk about approaches that can help to enhance athlete safety in sport organizations. The first presentation by Emma Kavanagh will report an overview of different approaches of safeguarding in various countries and discuss recommendations for future safe sport education programs. Second, Erin Willson will talk about an idea on how to reduce pressure for performance results as a risk factor for interpersonal violence via alternative definitions of success in sport. The third presentation will be held by Philip Hurst and Dikaia Chatziefstathiou, and focuses on the factor psychological safety as possible facilitator of athlete well-being within sport organizations. Melanie Lang will add a fourth presentation on the importance of including children's voices when developing safeguarding strategies in sport organizations. The symposium is concluded by a discussion with discussant Tine Vertommen on all the research presented in this symposium, but also about presentations from the symposium Safeguarding I and on other current developments of safeguarding policies, procedures and practices in international Olympic sports.



## Personal traumatic input management: Coping strategies of surgeons dealing with results of extreme violence

**Peter Rehder**<sup>1</sup>

<sup>1</sup>Medical University Innsbruck, Innsbruck, Austria

Symposium 37: Surgery,  
Hall Brüssel, Juli 17, 2024, 14:40 - 15:40

Disclaimer: Presentation contains descriptions of trauma and violence

Objectives: Young trauma surgeons are confronted with casualties resulting from maximal violence. Severe injuries to humans, especially as a result from physical violence, is traumatic not only to the victim. The carers may be severely traumatized by what they see and experience[1]. This paper proposes mechanisms of successfully dealing with and surgically treating human casualties suffering from severe trauma[2].

Methods: Discussed is a personal report from a young junior surgical registrar starting his rota in a busy level 1 trauma centre in South Africa. This unit dealt with up to 600 cases of trauma per weekend, including human assaults and accidents, stab and gunshot injuries, rape and motor vehicle accidents. The primary goal is to describe how to deal with this enormous amount of violence amongst humans, functioning successfully and effectively in a team of trauma carers, and still maintaining respect and dignity for humankind.

Results: Observing, examining, and treating victims of violence (with the goal to severely hurt or kill) is not something for the faint hearted. Neither is there place for people that seek a kick by seeing others suffer, or even worse, to spread sensation on social media. Helping people in need is a serious business. It needs dedication, preparation, knowledge, humility, respect and the willingness to learn at all times. It needs exceptional situational awareness, the courage to do a proper job and accept the responsibility of all your actions[3]. Proper hospital record keeping, a private daily diary are essential to keep order in the chaos.

Conclusion: Functioning at the limits of what is humanly possible, works best by focussing on cases one-by-one, total dedication to the task at hand[4, 5], when tired go to sleep, clear communication, work as a team, and when off duty totally relax.

Flannery RB: Psychological Trauma and the Trauma Surgeon. *Psychiatr Q* 2022, 93(1):27-33.

2. Diaz-Tamayo AM, Escobar-Morantes JR, Garcia-Perdomo HA: Coping Strategies for Exposure to Trauma Situations in First Responders: A Systematic Review. *Prehosp Disaster Med* 2022, 37(6):810-818.

3. Evans C: Operating at your limits: sport, surgery and performance under pressure. *ANZ J Surg* 2021, 91(10):1977-1980.

4. Cragg J, Mushtaq F, Lal N, Garnham A, Hallissey M, Graham T, Shiralkar U: Surgical cognitive simulation improves real-world surgical performance: randomized study. *BJS Open* 2021, 5(3).

5. Arora S, Sevdalis N, Nestel D, Woloshynowych M, Darzi A, Kneebone R: The impact of stress on surgical performance: a systematic review of the literature. *Surgery* 2010, 147(3):318-330, 330e311-316.

## Transcultural research on depression in elite athletes -such as traditional Chinese medicine psychology (TCMP)

**Shan Jiang**<sup>1</sup>, Li Jing Zhu<sup>2</sup>

<sup>1</sup>Peking Psychological Councelling, Bei Jing, China <sup>2</sup>Sigmund Freud University, Vienna, Austria

Symposium 38: Sports psychiatry and sports psychotherapy,  
Hall Igls, Juli 17, 2024, 14:40 - 15:40

At the International Olympic Committee Consensus meeting, two IOC shooting Olympic champions (athlete representatives) showed a video called "The Price of Gold Medal."

So how should we treat severe "major depressive disorder" on the clinical level? many people also proposed at the meeting that athletes should be given psychiatric pharmacy directly.

Not to mention the "side effects" and "lifelong medication", there are a lot of criticisms about the "extrapyramidal system reaction" of psych pharmacy. The most common place for athlete suicide is American football. Sitting next to author was the NFL's chief medical officer, who immediately stood up and objected.

I proposed the necessity of transcultural research at this consensus meeting. We use a soft approach, using the essence of traditional medicine that has a history of five thousand years, has written records, and has never been interrupted.

The special group of athletes, who are "social role models", conducts non-pharmacological psychotherapy, as well as cross-cultural research treatment.

Depression is called "Mei he qi" and "Zang Zao" in traditional Chinese medicine (TCM). According to his classic TCM, the main problems are heart and kidney dysfunction, as well as the imbalance of yin and yang in the heart and spleen, which can be analyzed in detail at the meeting. Direct interviews with athletes, as well as clinical diagnoses, found that TCMP diagnostic results were consistent with DSM IV results. In addition, since 2008, the World Health Organization has invited traditional Chinese medicine scholars from China, South Korea, and Japan to conduct work for more than ten years. On January 1, 2022, traditional Chinese medicine, as a separate chapter, has been officially included in the International Classification of Diseases. The eleventh edition (ICD 11) was published.

zhu, L.J., V., Klissouras, (2018), *Sport TCM Psychiatry*

## (Not) The Last Lecture on Self-Compassion in Sport Research

**Amber Mosewich**<sup>1</sup>, Tara-Leigh McHugh<sup>1</sup>, Kent Kowalski<sup>2</sup>, Philipp Röthlin<sup>3,4</sup>, Göran Kenttä<sup>5</sup>

<sup>1</sup>University of Alberta, Edmonton, Canada <sup>2</sup>University of Saskatchewan, Saskatoon, Canada

<sup>3</sup>Swiss Federal Institute of Sport Magglingen, Magglingen, Switzerland <sup>4</sup>University of Bern, Bern, Switzerland <sup>5</sup>The Swedish School of Sport and Health Sciences, Stockholm, Sweden

Symposium 39: Mental skills training,  
Hall Innsbruck, Juli 17, 2024, 14:40 - 15:40

Sport is a complex and dynamic context that presents performance pressures and setbacks that require effective navigation. Self-compassion, defined as the acknowledgement of one's own suffering and the desire to alleviate it, has been identified as a resource that can support successful sport experiences and athlete well-being (Cormier et al., 2023). Given the potential of self-compassion to support athletes' well-being, performance, and overall experiences in sport, self-compassion research in the field of sport psychology has drastically increased over the last decade. The purpose of this symposium is to bring together international experts to discuss critical considerations for advancing self-compassion in sport research and in applied practice. We are at a critical juncture within the field of sport psychology, whereby the potential of self-compassion in sport will only be realized by addressing the challenges that are currently limiting self-compassion research and practice. International experts in self-compassion in sport will contribute to this symposium that is comprised of four presentations and a summary discussion. To provide relevant context for the symposium, the first presenter will address the question, "What is the current state of self-compassion in sport research?". Building upon this context, the second presenter will address the question, "What are the biggest critiques of self-compassion in sport research?". In an effort to provide the audience with specific considerations for their own self-compassion in sport research, the third presenter will address the question, "How can self-compassion in sport research be advanced?". Recognizing the significant role that self-compassion can serve as a resource for those involved in sport, the final presentation will address the question, "What are the key considerations for embedding self-compassion in applied sport practice?". The Discussant will highlight and summarize the most significant statements and considerations from all presenters, and facilitate discussion amongst presenters and attendees around key issues.

Cormier, D. L., Kowalski, K. C., Ferguson, L. J., Mosewich, A. D., McHugh, T.-L. F., & Röthlin, P. (2023). Self-compassion in sport: A scoping review. *International Review of Sport and Exercise Psychology*. Advance online publication. <https://doi.org/10.1080/1750984X.2022.2161064>

## Evaluating Policy and Informing Practice Relevant to Anti-Doping Education

**Ian Boardley**<sup>1</sup>, Nikos Ntoumanis<sup>2</sup>, Vassilis Barkoukis<sup>3</sup>, Shuge Zhang<sup>4, 10</sup>, Daniela Lux<sup>5</sup>, Jules Wolff<sup>6</sup>, Jingdong Liu<sup>7</sup>, Shushu Chen<sup>1</sup>, Andrew Heyes<sup>1</sup>, Martin Chandler<sup>1</sup>, Lambros Lazuras<sup>8</sup>, Monica Stanescu<sup>9</sup>, Michael Petrou<sup>10</sup>, Julie Rivold<sup>2</sup>, Anne-Marie Pensgaard<sup>11</sup>, Andreas Ivarsson<sup>12</sup>, Andrea Petroczi<sup>13</sup>, Cornelia Blank<sup>5</sup>

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Symposium 40: Performance enhancement (e.g. doping, neuro-enhancement etc.),  
Hall Aalborg, Juli 17, 2024, 14:40 - 15:40

Doping represents use of prohibited performance-enhancing substances and methods to improve performance in sport, and anti-doping education is an important aspect of the World Anti-Doping Agency's (WADA) doping prevention strategy (WADA, 2021; Woolf, 2020). This symposium includes five studies relevant to anti-doping education. The first evaluates how Anti-Doping Organisations (ADOs) implemented WADA's International Standard for Education (ISE). Semi-structured interviews were conducted with 33 ADO staff from six ADOs. Data analysis identified six overarching themes (e.g., monitoring and evaluation). The second covers development and validation of brief questionnaires assessing risk and protective factors for doping. Informed by a literature review, a Delphi poll was conducted to select constructs for inclusion. Data from 307 athletes and 296 Athlete Support Personnel (ASP) were collected assessing these constructs, and the OASIS package in R used to form brief questionnaires consisting of 24 items for athletes and 28 items for ASP, assessing 11 and 13 different constructs, respectively. The third examines narcissism-related risk and compassion-associated protection for doping. 499 athletes completed psychometric measures assessing narcissism, self-compassion, fears of compassion and risk factors for doping. Data analyses revealed narcissistic vulnerability associated with greater doping risks when grandiosity was low compared to high. Compassion related resistance to doping (i.e., high self-compassion, low fears of compassion) was greater when narcissistic grandiosity co-existed. The fourth evaluates SafeYou, an intervention aiming to improve anti-doping action in competitive athletes. 285 athletes were randomly assigned to intervention and control groups. Overall, data analyses revealed no significant impact of the intervention on athletes' beliefs regarding doping. Significant differences were apparent in Romanian athletes, though. The fifth is an investigation with athletes who have incurred an anti-doping rule violation. A qualitative case study approach was adopted, identifying, and analysing the crisis response strategies of five elite athletes through journalistic statements and social media posts.

WADA. World anti-doping code. Montreal, Canada 2021. [https://www.wada-ama.org/sites/default/files/resources/files/2021\\_wada\\_code.pdf](https://www.wada-ama.org/sites/default/files/resources/files/2021_wada_code.pdf)

Woolf, J. J. R. (2020). An examination of anti-doping education initiatives from an educational perspective: Insights and recommendations for improved educational design. *Performance Enhancement & Health*, 8(2-3), 100178.

## The EUROMENTAL Project– Evidence based educational content for Europe

Franziska Lautenbach<sup>1</sup>, **Henrik Gustafsson**<sup>2,3</sup>, Marika Berchicci<sup>4</sup>

<sup>1</sup>Humboldt-Universität zu Berlin, Berlin, Germany <sup>2</sup>Karlstad University, Karlstad, Sweden

<sup>3</sup>Norwegian School of Sport Science, Oslo, Norway <sup>4</sup>Università degli studi Gabriele d'Annunzio di Chieti-Pescara, Chieti, Italy

Symposium 41: Mental skills training,  
Hall Innsbruck, Juli 17, 2024, 16:10 - 17:10

The Euromental Project endeavors to collaboratively, develop training and educational materials tailored for athletes, coaches and psychologists. Recognizing the importance of pooling expertise, scholars from six European countries (France, Germany, Italy, Spain, Sweden, and Poland) are collaborating, involving six universities: the Universities of Lyon, Humboldt-Universität zu Berlin, Chieti-Pescara, Extremadura, Karlstad, and Gdansk, including nine esteemed professors. In line with the scientist-practitioner model (e.g., Jones & Mehr, 2007), six teaching units (TUs) covering pertinent topics in sport psychology research and practice were meticulously curated and designed. To gauge their effectiveness and utility, content from four TUs—engagement processes, psychological skills training, psychophysiological states of optimal and non-optimal performance, and team dynamics—was integrated into a blended learning course. The purpose of the symposium is twofold: firstly, to highlight selected current research contributions from three of the four TUs; and secondly, to evaluate the blended learning course, encompassing both the curriculum and delivery, to chart the next steps for the Euromental project. Therefore, Martinent et al. will commence with a presentation on burnout prevention, a key component of the engagement processes TU. López-Gajardo et al. will follow with insights into team execution and cohesion, pertinent to the TU on team dynamics. Budnik-Przybylska et al. will then present findings on the benefits of imagery within the psychological skills training TU. Subsequently, Zajonz and Demirsöz will share data on the blended learning course's evaluation from the students' perspective. Finally, Gustafsson will lead a discussion on the Euromental project's future trajectory, drawing from the symposium's contributions and deliberations.

Jones, J. L., & Mehr, S. L. (2007). Foundations and assumptions of the scientist-practitioner model. *American Behavioral Scientist*, 50(6), 766-771.

## A symposium on affective processes in sport and exercise

**Julian Fritsch**<sup>1</sup>, Philip Furley<sup>2</sup>

<sup>1</sup>Karlsruhe Institute of Technology, Karlsruhe, Germany <sup>2</sup>German Sport University Cologne, Cologne, Germany

Symposium 42: Emotion,  
Hall Strassburg Nord, Juli 18, 2024, 11:00 - 12:00

The participation in sports, either in competitive or in recreational settings, is inherently associated with affective processes. In competitive settings, affective processes are considered both antecedents and consequences of sports performance (Jekauc et al., 2021). In recreational settings, affective processes are considered a relevant determinant of physical activity maintenance (Brand & Ekkekakis, 2018). The goal of this symposium is to give an overview of various contemporary research topics that are related to affective processes in sport and exercise psychology. In the first presentation, Engels et al. will present a study that assessed the moderating role of big five personality traits on the relationship between basic psychological needs and enjoyment of physical activity. In the second contribution, Greene et al. used a media analysis and focus groups to investigate how sport injuries may affect team dynamics and emotions of the individuals involved. The third presentation by Fritsch et al. is about an experimental study on the encoding and decoding of non-verbal behaviour of tennis players. In the fourth presentation, Furley will present track and field athletes' pre-performance and post-performance non-verbal behavior and their relation to sport performance. The final contribution is by di Fronso and focuses on the effects of static/dynamic mindfulness-based strategies on various affective outcomes. Overall, this symposium shows the importance of affective processes in a wide range of phenomena in sport and exercise settings.

Brand, R., & Ekkekakis, P. (2018). Affective-Reflective Theory of physical inactivity and exercise. *German Journal of Exercise and Sport Research*, 48(1), 48-58. <https://doi.org/10.1007/s12662-017-0477-9>

Jekauc, D., Fritsch, J., & Latinjak, A. T. (2021). Toward a theory of emotions in competitive sports. *Frontiers in psychology*, 12, 790423. <https://doi.org/10.3389/fpsyg.2021.790423>

## Transitions in Coaching and Gaps in the Knowledge and Practice of Sport Psychology

**Stiliani „Ani“ Chroni**<sup>1</sup>, Kristen Dieffenbach, Aku Nikander, Richard Tahtinen, Stephen Mellalieu

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Symposium 43: Coaching,  
Hall Maximilian, Juli 18, 2024, 11:00 - 12:00

Sport psychology research and applied practice attention to the transitions experienced by the coach is still in its infancy. Few studies have touched on coach transitions, like going from elite athlete to coach (see Chroni et al., 2019; 2020; Chroni & Dieffenbach, 2022; McMahon et al., 2020), or a coach's transition to retirement (Kenttä et al., 2016; Roberts & Kenttä, 2018). There's a lot of unknown ground on coach transition events and experiences, for example capturing transitions between levels of coaching, women's and para coaches' transitions, as well as about the support and facilitation provided when transitioning. The proposed symposium presents five cases taking us from the beginning to the end of a coach's career. The first, shares a case where the transition into coaching lasted about seven years until the retired non-elite football player felt comfortable and confident in the coaching role. The second presentation shares the transnational journey of a non-elite retired ice hockey player through coach education and coaching in two countries before returning to his home-country to undergo education and training as a coach developer. The third presentation shares how athletes reciprocally produce a relational influence on their coach's career development and transition from a junior coach to the senior ranks. The fourth presentation narrates an athlete-to-coach journey that is cut short upon the realization that high-performance coaching is not a viable professional career path in his country. The fifth presentation tackles the decision to retire, sharing an elite female coach's transition out of coaching. The presentations will explore uncharted coaches' transition. The symposium will have a hybrid focus on research and applied practice, aiming to shed light on coaches' transitions and call for attention to our knowledge gaps. The discussion will attempt to translate the limited present-day knowledge into practice that can support coaches' transitions.

Christensen, M. K. (2013). Outlining a typology of sports coaching careers: Paradigmatic trajectories and ideal career types among high-performance sports coaches. *Sports Coaching Review*, 2(2), 98-113.

Chroni, S. A., & Dieffenbach, K. (2022). Facilitating and supporting the elite athlete-to-coach transition: Lessons learned from Norwegian coaches and federations. *Journal of Sport Psychology in Action*, 13(1), 27-39.

Chroni, S. A., Dieffenbach, K., & Pettersen, S. (2021). An exploration of recruitment of elite athletes to coaching within federations. *International Sport Coaching Journal*, 8(3), 315-327.

Chroni, S. A., Pettersen, S., & Dieffenbach, K. (2019). Going from athlete-to-coach in Norwegian winter sports: Understanding the transition journey. *Sport in Society*.

Gordon, S., & Lavallee, D. (2011). Career transitions. In T. Morris & P. Terry (Eds.), *The new sport and exercise psychology companion* (pp. 567–581). Fitness Information Technology.

Kenttä, G., Mellalieu, S., & Roberts, C. M. (2016). Are career termination concerns only for athletes? A case study of the career termination of an elite female coach. *The Sport Psychologist*, 30(4), 314–326.

McMahon, J., Zehntner, C., McGannon, K. R., & Lang, M. (2020). The fast-tracking of one elite athlete swimmer into a swimming coaching role: A practice contributing to the perpetuation and recycling of abuse in sport? *European Journal for Sport and Society*, 17(3), 265–284.

Roberts, C. M., & Kenttä, G. (2018). Knowing when, and how, to step out: coach retirement. In *Professional advances in sports coaching* (pp. 397–414). Routledge.

Ronkainen, N.J., Sleeman, E., & Richardson, D. (2020). “I want to do well for myself as well!”: Constructing coaching careers in elite women’s football. *Sports Coaching Review*, 9(3), 321–339.

Tahtinen, R. (forthcoming). Going from junior coach to ending the coaching career: High performance coaching isn’t always viable. In S. Chroni, P. Olusoga, K. Dieffenbach, G. Kenttä (Eds.), *International case studies for supporting sport coaches*. Routledge.

## Qualitative Insights into Mental Illness in Sport

**Anthony Papathomas**<sup>1</sup>, Erin Prior<sup>1</sup>, Cecilia Åkesdotter<sup>2</sup>, Ross Wadey<sup>3</sup>, Katherine Tamminen<sup>4</sup>

<sup>1</sup>Loughborough University,, United Kingdom <sup>2</sup>The Swedish School of Sport and Health Sciences,, Sweden <sup>3</sup>St Mary’s University,, United Kingdom <sup>4</sup>University of Toronto,, Canada

Symposium 44: Clinical sport psychology, clinical issues in sport and physical activity,  
Hall Aalborg, Juli 18, 2024, 11:00 - 12:00

The mental health of athletes has emerged as an issue of critical importance within research and applied practice. Once considered “psychologically tougher” than the general population, an abundance of evidence demonstrates athletes can experience a range of mental health issues (Rice et al., 2016) and may even be more vulnerable to them (Gulliver et al., 2015). Although the number of studies into athlete mental health has proliferated, the diversity of these studies has not. Most research aligns with the medical model, focusing on symptom identification, management, and sometimes intervention (Prior et al., 2022). Qualitative insights, that focus on the whats and hows of personal meanings, are seldom reported (Pereira Vargas et al., 2021). In this symposium, we present an eclectic anthology of studies bonded by an interpretive commitment and a constructionist sensibility. The talks address various mental illnesses and approach these through an assortment of innovative qualitative methods. First, Erin Prior discusses an in-depth case study of an elite athlete diagnosed with bipolar disorder. Drawing on dialogical narrative analysis, Erin argues how performing particular illness identities might be detrimental to well-being. Cecilia Åkesdotter discusses her work with an athlete living with an eating disorder. Cecilia uses interview data to construct poetic representations of “Lisa’s” journey towards recovery. Third, Ross Wadey draws on a professional footballer’s autobiography, as well as related media articles, to depict mental illness within the context of athletic injury. Ross shows how “big” and “small” stories shape the athlete’s mental illness experience. In the fourth and final presentation, Anthony Papathomas turns the research lens towards professional coaches. He considers how we might use narrative resources as an educational tool to prepare coaches for managing mental illness disclosures. To close proceedings, Katherine Tamminen acts as discussant, bringing together key themes and challenging presenter claims.

Gulliver, A., Griffiths, K. M., Mackinnon, A., Batterham, P. J., & Stanimirovic, R. (2015). The mental health of Australian elite athletes. *Journal of Science and Medicine in Sport*, 18(3), 255–261.

Rice, S. M., Purcell, R., De Silva, S., Mawren, D., McGorry, P. D., & Parker, A. G. (2016). The mental health of elite athletes: a narrative systematic review. *Sports Medicine*, 46(9), 1333–1353.

Pereira Vargas, M. L. F., Papathomas, A., Williams, T. L., Kinnafick, F. E., & Rhodes, P. (2021). Diverse paradigms and stories: mapping ‘mental illness’ in athletes through meta study. *International Review of Sport and Exercise Psychology*, 1–27.

Prior, E., Papathomas, A., & Rhind, D. (2022). A systematic scoping review of athlete mental health within competitive sport: interventions, recommendations, and policy. *International Review of Sport and Exercise Psychology*, 1–23.

## Stress, Emotions, and emotion regulation implications for performance and wellbeing

**V. Vanessa Wergin**<sup>1</sup>, Faye F. Didymus<sup>2</sup>, Svenja A. Wolf<sup>3</sup>, Katherine Tamminen<sup>4</sup>

<sup>1</sup>The University of Queensland, Brisbane, Australia <sup>2</sup>Leeds Beckett University, Leeds, United Kingdom <sup>3</sup>Florida State University, Tallahassee, United States <sup>4</sup>University of Toronto, Toronto, Canada

Symposium 45: Emotion,  
Hall Strassburg Nord, Juli 18, 2024, 13:30 - 14:30

Competitive sport holds high potential for stress and emotion because stakes are high, and athletes are invested in their performance. Successfully coping with stressors and emotions is crucial for athletes' performance and for their mental health and wellbeing. The experience of stress and emotions can be understood as a result of an individual's appraisal of a situation or environment (Lazarus, 2000). The emotions that arise from stressful situations impact not only athletes themselves but also their teammates (e.g., Tamminen et al., 2022; Van Kleef, 2009). Attempts at regulating these emotions may impact both the regulated and the regulating person and their performance (Foti, 2022).

In this symposium, we explore the role of athletes in appraising situations, stress, and emotions, and in regulating emotions and the impact this regulation has on their own and their teammates' wellbeing and performance. We employ life story interview, systematic review, video-based recall, multi-level descriptive phenomenological interview, and experimental mixed-methods methodologies. First, McLoughlin et al. (UK) present a study investigating the impact of properties of lifetime stressors on health and wellbeing in athletes, before MacDonald et al. (UK) introduce a systematic review on the impact of appraisals of these stressors on health, wellbeing, and performance. Fesperman and Wolf (USA) then discuss the impact of emotions and their expressions on team members. Building on this, Foti et al. (USA and Canada) explore the effects of interpersonal emotion regulation, not only on team members but also on the regulating individuals themselves. Finally, Wergin et al. (Australia and USA) identify effects of interpersonal emotion regulation on team performance and team emotions when encountering a critical event that threatens team performance. These contributions illustrate the importance of effective coping with adverse situations and effective individual and interpersonal emotion regulation for athletes' mental health and individual as well as team performance.

## Focus on the positive: Associations of positive emotions and performance in different sport settings

**Pia Zajonz**<sup>1</sup>, Sascha Leisterer<sup>1</sup>

<sup>1</sup>Humboldt-Universität zu Berlin, Berlin, Germany

Symposium 46: Emotion,  
Hall Strassburg Nord, Juli 18, 2024, 14:40 - 15:40

Positive emotions may benefit athletes' performances according to broadening and building motor, cognitive, and social resources (i.e., broaden-and-build-theory of Fredrickson, 2001), such as improving psychophysiological recovery after a str (i.e., undoing-hypothesis of Fredrickson & Levenson, 1998). However, in contrast to negative emotions (e.g., competitive anxiety), positive emotions are an underrepresented topic in sport psychology research (McCarthy, 2011). This symposium aims to accentuate positive emotions in association with athletes' broadening and building of performance-relevant parameters. Regarding building resources with positive emotions, Maurin and Martinet open this symposium and present a correlation study of soccer goal keepers' resilience, mental toughness, stress appraisal, and subjective performance. Lautenbach and colleagues continue by investigating potential broaden-and-build effects of positive emotions on athletes' cognitive performance in a soccer-specific setting. Despite insignificant performance effects, their manipulation buffered a decrease in positive emotions, which aligned with the undoing-hypothesis. Referring to this, Zajonz and colleagues connect to the undoing-hypothesis and investigate its effect on subsequent motor performance in youth athletes. Also, Leisterer focuses on broadening and building motor resources with a presentation on recreational athletes' positive affect and perceived authentic pride as relevant determinants of perceived exertion and training duration. Respecting social resources, Smith and colleagues investigate pride in team sports and demonstrate associations between teammates' displayed pride and perceived benign envy, which in turn predicts greater team affiliation and personal effort, but not team performance. In conclusion, the five presentations highlight associations of positive emotions with relevant antecedents of athletic performance valuing the broaden and build assumption of positive emotions in sports. However, positive emotions' influence on individual and team performance remains ambivalent and warrants further investigation. Implications for future research and practice will be discussed to emphasize positive emotions in sport psychology.



## Social influence in sports - insights from observational and archival analyses

**Edda van Meurs**<sup>1</sup>, Bernd Strauss<sup>1</sup>

<sup>1</sup>University Of Münster, Münster, Germany

Symposium 47: Social psychology,  
Hall Maximilian, Juli 18, 2024, 14:40 - 15:40

The study of social influence in sports originated from experiments like Triplett (1898) or Moede (1914), which showed that co-acting or observing others can positively or negatively impact performance. These experiments were mostly conducted with one or two observers, however, the influence of spectators in sports is also palpable in stadiums with large crowds. During the COVID-19 pandemic, home-advantage researchers used the opportunity of ghost games to investigate the effect of spectators on the home and away teams as well as the referees. Although social influence is one of the oldest topics in sport psychology, and home advantage is a robust phenomenon discovered in the 70's, the underlying mechanisms are still not well understood.

In this symposium, the authors present evidence on the effects of small to large audiences on different aspects of sports performances, decision-making and psychosocial processes. The symposium starts by providing data that without spectators, sports performance decreases (presentation 1, Sors et al.), and that this effect might be moderated by the type of task and gender (presentation 2, Heinrich et al.). In addition to performance changes, the absence of spectators affects the prediction of one's performance (presentation 3, Schaefer et al.), social pressure/support, non-verbal behaviour and emotional and motivational states (presentation 4, Leitner & Richlan). This is not only true for players, but also referees, and their respective roles in the "spectator-home advantage"-relationship are analysed (presentations 1 & 5, van Meurs et al.). We thereby cover a spectrum of social influence, from individual observers to large crowds. Only by viewing the variety of studies and outcomes together is it possible to understand the underlying mechanisms that might explain the "spectator-home advantage"-relationship. We aim to showcase this variety of social-influence research with different samples, (quasi-)experimental manipulations, analyses and reviews, and discuss differences and explanations for diverging findings.

Moede, W. (1914). Der Wetteifer, seine Struktur und sein Ausmass. *Zeitschrift Für Pädagogische Psychologie*, 23, 353–368.

Triplett, N. (1898). The Dynamogenic Factors in Pacemaking and Competition. *The American Journal of Psychology*, 9(4), 507–533.

## Novel insights on the determinants of athletic persistence

**Ian Taylor**<sup>1</sup>, Chris Englert<sup>2</sup>, Nathalie Andre<sup>3</sup>, Izzy Wellings<sup>1</sup>, Johanna Staeler<sup>4</sup>

<sup>1</sup>Loughborough University, Loughborough, United Kingdom <sup>2</sup>University of Frankfurt, Frankfurt-am-Main, Germany <sup>3</sup>Universite de Poitiers, Poitiers, France <sup>4</sup>University of Konstanz, Konstanz, Germany

Symposium 48: Motivation,  
Hall Igls, Juli 18, 2024, 14:40 - 15:40

The ability to persist and endure are essential ingredients in sport and many other areas of human performance, such as the military and emergency services. It is unsurprising, therefore, that persistence and related topics are popular areas of interest in sport and performance science. Building on this trend, this symposium will present novel insights on the determinants of athletic persistence. Each talk will focus on important persistence-related factors, such as self-control, motivation, and effort, and examine their role in athletic performance.

The symposium will begin with a presentation on the limitations of early theories of self-control, how contemporary research provides insight into optimizing athletic persistence, and what are the most important unanswered questions.

Recent meta-analyses have established that self-control use typically reduces in consecutive tasks, particularly if the second task requires physical persistence or effort. However, the second presentation presents new data demonstrating that athletes are resistant to these mental fatigue effects, compared to non-athletes. This finding may have significant implications for talent development and psychological interventions.

Presentations three and four examine predictors of the motivational conflict between the desire to reduce effort and performance goal during endurance tasks. Presentation three examines whether physiological responses to exercise are associated with this desire-goal conflict, and whether these are mediated by core affect. Presentation four explores whether athletic identity or autonomous motivation better predict this conflict and subsequent performance. Collectively, these presentations imply that interventions should differ according to which motivational component of self-control is the target.

Finally, self-regulation failure is often due to the costs and aversive nature of physical effort. Presentation five examines whether short periods of physical training can help individuals learn to like physical effort, which has important implications for performance and public health.

## Coaches as Leaders: International Perspectives on the „How?“, “What?“, and “Why?“ Across Diverse Contexts

**Sebastian Brueckner**<sup>1</sup>, Louise Kamuk Storm<sup>2</sup>, Radhika Butalia<sup>3</sup>, Chen Zhao<sup>4</sup>, Kristen Dieffenbach<sup>5</sup>, Maike Tietjens<sup>7</sup>

<sup>1</sup>Private Practice, Muenster, Germany <sup>2</sup>University of Southern Denmark, Odense, Denmark

<sup>3</sup>KU Leuven, Leuven, Belgium <sup>4</sup>Bath Spa University, Bath, United Kingdom <sup>5</sup>Loughborough University, Loughborough, United Kingdom <sup>6</sup>West Virginia University, Morgantown, WV, United States <sup>7</sup>University of Muenster, Muenster, Germany

Symposium 49: Leadership,  
Hall New Orleans, Juli 18, 2024, 14:40 - 15:40

Coaches play an integral role in fostering athletes' holistic development as human beings that navigate increasingly complex societal contexts. To effectively coach sport participants, besides knowledge, skills, and attitudes towards athletic, psycho-social, and cognitive development, coaches also need essential leadership knowledge, skills, and values-based behaviors (Arthur & Bastardo, 2020; Storm & Svendsen, 2023). Thus, leadership theories, models, roles, and behaviors of coaches that embrace, reflect, and integrate the multitude of contextual complexities (e.g., experiences of performance pressure, digitalized environments, organizational impact) need to be integrated in sport psychology theory and practice. Grounded in a scientist-practitioner perspective, this symposium aims to highlight current research and applied practice across an internationally diverse range of coaching contexts. Five presenters from five different countries will present their work focused on coaches as leaders, highlighting various perspectives of coaching leadership “How?”, “What?”, and “Why?”. First, the need to revitalize the youth sport coaches' leadership role from a cultural leadership perspective will be discussed. The second presenter will highlight insights from a study conducted during the COVID-19 pandemic. Key findings regarding effective coach leadership in crisis contexts will be shared with the audience. Based on a social identity approach to leadership, the third paper presented in the symposium will focus on the development and validation of the “Identity Leadership Inventory – Youth” (ILI-Y) questionnaire. Shifting the focus from an individual to an organizational level, the fourth presentation will provide insights into organizational system design to support youth sport coach leadership development. Finally, the project “CULTurn” will be presented. In “CULTurn”, a leadership assessment and intervention based on the Competing Values Framework (Quinn, 1984) was implemented with national team coaches of the German Gymnastics Federation. To conclude, a discussant will summarize key messages and lessons learned, and the audience will be engaged in Q&A.

Arthur, C. A., & Bastardo, N. (2020). Leadership in Sport. *Handbook of Sport Psychology*, 344-371.

Storm, L. K., & Svendsen, A. M. (2023). Conceptualizing cultural leadership in physical education and youth sport: outlining a pedagogical concept. *Sport, Education and Society*, 28(7), 797-810.

Quinn, R. E. (1984). Applying the Competing Values Approach to Leadership: Toward an Integrative Framework. In *Leaders and Managers* (pp. 10-27). Elsevier.

## Moving Beyond the Social Vacuum in Research on Stress, Emotion, and Thriving: Individual, Interpersonal, and Collective Perspectives

**Faye Didymus**<sup>1</sup>

<sup>1</sup>Leeds Beckett University, Leeds, United Kingdom

Symposium 50: Social psychology,  
Hall Freiburg, Juli 18, 2024, 14:40 - 15:40

Description and Significance: Athletes, coaches, and organizations recognize that success is a team effort. Yet, researchers continue most often to focus on intraindividual experiences in sport. This is the case in many domains, including the study of stress, emotion, and thriving. Thorough understanding of these phenomena requires a volte face to consider social contexts and relational processes.

Purpose: This global team effort by experts from four countries and eight institutions showcases some of the most contemporary research on the individual, interpersonal, and collective nature of stress, emotion, and thriving in sport.

Overviews: Moore et al. (U.K.) begin with insight to stress appraisals of high-pressure situations among athletes. Their multi-study work is the first globally to demonstrate that skill-level (or ability) is a significant antecedent of challenge and threat appraisals. Woodhead et al. (U.K.) then present a systematic review of interpersonal coping (IC) in sport. They report antecedents and facilitators, mediators, a moderator, and outcomes of IC that offer a vantage point from which research on IC in sport can be developed. Tamminen (Canada) and Kim (U.S.A) follow with a study of interpersonal emotion regulation (IER), which highlights that athletes who were leaders or starters on a team were more likely to be rated by teammates as providing more emotion-improving IER toward others. Wolf et al. (U.S.A., Australia) then share insight to collective emotions and team integration. They illustrate that emotional similarity among team members predicts greater perceived social integration, which is important for success in sport. Finally, Hughes et al. (U.K., Canada) discuss human thriving in a Formula One racing team. They identify significant predictors (e.g., appraisals, coping) of thriving that have not previously been explored in this context. Collectively, these five presentations proffer valuable insight to improve understanding of stress, emotion, and thriving in individual, interpersonal, and collective contexts.

## The Psychology of Crises in Sport: Interdisciplinary Perspectives

**Bernd Strauss**<sup>1</sup>, Katherine Tamminen<sup>2</sup>

<sup>1</sup>University of Muenster, Muenster, Germany <sup>2</sup>University of Toronto, Toronto, Canada

Symposium 51: Crisis,  
Hall Strassburg Nord, Juli 19, 2024, 11:00 - 12:30

The term „crisis“ is probably one of the most currently used words within and beyond sports contexts. Generally, it is described as an unpleasant, sudden, unexpected state and often dynamical process (see., e.g. Coombs, 2023; Jaques, 2009), which can affect individuals, groups or teams, institutions, and organizations negatively on different outcomes (e.g., performance, finance, reputation). In general, a crisis is triggered by the shared perception of threat, which induces stress, e.g., within the athletes, the supporters, the concerned institutions and leads often to the inability to adequately cope and it is difficult to find a way out of the crisis. Depending on the time frame, different mechanisms influence the ongoing crisis process. While in sports, within a match there is little time to respond to performance decrements, and to communicate and adapt, between games there is more time available. Independent of how much time there is, the situation needs to be resolved. This symposium focuses on examples of crises in sport from different perspectives on several levels. Strauss and Tamminen start with a short introduction into the current state of research and theory on crises in sport. In the first presentation, Buenemann et al. present a newly developed conceptual model for performance crises, in particular in team sports, which can be considered as framework for crises-related situations. Second, Ivarsson and Gledhill deal in their presentation with crises among individual athletes, and give insight into the personal crises among athletes with respect to injuries and retirement. The third presentation given by Kerr and Battaglia addresses toxic cultures in competitive sports, social norms and their influence on maltreatment in sport (e.g., sexual abuse, and neglect). The last presentation by Stambulova and Henriksen investigates the influence of the COVID-19 Pandemic Crisis-Transition on sport. Finally, Bertollo will finish the symposiums as a discussant.

Coombs, W. T. (2023). *Ongoing Crisis Communication: Planning, Managing, and Responding* (Sixth Edition). Sage.

Jaques, T. (2009). Issue and crisis management: Quicksand in the definitional landscape, *Public Relations Review*, 35, 3, 280-286,

## Fostering Environments for Mental Health in Competitive Sport

**Philipp Röthlin**<sup>1,2</sup>, Stephan Horvath<sup>1</sup>, Emilia Backman<sup>3</sup>, Johanna Kaiser<sup>4</sup>, Göran Kenttä<sup>5,6</sup>, Kyle Paradis<sup>7</sup>

<sup>1</sup>Swiss Federal Institute Of Sport Magglingen, Magglingen, Switzerland <sup>2</sup>Institute of Sport Sciences, University of Bern, Bern, Switzerland <sup>3</sup>University of Copenhagen, Copenhagen, Denmark <sup>4</sup>University of Leipzig, Leipzig, Germany <sup>5</sup>The Swedish School of Sport and Health Sciences,, Sweden <sup>6</sup>The School of Human Kinetics, University of Ottawa, Ottawa, Canada <sup>7</sup>Ulster University, Belfast, Northern Ireland

Symposium 52: Well-being and quality of life,  
Hall Strassburg Süd, Juli 19, 2024, 11:00 - 12:30

Mental health encompasses not only the absence of psychological disorders but also the presence of well-being. There is a consensus that mental health is a critical component of an athlete's career and beyond. This symposium focuses on the mental health of athletes, emphasizing the importance of environmental factors over individual ones such as personality traits. It explores how athletes' immediate social circles and sport organizations can create a supportive environment that maximizes mental health benefits.

The program includes five contributions from international experts. The first contribution addresses the crucial topic of conceptual clarity regarding athlete mental health, focusing on investigating athletes' perceptions of what constitutes mental health. The second contribution examines the influence of coaches on athletes' mental health, highlighting high-performance coaches' perspectives on compassion in elite sports. The third contribution addresses the level of acceptance and willingness among athletes to engage with prevention and therapy offerings within youth sport performance settings. The fourth contributions will explore the role of sport organizations in promoting and maintaining athletes' mental health and their responsibilities within this domain. The final presentation explores the importance of creating psychologically safe environments, highlighting the impact on athlete mental health.

The symposium aims to foster an understanding of the complex relationship between the environment and athletes' mental health, offering insights for further research and practice. By focusing on how to shape a supportive environment, it seeks to contribute to the ongoing dialogue on enhancing athletes' mental health.

## Identity Dynamics in Sport: Navigating Social Identities and Identity Leadership Across Cultures and Ages

**Katrien Fransen**<sup>1</sup>

<sup>1</sup>KU Leuven, Leuven, Belgium

Symposium 53: Group dynamics and team sports,  
Hall Maximilian, Juli 19, 2024, 11:00 - 12:30

This symposium offers a comprehensive exploration into the intricacies of social identities within the sporting arena. Social identities are vital constructs that define individuals' sense of self through their affiliations with various social groups (such as sport teams), thereby deeply influencing their cognitions and behaviours, as well as the team dynamics. The symposium comprises five presentations that together unveil how social identities evolve during transitions (e.g., athlete retirement), and are sculpted by leadership across different contexts and life stages of athletes.

The symposium opens with two presentations focused on the dynamics of identity evolution and adaptation among athletes over time. The first longitudinal study tracks the evolution of social identities among athletes, revealing the nuanced ways in which these identities shift over time. The second presentation introduces the More Than Sport intervention designed to support athletes through the critical transition into retirement, addressing the need for identity reconfiguration and psychological adjustment in this vulnerable phase.

The second part of the symposium will focus on identity leadership as a way to shape and strengthen athletes' social identities. First, a cross-cultural examination of identity leadership will be presented, highlighting how identity leadership influences performance and mental health across different cultural contexts. This global perspective sets the stage for two interventions, aimed at fostering identity leadership among youth athletes, while also cultivating a sense of belonging and togetherness, thereby underscoring the importance of positive identity formation and its impact on team performance and individual well-being.

Collectively, these presentations highlight the dynamic interplay between identity leadership and social identities in the sports domain. By examining these concepts through longitudinal studies, practical interventions, and cross-cultural comparisons, the symposium underscores the critical role of identity in navigating transitions, fostering identity leadership, and enhancing the overall sports experience for athletes of all ages and backgrounds.

## Neurophysiological approaches to studying motor skill acquisition and expert performance

Mark Williams, **Nicola Hodges**

<sup>1</sup>Florida Institute of Human and Machine Cognition, Pensacola, United States <sup>2</sup>University of British Columbia, Vancouver, Canada

Symposium 54: Elite sports and expertise,  
Hall New Orleans, Juli 19, 2024, 11:00 - 12:30

The field of human expertise continues to grow and diversify. In the spring of 2025, a third edition of the Cambridge Handbook of Expertise and Expert Performance will be published by Cambridge University Press. The book highlights the diversity and multi-disciplinary nature of research on human expertise and learning. A significant focus in this book will be on new and emerging fields related to neuroscience. Sport remains a very prominent domain in which to study expertise given its popularity globally and our capacity to be able to systematically measure various aspects of performance. However, there remains a need to integrate the science of expertise with the science of motor learning in order to determine and describe ways that best promote motor skill acquisition in the long term and under conditions of high pressure indicative of real-world performance environments. In this symposium, we focus on how new research using neuroscience methods can further increase our understanding of the factors that differentiate how experts and novices perform tasks under high-pressure situations and what types of interventions are likely to facilitate the more rapid acquisition of expertise in future. As organisers of the symposium, we introduce and set the scene for the three main talks around these themes and then we close, by outlining the implications of the work presented for new research avenues that would further increase our understanding of expertise and skill acquisition more broadly.

## Performing under pressure; Firearms use and firearms training in police

**Vana Hutter**<sup>1</sup>, Mario Staller<sup>2</sup>, Swen Koerner<sup>3</sup>, Karlijn Kooijman<sup>4</sup>, Jennifer Chan<sup>6</sup>, Paula Di Nota<sup>6</sup>, Judith Andersen<sup>6</sup>, Raoul Oudejans<sup>4</sup>, Daniel Kennedy<sup>4</sup>, Mustafa Sarkar<sup>5</sup>, Ben Ashdown<sup>5</sup>, Judith Nijensteen<sup>4</sup>, Anne Bik<sup>4</sup>

<sup>1</sup>Netherlands Study Center for Criminology and Law Enforcement (NSCR), Amsterdam, Netherlands <sup>2</sup>University of Applied Sciences for Police and Administration, North Rhine-Westphalia, Germany <sup>3</sup>German Sport University Cologne, Department of Training Pedagogy and Martial Research, Cologne, Germany <sup>4</sup>VU University, Amsterdam, The Netherlands <sup>5</sup>Nottingham Trent University, Nottingham, United Kingdom <sup>6</sup>Health Adaptation Research on Trauma (HART) Lab, Department of Psychology, University of Toronto, Mississauga, Ontario, Canada

Symposium 55: Military, police and tactical populations,  
Hall Innsbruck, Juli 19, 2024, 11:00 - 12:30

Police officers can encounter situations in which the safety of citizens, colleagues or themselves requires them to use lethal force. The decision to shoot is always complex and stressful and the shot execution needs to be accurate. The integrated model of anxiety and perceptual-motor performance (Nieuwenhuys & Oudejans, 2012) postulates that stress induces changes in the attentional processes that guide decision-making and execution. When left unmitigated, these anxiety-related changes lead to suboptimal, threat-related attention, interpretation, and action tendencies. In line with the model, the first three presentations highlight contextual, attentional, and biopsychological factors that impact decision making and weapon handling. The first presentation illustrates processes of threat-related attention through video data analysis of the interaction of police with people with mental illness and the decision making to use lethal force. The second presentation is a qualitative study on how stress may impact action tendencies of police officers, particularly leading to involuntary firearm discharges. The perspectives of highly specialized, elite police officers on situational stressors and the risk of involuntary firearm discharge are presented. The third biopsychologically grounded study relates stress markers to errors in decision making for use of lethal force, experimentally exploring the link between stress and faulty outcomes of attention, interpretation and action tendencies, that is use of force errors.

Given the complexity of the use of firearms by police officers, and the impact of stress on decision making and execution, proper training is of utmost importance. In the symposium two experimental innovative training approaches are presented. The first, qualitative, study evaluated the effect of a mental fortitude training for police instructors on a law enforcement firearms training course. The second, experimental quantitative, study evaluated the effectiveness of an intensive firearms training course in which training is clustered as opposed to spread out over time.

Nieuwenhuys, A., & Oudejans, R. R. D. (2012). Anxiety and perceptual-motor performance: Toward an integrated model of concepts, mechanisms, and processes. *Psychological Research*, 76(6), 747–759. <https://doi.org/10.1007/s00426-011-0384-x>

## Self-Regulated Sport Practice: International Perspectives of Theoretical, Assessment and Applied Interest

**Bradley Young**<sup>1</sup>, Malgorzata Siekanska<sup>2</sup>

<sup>1</sup>University of Ottawa, Ottawa, Canada <sup>2</sup>University of Physical Education in Krakow, Krakow, Poland

Symposium 56: Elite sports and expertise,  
Hall Aalborg, Juli 19, 2024, 11:00 - 12:30

In the past fifteen years, the concept of self-regulated learning from educational psychology (Zimmerman, 2006) has been imported by research-practitioners to of sport psychology (Toering et al., 2009) and successively refined, resulting in a 'sportified' construct (Young et al., 2023a). A body of scholarly work describes this construct, known as self-regulated sport practice (Young et al., 2023b), as important for enhancing athletes' psychology of practice, and practice quality (McCardle et al., 2019). This symposium aims to demonstrate the maturing of this area of study, by evidencing multinational perspectives on self-regulated sport practice that reflect theoretical, assessment, and applied topics. The initial presentation focuses on assessment related to the Self-Regulation of Sport Practice (SRSP; Wilson et al., 2021) survey, demonstrating analyses for North American athletes in support of the psychometric and criterion validity of a short form instrument. The second presentation divulges findings from surveys of Polish athletes showing differences in self-regulatory competencies between individual- and team-sport athletes, suggesting that sport type may be a contextual variable of interest. The third presentation describes seminal findings from interviews with Canadian coaches, in which coaches reflect on how they would use the SRSP as a discussion tool to enhance the practice habits of their adolescent athletes. The fourth presentation features an American mental performance consultant describing his insights into how he translates theory-into-practice when consulting with NCAA athletes, and how he locates self-regulated sport practice development as a priority in applied practice. The discussants integrate the presentations to illustrate a rigorous knowledge-to-practice translation process. They map future needs to improve upon research limits and to provide enriched opportunities for practitioners.

McCardle, L., Young, B. W., & Baker, J. (2019). Self-regulated learning in sport training contexts: Current status, challenges, and future opportunities. *International Review of Sport and Exercise Psychology*, 12(1), 112-138. doi: 10.1080/1750984X.2017.1381141

Toering, T., Elferink-Gemser, M. T., Jordet, G., & Visscher, C. (2009). Self-regulation and performance level of elite and non-elite youth soccer players. *Journal of Sports Sciences*, 27(14), 1509–1517. <https://doi.org/10.1080/02640410903369919>

Wilson, S., Young, B. W., Hoar, S., & Baker, J. (2021). Further evidence for the validity of a survey for self-regulated learning in sport practice. *Psychology of Sport and Exercise*, 56:101975. <https://doi.org/10.1016/j.psychsport.2021.101975>

Young, B. W., Bain, L., & Baker, J. (2023b). Self-regulated learning in sport practice: Agency, assessment, and actioning. In D. Farrow, J. Baker, & C. MacMahon (Eds.), *Developing sport expertise: Researchers and coaches put theory into practice* (3rd edn; pp. 90-99). Routledge. doi: 10.4324/9781003285168-10



Young, B. W., Wilson, S. G., Hoar, S., Bain, L., Siekanska, M., & Baker, J. (2023a). On the self-regulation of sport practice: Moving the narrative from theory and assessment towards practice. *Frontiers in Psychology: Movement Science and Sport Psychology*, 14:1089110. doi: 10.3389/fpsyg.2023.1089110

## Unlocking Team Dynamics: Integrating Theory and Empirical Findings

**Charlotte Behlau**<sup>1</sup>

<sup>1</sup>University Of Muenster, Muenster, Germany

Symposium 57: Group dynamics and team sports,  
Hall Strassburg Nord, Juli 19, 2024, 13:30 - 14:30

The Olympic Games 2024 will be hosted this year in Paris, France, and all attendees want to achieve peak performance. For team sports, this means focusing on the group dynamics to perform well. Researchers in sport psychology try to grasp the complexity of this endeavor and understand group dynamics as an umbrella term for various group processes (Eys et al., 2019). The 'heuristic model for the study of sport groups' (Carron & Eys, 2012) guides researchers and posits that group dynamics consists of group structure, processes, and outcomes on the team as well as the individual level. This symposium elaborates on all three elements. The four presentations range from structural group elements in terms of theoretical considerations in comparing transient and seasonal teams (Hrabcak et al.), to group processes and outcomes on the individual level by presenting individual perspectives of team members and their positive and negative consequences of social indispensability while taking the team environment into account (Block et al.,). As well as group processes and group-level outcomes with empirical data showing the relationship between team cohesion, collective efficacy, team mental models, coordination, and team performance towards an integrated framework of team dynamics (Filho), as well as advancing the measurement of shared mental models to a virtual reality method and positioning it within collective efficacy, team trust and team performance (Behlau et al.,). Thus, this symposium aims to present a diverse range of topics and pathways to benefit the study of group dynamics. Finally, all presentations within the symposium aim to discuss theoretical as well as practical aspects for researchers and sports psychology practitioners working with teams.

Carron, A. V., & Eys, M. A. (2012). *Group dynamics in sport* (4. Aufl.). Morgantown: Fitness Information Technology.

Eys, M., Bruner, M. W., & Martin, L. J. (2019). The dynamic group environment in sport and exercise. *Psychology of Sport and Exercise*, 42, 40-47.

## Sport Psychology in Esports: Performance Under Pressure

**Oliver Leis**<sup>1</sup>, Laura Swettenham<sup>2</sup>, Iván Bonilla Gorrindo<sup>3</sup>, Phil DJ Birch<sup>4</sup>, Matthew R Welsh<sup>4</sup>

<sup>1</sup>Leipzig University, Leipzig, Germany <sup>2</sup>Liverpool John Moores University, Liverpool, United Kingdom <sup>3</sup>Universitat Autònoma de Barcelona, Barcelona, Spain <sup>4</sup>University of Chichester, Chichester, United Kingdom

Symposium 58: E-Sports,  
Hall Brüssel, Juli 19, 2024, 13:30 - 14:30

Esport players need to develop specific skills while performing within stressful, competitive environments (e.g., Leis & Lautenbach, 2020). Recognizing the potential benefits of sport psychology support into esports, a growing number of sport psychology consultants have entered the field of esports (Smith et al., 2019). In addition, researchers argue that sport psychologists can be an integral part of esports teams, emphasizing the need for evidence-based knowledge to maintain ethical standards and promote competent and conscientious behavior (Leis et al., 2021). This symposium aims to initiate a constructive discussion at the intersection of sport psychology and esports by presenting findings from five research projects. The first presentation conducts a systematic review of stressors and coping strategies in esports, identifying common themes among players and assessing the applicability of sport psychology frameworks. The second presentation explores the cognitive processes in League of Legends players through qualitative analysis of Think Aloud data captured during solo queue. The third presentation provides a qualitative examination of players' lived experiences concerning the phenomenon associated with emotional dysregulation and insufficient emotional regulation skills. This experience manifests as heightened frustration and declined performance, commonly referred to within the esports domain as tilt. The fourth presentation examines the effects of psychological pressure on gaze behavior and performance during an esports task. The fifth presentation investigates the effect of pressure on vagally mediated heart rate variability in an esports specific task. By delving into these diverse facets of esports performance, this symposium endeavors to provide a starting point for understanding the role of sport psychology in supporting esports players. The collective insights aim to inform practitioners, researchers, players, fostering a more nuanced approach to enhancing performance in this rapidly evolving performance domain.

Leis, O., Raue, C., Dreiskämper, D., & Lautenbach, F. (2021). To be or not to be (e) sports? That is not the question! Why and how sport and exercise psychology could research esports. *German Journal of Exercise and Sport Research*, 51(2), 241-247.

Leis, O., & Lautenbach, F. (2020). Psychological and physiological stress in non-competitive and competitive esports settings: A systematic review. *Psychology of sport and exercise*, 51, 101738.

Smith, M. J., Birch, P. D., & Bright, D. (2019). Identifying stressors and coping strategies of elite esports competitors. *International Journal of Gaming and Computer-Mediated Simulations (IJG-CMS)*, 11(2), 22-39.



## A global exploration of challenges coaches experience in the pursuit of effective coaching

**Sophia Jowett**<sup>1</sup>, Gordon Bloom<sup>2</sup>

<sup>1</sup>Loughborough University, Loughborough, United Kingdom <sup>2</sup>McGill University, Montreal, Canada

Symposium 59: Coaching,  
Hall Igls, Juli 19, 2024, 13:30 - 14:30

Coaching is a complex interpersonal process that requires utmost commitment, careful planning, and interpersonal and technical skills (Mallett & Lara-Bercial, 2016). This symposium includes 5 papers and aims to discuss the challenges coaches face across diverse work settings. The first paper explores the experiences of Special Olympics National Team Coaches working in Canada. Alexander-Urquhart and colleagues uncovered the complexities revolving around the multi-faceted coach duties spanning from managing athlete travel and medications to fighting to change societal attitudes around intellectual disability. The second paper examines coaches operating in Australia at inter/national performance levels. Lefebvre and colleagues revealed that team coaches experienced organizational tensions (e.g., resource distribution) and relational tensions (e.g., limited communication). The third paper investigated the strategies and behaviours of successful University coaches from Canada who had experienced “the highs and lows of performance and team culture”. Fraser and colleagues found that the coaches generally felt unprepared for the “low” season, leading to increased stress and decreased well-being. Despite the emotional turmoil, coaches were able to reflect on their actions and take away key lessons, helping them perform well in the future. The fourth paper offers a rudimentary model of care in sport coaching guided by evidence across different disciplinary fields and contexts. Gherardi and colleagues captured the complex and dynamic nature of care in sport coaching from University performance coaches in UK. In the final paper, Stewart and colleagues examined remote coaching. Coaches in endurance sports operating across the world highlighted that quality relationships achieved through two-way communication were fundamental for effective remote coaching. An emerging challenge was the quantity of communication; its monetary value increased as athletes demanded, required or expected more communication. In sum, these studies collectively contribute to fostering high-quality experiences for athletes and coaches in diverse sport contexts across different countries around the globe.

Mallett, C. J., & Lara-Bercial, S. (2016). Serial winning coaches: People, vision, and environment. In M. Raab, P. Wylleman, R. Seiler, A. Elbe, & A. Hatzigeorgiadis (Eds.), *Sport and exercise psychology research: From theory to practice* (pp. 289-322). Elsevier.

## Xtending Reality to Performance under Pressure: Advancing Operational Skills of Police and Military with Virtual Training

**Lisanne Kleygrewe**<sup>1,2</sup>, Jennifer Lavoie<sup>3</sup>, Jakob Uhl<sup>4,5</sup>, Tom Arthur<sup>6,7</sup>, Judith P. Andersen<sup>8</sup>

<sup>1</sup>Department of Human Movement Sciences, Vrije Universiteit Amsterdam, Amsterdam, the Netherlands <sup>2</sup>Institute of Brain and Behaviour Amsterdam, Amsterdam, the Netherlands <sup>3</sup>Departments of Criminology and Psychology, Wilfrid Laurier University, Brantford, Canada <sup>4</sup>AIT Austrian Institute of Technology, Vienna, Austria <sup>5</sup>Department of Artificial Intelligence and Human Interfaces, University of Salzburg, Salzburg, Austria <sup>6</sup>Faculty of Health and Life Sciences, University of Exeter, Exeter, United Kingdom <sup>7</sup>Cineon Training, Exeter, United Kingdom <sup>8</sup>Health Adaptation Research on Trauma (HART) Lab, Department of Psychology, University of Toronto, Mississauga, Ontario, Canada

Symposium 60: Military, police and tactical populations,  
Hall Innsbruck, Juli 19, 2024, 13:30 - 14:30

In recent years, the integration of Extended Reality technologies such as Virtual Reality (VR) has received significant attention for its potential to advance how tactical personnel in police and military prepare to perform under pressure. This symposium will showcase applied research findings and different use cases of VR in enhancing operational skills of police officers and military personnel.

The advantage of VR training over traditional real-world training lies in its ability to safely replicate complex, high-stakes environments with a level of realism that was previously unattainable. In virtual environments, trainees can experience a wide array of tactical scenarios, from domestic violence to crisis negotiation, providing a safe and controlled setting for learning and development of complex skills. This symposium will highlight empirical studies and research methodologies that examine the cognitive, psychological, and physiological effects of VR training on police and military personnel.

On one hand, the adoption of VR into training programs holds tremendous promise for improving readiness and operational effectiveness within police and military. The symposium will therefore host presentations addressing the use of VR to enhance skill development, as well as the use of VR as a tool to support the assessment of training by gathering real-life performance analytics. On the other hand, VR training may hold some inherent risks related to ethical issues, practical adoption, and sustained implementation into organizational training frameworks.

By bringing together international practitioners and researchers from diverse scientific backgrounds, this symposium intends to promote a balanced and comprehensive discussion on the scientific advances and practical applications of VR training in the police and military domain. This exchange aims to pave the way to further improve the development and application of innovative training technologies for tactical populations as well as start a debate on ethical issues surrounding virtual training solutions.

## Creating sport (performance) environments for individual and organizational thriving: Current challenges and potential avenues

**Svenja Wachsmuth**<sup>1</sup>, Rebecca A. Zakrajsek<sup>2</sup>

<sup>1</sup>University of Tübingen, Tübingen, Germany <sup>2</sup>University of Tennessee, Knoxville, United States

Symposium 61: Built environment,  
Hall Strassburg Nord, Juli 19, 2024, 14:40 - 15:40

Sport psychology has long been understood as an endeavor aiming to help the individual athlete or the team to strive for performance success. However, as the profession develops new opportunities and perspectives emerge, one of them being an organizational perspective on promoting sport performance (Wagstaff, 2019). Moreover, recent history also highlights the dangers of merely focusing on sporting success (e.g., mental ill-health, early career termination) reinforcing a plea for a more holistic approach to working with athletes as people (Hauser et al., 2022). Thus, this symposium aims to critically discuss the challenges perceived by sport practitioners and researchers in facilitating nourishing sport environments in which individuals can strive for success defined by sport performance, personal development as well as biopsychosocial wellbeing. It also sets out to illustrate potential avenues which may help to address these challenges through evidence-informed educational interventions and innovative projects promoting science-to-practice transfer on an organizational scale.

The first presentation aims to set the scene by highlighting current and future challenges in creating optimal talent development and performance environments within an individual Olympic sport. The second and third presentation follow-up upon these challenges focusing specifically on the promotion of supportive and caring coach-athlete interactions. Two educational programs designed to facilitate positive relationships (second and third contribution) and positively impact contextual enablers of thriving (third contribution) will be discussed in terms of their feasibility and impact. Finally, the fourth contribution will demonstrate a science-to-practice transfer project aiming at developing thriving environments in sport organizations through the use of relational and systems-led approaches. Based upon those presentations, the two chairs will act as discussants and contribute a session summary as well as personal reflections upon the role of sport psychology in promoting individual and organizational thriving within sporting institutions. They will then invite the audience to join this discussion.

Hauser, L. L., Harwood, C. G., Höner, O., O'Connor, D., & Wachsmuth, S. (2022). Talent development environments within sports: A scoping review examining functional and dysfunctional environmental features. *International Review of Sport and Exercise Psychology*, 1-27.

Wagstaff, C. R. D. (2019) Taking Stock of Organizational Psychology in Sport. *Journal of Applied Sport Psychology*, 1, 1-6.

## Positive psychology in sport and physical activity: Leaders and prosocial behaviors promoting health, well-being and adaptive social functioning

**Athanasios Papaioannou**<sup>1</sup>

<sup>1</sup>University Of Thessaly, Trikala, Greece

Symposium 62: Well-being and quality of life,  
Hall Strassburg Süd, Juli 19, 2024, 14:40 - 15:40

Positive psychology is most relevant to Sport and Exercise Psychology because it is the study of healthy and flourishing life. It focuses on positive experiences, character strengths and virtues, positive relationships and positive institutions aimed at improving communities.

This symposium focuses on leaders in sport and physical activity contexts promoting athletes' and youngsters' well-being and positive functioning, as well as on the importance of athletes' and students' selfless and prosocial goal adoption in physical activity, well-being and effective social functioning. All four presentations are based on most recent theories in positive psychology and their applications in sports and physical activity. All hypotheses and findings are novel and research has been conducted across different countries and cultures.

Three presentations of this symposium investigate different characteristics of leaders in sports and Physical Education (PE) classes that promote prosocial goals and behaviors and the beneficial effects of the latter on mental health, well-being and effective social functioning. In the fourth presentation findings from three cultures imply that prosocial goals have beneficial effects on well-being and physical activity while findings concerning self-centered goals are mixed and maybe vary across cultures.

In sum, these findings are in line with theory suggesting that investing energy on the cultivation of leaders' and athletes' virtues and on positive institutions is the most promising way to promote health and well-being in sport and physical activity settings.

## Advancing the Field: Current Research on Psychological Safety in Sports

Sophia Jowett<sup>1</sup>, **Katrien Fransen**<sup>2</sup>

<sup>1</sup>Loughborough University, Loughborough, United Kingdom <sup>2</sup>KU Leuven, Leuven, Belgium

Symposium 63: Group dynamics and team sports,  
Hall Maximilian, Juli 19, 2024, 14:40 - 15:40

Psychological safety, extensively researched in organizational contexts for over four decades, is increasingly recognized for its potential to enhance performance and wellbeing in sports. Amy Edmondson (1999) defined it as a shared belief within a team that the environment is safe for interpersonal risk-taking, crucial for encouraging open communication, innovative risk-taking, and learning from failure. Despite its proven relevance in other domains, the exploration of psychological safety in sports is emerging, with preliminary research suggesting its significant impact on team dynamics, individual performance and well-being (Fransen et al., 2020; Maughan & Jowett, 2024).

This symposium presents a collection of papers aiming to advance the understanding of psychological safety in sports. Kyle Paradis et al. provide a foundational framework, identifying key components and antecedents of psychological safety through the perceptions of coaches and athletes from various sports, thereby advancing the conceptual clarity of psychological safety in sport.

Building upon this framework, Ender Şenel et al. explore the influence of coach behaviours and the quality of coach-athlete relationships on psychological safety, highlighting how both aspects are pivotal in creating a safe sporting environment.

Katrien Fransen, Radhika Butalia, and their team broaden the conversation to an international scale, exploring how the foundations and outcomes of psychological safety apply within youth sports teams and across various cultural backgrounds. Their study highlights the essential role of identity leadership in fostering psychological safety in diverse settings.

Lastly, Mustafa Sarkar and Sally Hilton offer practical strategies for implementing psychological safety in elite sports, focusing on relational cultures, open communication, and learning from failure.

Together, these papers underscore the significance of psychological safety in sport, advocating for its role in enhancing athletes' performance and wellbeing across diverse contexts. This symposium seeks to inspire further research and the practical application of psychological safety principles in the sporting arena.

## Sources of Influence in Sport and Exercise Psychologists' Professional Development

**Martin Eubank**<sup>1</sup>, Nick Wadsworth<sup>2</sup>, Hayley McEwan<sup>3</sup>, Johanna Belz<sup>4</sup>, Göran Kenttä<sup>5</sup>, David Tod<sup>6</sup>, Moira Lafferty<sup>7</sup>

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Symposium 64: Professional development and mentoring,  
Hall Igls, Juli 19, 2024, 14:40 - 15:40

Description and Significance of the Topic: The status of the Sport and Exercise Psychologist (SEP) as a professionalized service provider has sharpened the necessity for training pathways that develop competent practitioners for the vocation (Wagstaff & Quartiroli, 2020). To support SEP production, training providers seek to provide the necessary conditions to cultivate and succour optimal trainee growth within the nurturing environment of the 'training greenhouse'. Professional growth, within the central practitioner development theme of individuation (McEwan et al., 2019) includes movement from 'working on' to 'working with' clients, development of self-awareness and learning to manage anxiety, and a strive towards authenticity and choice of a preferred ways of working (Tod et al., 2020). A key feature of being authentic is an articulated professional identity, which as a central goal in practitioner development provides SEP's with considerations and applications that make a difference to the way they practice (Eubank et al., 2020). Purpose of the Symposium: The sources of influence and learning process that impact practitioner development is central to understanding growth (Rønnestad and Skovholt 2012). The symposium aims to examine specific sources of influence and how they inform practitioner choices about becoming the consultant they believe can help clients, and how their identity development shapes practice philosophy, service delivery and the profession of sport psychology itself. Overview of the Individual Presentations: By drawing on global longitudinal data collected via semi-structured interviews with Trainee SEP's, the symposium seeks, through a series of individual presentations, to further knowledge of four salient sources of influence; (1) critical moments, (2) life-long learning, (3) individuation process, and (4) identity narratives. The symposium concludes with a discussant, followed by Q&A, to examine how these sources of influence might inform training provider's attempts to optimize trainee growth.

Eubank, M., Ronkainen, N., & Tod, D. (2020). New approaches to identity in sport. *Journal of Sport Psychology in Action*, 11(4), 215-218.

McEwan, H. E., Tod, D., & Eubank, M. (2019). The rocky road to individuation: Sport psychologists' perspectives on professional development. *Psychology of Sport and Exercise*, 45, 101542.

Rønnestad, M. H., & Skovholt, T. M. (2012). A Cyclical/Trajectories Model of Therapists' Professional Development and Stagnation. In *The Developing Practitioner* (pp. 160-175). Routledge.

Tod, D., McEwan, H., Chandler, C., Eubank, M., & Lafferty, M. (2020). The gravitational pull of identity: Professional growth in sport, exercise, and performance psychologists. *Journal of Sport Psychology in Action*, 11(4), 233-242.

Wagstaff, C. R., & Quartiroli, A. (2020). Psychology and psychologists in search of an identity: What and who are we, and why does it matter?. *Journal of Sport Psychology in Action*, 11(4), 254-265.

## Promoting Mental Health in High-Performance Sport: Perspectives of Athletes and Entourage Members

**Koen De Brandt<sup>1</sup>, Jolan Kegelaers<sup>1</sup>, Heinrich Grobbelaar<sup>2</sup>**

<sup>1</sup>Vrije Universiteit Brussel, Brussels, Belgium <sup>2</sup>Stellenbosch University, Stellenbosch, South Africa

Symposium 65: Elite sports and expertise,  
Hall New Orleans, Juli 19, 2024, 14:40 - 15:40

Attention for mental health (MH) in high-performance sports has increased drastically over the last few years. Both academics and applied practitioners have suggested that mental health forms a core component of any contemporary sport culture of excellence (Henriksen et al., 2020; Stambulova et al., 2021). Sport organisations, therefore, hold a duty of care to safeguard and promote the mental health of all members of their organisation (Grey-Thompson, 2017).

The overall aim of this research-based but practically oriented symposium is to present ongoing research on the MH and MH literacy (MHL) of athletes and entourage members (i.e., coaches, sport psychologists, support staff, significant others) and discuss practical implications to promote MH in high-performance sport. The symposium will specifically address the development of MH competencies in the important, yet often overlooked, population of entourage members. Heinrich Grobbelaar will act as the discussant.

First, Janja Usenik will present the findings of an IOC Advanced Olympic Research Grant on the cross-cultural validation of a MHL instrument in Belgian, Slovenian and South African athletes.

Second, Laura Spolverato will introduce the Erasmus+ Sport project "Promoting Mental Health through the Entourage in High-Performance Sport" (MENTiS) in which 796 athletes and 778 entourage members from six European countries completed a survey on their MH, MHL, perceived MH support and/or role in supporting athletes' MH.

Third, Maximiliano Devoto will use that same MENTiS database and zoom in on the open-ended responses that entourage members provided about the tools, resources and competencies required to care of their own MH and the MH of athletes.

Finally, Solene Lefebvre du Grosriez will present the results of a recent systematic review on the relationships between role interactions and student-athlete well-being, mental and physical health.

Stambulova, N., Ryba, T. V., & Henriksen, K. (2021). Career development and transitions of athletes: the International Society of Sport Psychology Position Stand Revisited. *International Journal of Sport and Exercise Psychology*, 19(4), 524–550.

Henriksen, K., Schinke, R., Moesch, K., McCann, S., Parham, W. D., Larsen, C. H., & Terry, P. (2020). Consensus statement on improving the mental health of high performance athletes. *International Journal of Sport and Exercise Psychology*, 18(5), 553–560.

Grey-Thompson, T. (2017). Duty of care in sport. [https://www.sportresolutions.co.uk/uploads/related-documents/Duty\\_of\\_Care\\_Review\\_-\\_April\\_2017\\_\\_2.pdf](https://www.sportresolutions.co.uk/uploads/related-documents/Duty_of_Care_Review_-_April_2017__2.pdf)

## Empowering women: Navigating gendered spaces in sport with authenticity and systemic resilience

**Tatiana V. Ryba<sup>1</sup>, Mirjam Raudasoja<sup>1</sup>, Janja Usenik<sup>2</sup>, Aku Nikander<sup>1</sup>, Antoinette Minniti<sup>3</sup>**

<sup>1</sup>Department of Psychology, University of Jyväskylä, Jyväskylä, Finland <sup>2</sup>Faculty of Education, University of Maribor, Maribor, Slovenia <sup>3</sup>High Performance Sport New Zealand, Auckland, New Zealand

Symposium 66: Social and cultural diversity (e.g. migration, ethnicity),  
Hall Aalborg, Juli 19, 2024, 14:40 - 15:40

Objectives. Recognizing the systemic injustice in the production of gendered spaces in sport (Messner, 2007), this symposium aims to provide a platform for critical discussion, from theory to practice, to address the multiple challenges and barriers faced by women in their pursuit of excellence. The symposium is rooted in the imperative to foster inclusivity, cultural safety, and ethical practices in sport psychology. Central to the symposium's conceptual framework is a cultural praxis heuristic (e.g. Ryba & Wright, 2005, 2010), which integrates cultural issues into knowledge production and practical aspects of empowerment. By adopting this framework, the symposium endeavors to transform cultural norms and institutional policies that shape gender dynamics within sport environments. Method. The symposium will feature four presentations, each offering a unique perspective on the empowerment of women in sport. The first presenter will draw on survey data collected in Finland from different sport stakeholders to argue for reproductive rights and non-discrimination during pregnancy. The second presenter will delve into a longitudinal interview study with a Slovenian judoka, elucidating the intricate interplay of structural and cultural factors in identity construction, with a particular emphasis on the crucial role of authenticity for women's well-being and performance. The third speaker will present a collaborative auto-ethnography of the relational transition of the male coach/female athlete dyad to senior sport. By unpacking the gendered dynamics inherent in this transition process, the symposium aims to shed light on often-overlooked aspects of the career journeys. The final presenter will introduce the audience to High Performance Sport New Zealand's innovative programs designed to empower women pursuing high performance sport careers by fostering resilience within the system. Conclusion. This symposium offers a nuanced exploration of gendered spaces, authenticity, and systemic resilience, envisioning the systemic process of becoming towards a more inclusive and equitable future in sport.

Messner, M. A. (2007). *Out of play: Critical essays on gender and sport*. State University of New York Press.

Ryba, T. V., & Wright, H. K. (2005). From mental game to cultural praxis: A cultural studies model's implications for the future of sport psychology. *Quest*, 57(2), 192–212. <https://doi.org/10.1080/00336297.2005.10491853>

Ryba, T. V., & Wright, H. K. (2010). Sport psychology and the cultural turn: Notes toward cultural praxis. In T. V. Ryba, R. J. Schinke, & G. Tenenbaum (Eds.), *The cultural turn in sport psychology* (pp. 3–28). Fitness Information Technology.

# SYMPOSIA ALL IN ONE

## Sports officiating symposium: Mental health, decision making, and social factors

**Alexandra Pizzera**<sup>1</sup>, David Hancock<sup>2</sup>

<sup>1</sup>German Sport University Cologne, Cologne, Germany, <sup>2</sup>Memorial University of Newfoundland, St. John's, Canada

Symposium 01: Other topics - Invited Participants Only,  
Hall New Orleans, Juli 15, 2024, 09:00 - 17:10

### Interpretation of Handball Incidents in Professional Football by Different Groups of Referees

Tobias Bauch<sup>1,2</sup>, David Schmidt<sup>2</sup>, Daniel Brinkmann<sup>3</sup>, Daniel Leyhr<sup>1</sup>, Oliver Höner<sup>1</sup>

<sup>1</sup>University of Tübingen; <sup>2</sup>DFB Schiri GmbH; <sup>3</sup>DFB-Akademie

Handball incidents (HI) in professional football are commonly debated (Hassan et al., 2023), with frequent complaints in the media by various stakeholders of the game that they don't understand the handball law (Collings, 2023). However, this controversy has received limited attention in academic research. It is unclear to what extent referees' decisions comply with the Laws of the Game. Moreover, it must be examined whether referees acting in different roles (main referees, assistant referees, referee instructors) and on different performance levels share a uniform interpretation of similar HI and, thus, make consistent decisions. Therefore, the present study explores referees' accordance with UEFA's official interpretation of HI and consistency between different groups of referees. Within an anonymous online survey, 30 video scenes of HI in the penalty area were presented to  $n = 154$  referees acting in German professional football (1st, 2nd, 3rd division). Scenes were selected from different categories and displayed in randomized order. In addition to deciding whether an incident was a 'punishable' or 'not punishable' handball, participants provided a rationale for their decision and rated its difficulty. Participants' mean accordance with UEFA's decisions was  $84 \pm 7.3\%$  (range 60%-100%). ANOVAs revealed significant differences between referee roles as well as across different performance levels ( $p < 0.05$ ). Post-hoc tests showed significant differences between referees and assistant referees, and between officials in German 2nd and 3rd division ( $p < 0.05$ ). The observed discrepancies indicate an inconsistent application of the handball law, potentially impacting game fairness and fuelling controversies. The results underscore the need for greater clarity and uniformity in applying the handball law. The present study might contribute to transparent decision-making and a uniform understanding of the handball law among all stakeholders in professional football. Ongoing data collection from coaches and players is expected to further enrich the study's findings.



### Referees' Team Sensemaking in Soccer: A Matter of Confidence?

Simon Boyer<sup>1</sup>, Ian Cunningham<sup>2</sup>, Fabien Coutarel<sup>1</sup>, Géraldine Rix-Lièvre<sup>1</sup>

<sup>1</sup>Clermont Auvergne University; <sup>2</sup>Edinburgh Napier University

Research shows that refereeing performance is partly determined by the idiosyncratic contextual judgement of the main referee (Mascarenhas et al., 2005) but also by the way in which his/her assistants coordinate with his/her judgement (Boyer et al., 2020). The processes underlying the construction of shared meaning(s) within a team of referees can be further informed by the team sensemaking concept (Klein, 2010). Team sensemaking is defined as the process by which a team manages and coordinates its efforts to explain the current situation and to anticipate future situations, typically under uncertain or ambiguous conditions. This study aims to understand the processes involved in constructing team sensemaking within a refereeing team by studying the coordination of its members when making decisions about duels between players. The lived experiences of 18 football referees and assistants were collected during 6 French professional football matches (Ligue 1 and 2). Self-confrontation interviews were conducted with main 6 referees and 12 assistants after each match. The referees' experiences were then synchronized to create match reports. The inductive analysis of the reports showed that the officials' coordination is characterised by verbal interactions they used: (1) to overcome a possible doubt in a teammate by supporting his decision, (2) to overcome a possible doubt in the players by making the referees' and assistants' decisions consistent. Building team sensemaking means building confidence in the way the team members operate in the game unfolding. The confidence building appears as a team construct, a collective adaptation (Pina et al., 2021).

### Co-producing an Intervention for Psychological Resilience and Mental Health Literacy in Sports Officials

Noel E. Brick<sup>1</sup>, Tom Lishman<sup>1</sup>, Stephen Shannon<sup>1</sup>, Orla McDevitt-Petrovic<sup>1</sup>, Gavin Breslin<sup>2</sup>

<sup>1</sup>Ulster University; <sup>2</sup>Queen's University Belfast

Objectives: Sports officials (e.g., referees, umpires) experience distress from a multitude of sources, including errors in decision making and experiences of abuse from spectators, coaches, and players. These stressors negatively impact on the mental health and retention of sports officials. Equally, sports officials report low mental health literacy, low perceptions of support, and a lack of training on psychological aspects of their role. Consequently, there is a need for context-specific interventions that meet these needs in sports officials. Methods: Following best-practice guidelines in sport, exercise, and health sciences, we co-produced a psychological resilience and mental health literacy intervention with Gaelic games match officials in Ireland. Co-production was informed by an equitable and experientially-informed research process. We collaborated with i) match officials across different levels of

participation in Gaelic games, ii) match official co-ordinators at both national and at lower, county levels, and iii) with a national-level match officials committee, to guide intervention development. The primary outcome measures included psychological resilience, mental health literacy, help-seeking intentions, and mental health stigma. Results: The co-produced intervention consisted of two primary components. First, a resilience component was intended to build personal qualities (e.g., psychological skills), develop a challenge mindset, and increase environmental support for match officials. Second, a mental health component was intended to increase mental health literacy and help-seeking intentions, reduce mental health stigma, and develop an awareness of mental health and wellbeing self-management strategies. Conclusion: There is limited research on mental health and performance psychology support for sports match officials. We present a novel, co-produced intervention to develop psychological resilience and mental health literacy within sports match officials. Such interventions have the potential to increase officiating performance, optimise psychological wellbeing, and reduce attrition amongst this population.

### Development, Validation and Reliability of the Irrational Beliefs Scale for Sports Officials (IBSSO)

Stuart C. Carrington<sup>1</sup>, Martin J. Turner<sup>2</sup>, Jamie S. North<sup>1</sup>, Abbe Brady<sup>1</sup>

<sup>1</sup>St Mary's University, Twickenham; <sup>2</sup>Manchester Metropolitan University

Literature reviews have identified a lack of psychological support, sampling bias towards elite officials and a focus on problem-based over emotion-based coping strategies in officiating research. Difficulties in providing emotion-focussed psychological support stem from time constraints when working with officials and a lack of bespoke measures. Consequently, this study aimed to produce a measure to assess beliefs relevant to the production of adaptive emotional and behavioural consequences in sports officials. To produce the measure, theoretical assumptions of rational-emotive behaviour therapy (REBT) were applied. Namely, that it is not an event in isolation that promotes maladaptive outcomes, but individual beliefs. REBT was justified by its efficacy in improving sports performance and economic use of time. Item development was drawn from original items of the Irrational Performance Beliefs Inventory, refined over three stages consisting of expert, novice and officials' panels. 402 officials from 11 sports completed the inventory, with exploratory factor analysis suggesting a 3, 4, and 5-factor model from 22 remaining items. A new sample of 111 officials representing 9 sports completed the Irrational Beliefs Scale for Sports Officials (IBSSO), with 6 other related measures, to assess criterion validity. A four-factor model showed acceptable fit, with self-depreciation, peer rejection demands, emotional control demands, and approval demands identified as subscales. Furthermore, 29 officials completed the IBSSO over three-time points, with a repeated-measures MANCOVA and Intra-Class Coefficients confirming test-retest reliability. The study produced a valid and reliable measure of beliefs related to the performance and well-being of sports officials, enabling researchers to assess the efficacy of psychological support provided to this population.



### Exploring Sport Officials Mental Health in Canada: Preliminary Results

Tori Carter, David J. Hancock

*Memorial University of Newfoundland*

Rising attrition rates of sport officials (i.e., referees, umpires, and judges) are causing concerns surrounding operational capacity. Since many sport officials operate in demanding and hostile environments, a potential cause of attrition is poor mental health. Understanding and addressing mental health in this population might be an important step in solving this issue. The objective of this study was to establish a baseline of knowledge surrounding sport officials' mental health in Canada. Participants were recruited from national and provincial sport organizations, as well as through social media recruitment notices. 278 participants completed this survey (77.9% male; mean age = 42.2 years). Officials from 10 sports participated, with basketball officials being most represented (46.7%). The study was comprised of several adapted validated questionnaires, including the Mental Health Literacy Scale, National Institute for Occupational Safety & Health Worker Well-being Survey, Kessler 10, the four-item patient health questionnaire, and the Alcohol, Smoking and Substance Involvement Screening Test. Preliminary results indicated there was a prevalence of negative mental health symptoms among sport officials including depression (19%), post-traumatic stress disorder (16.2%), attention deficit hyperactivity disorder (12.6%), generalized anxiety disorder (6.2%), and eating disorders (3.6%). Further, results from health screening questionnaires indicated that 16.6% of officials surveyed warranted a diagnosis of a mild mental disorder, 12.5% of a moderate mental disorder, and 9.4% of a severe mental disorder. While officiating in the past year, 5.1% felt they were sexually harassed, 16.8% reported exposure to physical violence, and 48% reported being threatened, bullied, or harassed. The high prevalence of mental health outcomes reported by sport officials in Canada supports the literature indicating that mental health is a contributing factor in the rising attrition rates of sport officials. Further research is required to understand what factors are influencing the elevated prevalence of mental health issues within this population.

### Exploring Elite Ice Hockey Officials' Acquisition and Use of Mental Skills

Christopher J. Coady, David J. Hancock

*Memorial University of Newfoundland*

Sport officials (i.e., referees, umpires, and judges) play a vital role in upholding rules, ensuring safety, and maintaining fair play. Officiating elite sport requires focus, confidence, arousal regulation, and decisive decision-making. Thus, mental skills use and training seems imperative for elite sport officials. Unfortunately, little research has focused on mental skills and sport officials. The purpose of this study was to explore ice hockey officials' use of mental skills. A pragmatic paradigm guided the study. Participants were 9 ice hockey officials (6 female, 3 male; Xage = 29.2 years; Xexperience = 14.2 years). Data were collected via semi-structured interviews, which were ana-

lyzed using a six-step thematic analysis. Results revealed varying levels of mental skill use, with self-talk, visualization, and goal-setting being the most commonly used skills. Few participants underwent specific training to acquire their mental skills. Instead, participants predominantly learned mental skills through past experiences as athletes and their peers. Nevertheless, all respondents acknowledged the critical role mental skills played in elite sport officiating. Further, participants advocated for their organizations to create formal educational opportunities whereby officials could learn mental skills, especially earlier in their officiating careers. These findings emphasize the importance of mental skills for elite sport officials, but also the lack of formal mental skills training. Potentially, this shortfall prevents sport officials from reaching their full potential. We offer actionable steps for sport officiating organizations including the implementation of early education programs, formal training opportunities, and recommendations for continued organizational support.

### Asymmetry in Referee-Observer Perceptions of Referee Communication Behaviour in Children Sport: Attribution or Lack of Understanding about the Referees' Pedagogical Role?

Ian Cunningham<sup>1</sup>, Wieslaw Firek<sup>2</sup>, Katarzyna Płoszaj<sup>2</sup>, Aleksandra Kühn-Dymecka<sup>3</sup>

<sup>1</sup>Edinburgh Napier University; <sup>2</sup>Jozef Pilsudski University of Physical Education; <sup>3</sup>Cardinal Stefan Wyszyński University

Referees in children's sport provide an important educational function within a child's multifaceted development through their interactions. Płoszaj et al. (2020) provide a validated measurement for referees' pedagogical communication on several dimensions. Sypher (1980) suggested discrepancies exist between self-reported and actual communication behavior through memory-based questionnaires, while Mal-le (2006) identified self-serving patterns in attribution that influence actor-observer asymmetry in trait inferences. Attribution theory would suggest referees may interpret their communication behaviors and its causes differently to outsiders (Baxter & Braithwaite, 2008). This study investigated the degree of divergence between referees' self-reported communication effectiveness and their development observers' views to fulfill an educational function during children sport matches. Participants were 22 referees for youth rugby matches (6-12 years old) and their development observers. The Referee-Players Interaction Assessment Scoring System - RPIASS (Płoszaj et al., 2020) was used by referees and observers post-match that measured six pedagogical communication dimensions: building positive climate; sensitivity to players' needs; behaviour management; proficiency; instructing; decision communication. Findings showed observers rated referees significantly higher in "behavior management", while referees significantly rated themselves higher in the "positive climate," "sensitivity to players' needs," and "instructing". No significant differences were found in average scores of "proficiency" dimension ( $Z = -1.273$ ,  $p = 0.203$ ) and "decision communication" ( $Z = 0.818$ ,  $p = 0.414$ ). Significant correlations between referee-observer ratings were shown for "behavior management" ( $r = 0.437$ ,  $p < 0.05$ ) and "proficiency" ( $r = 0.440$ ,  $p < 0.05$ ). Communication skills traditional to referee

training (proficiency, decision communication) were rated similarly, while significant discrepancies existed in critical nuanced pedagogical communication areas. Attribution theory helps partially explain the more positive self-ratings referees gave in fulfilling the educational function. However, findings similarly question if sufficient knowledge and operationalization of the educational function of referees exists in referee training to enhance better convergence in stakeholder perceptions.

### **The Multilayer Model of Refereeing in Sports**

Theresa Hoffmann<sup>1,2</sup>, Clare MacMahon<sup>3</sup>, Ralf Brand<sup>1</sup>

<sup>1</sup>University of Potsdam <sup>2</sup>Berlin Football Association <sup>3</sup>La Trobe University

**Introduction:** This presentation introduces the Multilayer Model of Refereeing in Sports (MMRS), a conceptual refinement and advancement of the established Cornerstone Model of Refereeing Performance (CMRP). The MMRS offers a comprehensive framework to define and understand the relationships of performance components across various levels of refereeing competence. **Problem Statement:** There is a need to update and refine the older CMRP to match more recent developments in referee research and practice. In particular, we aim to clarify the interdependencies between earlier cornerstones to resolve the difficulties arising from their rather eclectic combination in the CMRP. **Theoretical Framework:** The MMRS delineates one foundational layer emphasizing the importance of a referee mindset and personality traits, and three functional layers: the first layer includes the four key concepts of rules & gameplay, fitness & mechanics, contextual judgment, and communication; the evolving second layer encapsulates the four core skills of decision-making, guiding the game, creating presence, and administering the game; culminating in the third layer of game management competence. **Methods:** This work is a theoretical contribution that emphasizes the conceptualization and organization of the MMRS. In doing so, we aim to provide a roadmap for future empirical investigations and practical applications. **Implications:** The MMRS is a valuable tool for structuring thoughts on referee performance. In conclusion, we argue for a balanced approach between theory and applied research to advance the research in this field. The MMRS serves as a testament to this balance, offering a robust theoretical foundation for future empirical endeavors and practical advancements in referee training and assessment.

### **Height Bias in Basketball Officiating: The Influence of Player and Referee Height on Foul Decisions**

Lisa Koop, Alexandra Pizzera, Markus Raab, & Laura Voigt

*German Sport University Cologne*

Simulation theory suggests that individuals perceive or imagine the actions of others by internally simulating them with a network that includes the motor system (Gallese, 2005; Jeannerod, 2001). This simulation mechanism allows the individual to anticipate potential action outcomes even in the absence of movement (Jeannerod, 2001). It has been shown to not only demonstrate stronger motor activations when individuals are experts in specific movements (Calvo-Merino et al., 2005), but also to enhance judgment performance for others' behavior (Pizzera, 2012; 2015). Suggesting that the effectiveness of the simulation mechanism may be more pronounced when individuals share certain physical attributes, such as height, our aim of the present study is to investigate the influence of player and referee height on foul decisions in the context of basketball officiating. We argue that height is one of the cues referees use during decision-making processes and that both the athletes' and the referee's bodies play important roles in these processes (Pizzera, 2015). We expect a height bias among referees, with taller referees "favoring" taller players and shorter referees "favoring" shorter players (in this context, "favoring" refers to the tendency of referees to call fouls in favor of the respective players, i.e., on their opponents). 8641 foul decisions from a sample of 219 regular season games from the 2020/21 Men's German 1. Basketball-Bundesliga are currently being analyzed, utilizing generalized linear mixed-effects models to assess the impact of the height of the two players involved in each foul decision and the referee's height.

### **The Impact of Abuse Experiences and Coping Responses on Mental Health Outcomes in Sports Officials**

Tom Lishman<sup>1</sup>, Stephen Shannon<sup>1</sup>, Orla McDevitt-Petrovic<sup>1</sup>, Gavin Breslin<sup>2</sup>, & Noel E. Brick<sup>1</sup>

<sup>1</sup>Ulster University; <sup>2</sup>Queen's University Belfast

**Objectives:** Sports officials (e.g., referees, umpires) experience multiple stressors in their role, particularly episodes of verbal, physical, and social media abuse during and after competition. However, the impact of coping strategies employed by sports officials to deal with abuse experiences is unknown. As such, the primary aims of this study were i) to survey the prevalence and frequency of verbal, physical, and social media abuse over a single season, ii) determine the impact of abuse and other stressors on sports officials' feelings of distress and mental health outcomes, and iii) understand the impact of strategies utilised by sports officials to cope with abuse experiences. **Methods:** A total of 303 Gaelic games officials in Ireland completed an online survey measuring stressors (e.g., abuse experiences), coping strategies, and subsequent mental health outcomes. Correlational and path analyses were used to explore whether the coping strategies used to deal with abuse experiences (e.g.,

avoidance cognitive and approach-oriented coping) mediated the impact of abuse experiences on distress and subsequent mental health outcomes. Results: In total, 88.11% of officials reported experiences of verbal abuse, 7.59% physical abuse, and 17.16% social media abuse during the previous season. Greater use of avoidance cognitive and approach-oriented coping to deal with verbal abuse was associated with higher distress and poorer mental health outcomes. For social media abuse, self-blame and behavioural disengagement, in particular, associated with poorer mental health. Path analysis revealed that avoidance cognitive coping to deal with verbal abuse from players predicted higher distress, higher anxiety, higher depression, and lower mental wellbeing. Conclusion: We report novel findings to suggest that sports officials often employ maladaptive coping for abuse experiences, negatively impacting on mental health outcomes. Developing alternative strategies, such as mastery-oriented coping, may help sports officials to deal with abuse experiences and better protect their mental health and wellbeing.

### **Negotiations, Agreements, and Understandings: Reconceptualising Refereeing in Sport as a Social Relational Activity**

Scott Russell<sup>1</sup>, Ian Renshaw<sup>1</sup>, Keith Davids<sup>2</sup>

<sup>1</sup>Queensland University of Technology; <sup>2</sup>University of Jyväskylä

Objectives: The traditional characterisation of sport arbitration as a perceptual cognitive task is steeped in deep cultural and academic misunderstandings about the activity of decision-making in sport contexts. We sought to reconsider how referee decision-making activities contribute to the competitive functioning of a football match. Methods: Using an ecological grounded theory approach (Russell, 2021), forty-two past and present referees were involved. Participants included: local and National Premier Leagues (n = 21, ma = 36.8 years, r = 1-30); A-Leagues and FIFA level (n = 14, ma = 32 years, r = 9-20); and former referees (n = 7, ma = 58.8 years, r = 15-30). Male (n = 36) and female (n = 6). Results: Our analysis indicated that decision-making moments function as opportunities for negotiations, agreements, and understandings to be formed about how the game will be refereed (i.e., 'how you will operate') and played (i.e., 'how the game will function'). This social contract (i.e., 'the conditions for play') was developed by: (i) building rapport, and (ii), developing game expectations. When successful, referees appeared human and working with players, allowing their decision-making activity to productively influence the games emergent trajectory. Conclusions: We contend that refereeing may be reimagined as a social relational activity, with decision-making an adaptive emergent process invested in facilitating shared referee and player gameplay affordances. Social implications highlight how an emphasis on technical elements of accuracy compresses their expertise, and fundamentally alters how referee cultural practice is viewed (e.g., assertions of bias) and operates (e.g., introduction of technologies). Future work in sport arbitration can continue to ground theoretical understanding in cultural knowledge.

### **Human Judgment Noise in Football Refereeing – Shifting Focus from Bias to Noise**

Roy David Samuel, Yair Galily, Guy Hochman

Reichman University

Objectives: Football referees' judgments are expected to be consistent, unbiased, and expertise-based. Still, much of the research paradigm was inspired by the concept of "bias" (e.g., Dohmen & Sauerermann, 2016), with hardly any reference to the potential effects of noise on referees' judgments. Noise is "undesirable variability in judgments of the same problem" (Kahneman et al., 2021, p. 40) and reflects the variability of error – how referees would diversely respond to a similar match infringement with different decisions. Thus, the phenomenon of noise in football refereeing is presented, including how to detect noise, the difference between noise and bias, and the potential ways to reduce noise. Methods: Two data sources are analyzed. First, existing research on referees' foul decision accuracy levels. Second, data on foul-related infringements of six Israeli Premier League referees over six matches each. Attention is given to the standard deviation (SD) as a means to identify noise. Results: Accuracy levels ranged significantly among studies, between 49.5% and 98%, with a mean of 71.91% (SD = 12.51%). The few studies that reported the accuracy levels SD indicated a meaningful range of 6.20% to 19.23%, with a mean of 11.24% (SD = 3.62%). The Israeli referees' accuracy levels per match ranged between 44.44% and 100%, with M = 81.42% (SD = 12.41%). This indicates an average error rate of 18.58% (SD = 12.51%). Conclusions: Noise exists among referees of the same skill level, with elite referees tending to be less erroneous and exhibit less stable pattern noise. A statistical view of the refereeing domain would enable us to witness noise and its effects. Research and practice attention should be given to examining the sources and effects of noise in football refereeing as well as to the applicable, cost-effective, means to reduce noise, such as noise audits and specialized training.

### **The Relationship Between Sense of Community and Wellbeing Outcomes for University Student Referees**

Jacob K. Tingle<sup>1</sup>, Brittany L. Jacobs<sup>2</sup>, April Flint<sup>3</sup>, Stacy Warner<sup>4</sup>

<sup>1</sup>Trinity University; <sup>2</sup>American Public University; <sup>3</sup>Emory University; <sup>4</sup>East Carolina University

Sports officials are essential and their jobs are complex, requiring teamwork (Kellet & Warner, 2011), managing antagonistic relationships (Webb et al., 2020), and coping with abuse, aggression, and sometimes violence (Devís-Devís et al., 2021). Yet, evidence suggests that officiating can positively impact one's wellbeing. For many, officiating is enjoyable as it allows them to positively contribute to sports they love (Warner et al., 2013). Officiating also provides a means for being physically active (Hancock et al., 2015) and officiating communities can provide social support (Ridinger et al. 2017), which has been linked to positive wellbeing outcomes (Kim et al., 2022). Despite those positives, there remains a shortage of qualified officials, which is compounded by aging referee populations (Bright et al., 2022). These concerns empha-

size the need to attract young people and examine wellbeing benefits resulting from involvement in officiating communities (Tingle et al., 2022). Elkins et al. (2011) noted that university recreational sports participants perceived a greater sense of campus community compared with non-participants. Refereeing could be a means to fill that role, but outcomes of belonging to an officiating community, especially among 18-22 year olds, need to be further understood. This phenomenological exploratory study includes interviews with 35-40 students who officiate basketball within their university's intramural program. Data were collected at four basketball tournaments across the United States, using a semi-structured interview guide. The aim is to: identify factors contributing to involvement with sports officiating communities, and explore whether there are positive associated wellbeing outcomes. Understanding the antecedents and outcomes of belonging to an officiating community can help develop better strategies to recruit and retain young sports officials, while simultaneously determining mechanisms that promote wellbeing outcomes for university students.

### **Virtual Reality (VR) as a Training Tool for Referees**

Tammie van Biemen<sup>1,2</sup>, Daniel Müller<sup>1</sup>, David L. Mann<sup>1</sup>

<sup>1</sup>Vrije Universiteit Amsterdam; <sup>2</sup>Royal Dutch Football Association

A football referee has to judge whether actions of players are in line with the rules. In order to do so, they require a variety of physical (e.g. sprinting and endurance) and cognitive skills (e.g. decision making and gaze behaviour). Where players often have the opportunity to use small sided games at practice to integrate different skills for practice, these opportunities often are limited for referees. The main training method for cognitive skills by referees is using video simulations, however these lack in representativeness from the on-field task and therefore have limited transfer to on-field performance (Pinder et al., 2011). A recent training method that does seem to reflect the representative performance environment, is the use of Virtual Reality (VR). However, little is yet known about the representativeness of cognitive behaviours in VR. The main aim of the current study was therefore to examine the degree to which the cognitive behaviour of football referees in virtual reality would reflect behaviour found when adjudicating matches on-field. To do so, sub-elite referees officiated matches on-field and situations in VR while their decision-making behaviour and gaze behaviour (head and eye movements) was measured. Additionally, referees were questioned regarding their user experience of the VR. The results revealed that behaviour in VR was indistinguishably from on-field behaviour, moreover the VR was evaluated as novel and stimulating by the referees. The current study suggests that VR could be a potential training tool for referees and recommends referee educators to explore and invest in the opportunities of VR.

### **Oscillatory Brain Activity and Heart Rate Variability: Biomarkers of Peak Performance**

Arash Mirifar<sup>1</sup>

<sup>1</sup>University of Florida, Gainesville, United States

Symposium 02: Psychophysiology, Hall Strassburg Nord, Juli 15, 2024, 13:30 - 14:30

### **The Effect of Anticipatory Difficulty on Perceptual-Motor Processing in Table Tennis Players**

Yuying Guan<sup>1</sup>, Yingzhi Lu<sup>1</sup>

<sup>1</sup>School of Psychology, Shanghai University of Sports, Shanghai, China

**Objectives:** This study aimed to explore how the difficulty of action anticipations influence on perceptual-motor processing among table tennis players with varying expertise levels.

**Methods:** A total of 62 participants were recruited, including 14 elites, 25 experts, and 23 individuals in the control group. The modified Posner paradigm was employed, that the target location was indicated by presenting serve actions of varying durations. Subsequently, participants were required to make a "go" or "nogo" response based on whether the target appeared in accordance with their predictions regarding its location. Behavioral responses, encompassing accuracy and reaction time, were recorded, alongside the utilization of electroencephalography (EEG) to monitor and analyze brain activity.

**Results:** In hard anticipation conditions, all participants exhibited significantly prolonged reaction times compared to easier conditions. Both elite and control groups demonstrated notable differences in accuracy across conditions, with a distinct accuracy gap between elite and expert groups under hard anticipation conditions. In the motor cortex (C3, C4, Cz) during the cueing phase, the elite group displayed a significant difference in the 8-13Hz mu rhythm between easy and hard conditions. Additionally, during the 1500ms blank interval phase, the contingent negative variation (CNV) amplitude was significantly lower in the easy condition compared to the hard condition. In the response phase, both elite and expert groups exhibited significantly greater P3 amplitude compared to the control group. Throughout all phases, the average results for each group displayed a distinctive positive or negative U-shaped pattern.

**Conclusion:** The varying difficulty levels of cues have distinct effects on the perceptual-motor processing of table tennis players at different skill levels during different stages. Moreover, these effects follow a non-linear progression with an increase in skill level.



**The neural dynamics associated with the integration of contextual prior information and kinematic information during action anticipation**

Yuying Guan <sup>1</sup>, Yingzhi Lu <sup>1</sup>

<sup>1</sup>*School of Psychology, Shanghai University of Sports, Shanghai, China*

**Objective:** In dynamic environments, action anticipation is influenced by contextual prior information and kinematic information. Effectively integrating and weighting these two information sources during action anticipation is crucial for making precise anticipatory judgments. This study aims to explore the impact of skill level on the neural dynamics related to the integration of these distinct information sources.

**Methods:** Twenty-three basketball players and Twenty-three novices engaged in anticipating the outcomes of free throws, utilizing video clips depicting basketball players' actions, both with and without contextual prior information. We compared anticipation performance and electrophysiological activity between the two groups.

**Results:** Behavioral results indicated that the congruency between contextual prior information and kinematic information had a significant impact on action anticipation, which was modulated by skill level. ERP results revealed that after the presentation of contextual prior information, late positive potential (LPP) was observed in the central-parietal region, which may reflect attention to motivation-related stimuli. Before the presentation of kinematic information, stimulus preceding negativity (SPN) was observed, reflecting the brain's preparation for imminent events. The difference in the amplitude of these waves between conditions with and without contextual prior information was significantly larger in novices than in basketball players, indicating a greater reliance on contextual prior information by novices. Additionally, during the action observation, time-frequency analysis revealed distinct brain activities in different regions of basketball players: mu activity in the central region and alpha activity in the occipital region. These patterns are thought to signify basketball players' adeptness in extracting kinematic information to deduce forthcoming outcomes.

**Conclusion:** This study revealed that skill level significantly impacts action anticipation, with basketball players demonstrating enhanced neural processing when integrating contextual prior information and kinematic information, thus providing valuable insights into the neural dynamics of expertise in dynamic environments.

**Cortical correlates of cardiac deceleration in preparation for skilled action**

Germano Gallicchio<sup>1</sup>, Ryu, D., Pecunioso, A., Jackson, R. C.

<sup>1</sup> *School of Psychology and Sport Science, Bangor University, Bangor, United Kingdom* <sup>2</sup> *Department of Physical Education, Seoul National University, Seoul, Republic of Korea* <sup>3</sup> *Department of General Psychology, University of Padova, Padova, Italy* <sup>4</sup> *School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, United Kingdom*

**Objectives.** This study aimed to shed light on the mechanisms of preparatory cardiac deceleration. This phenomenon consists of the transient slowing of the heart rate in the few seconds before the execution of a skilled action. Earlier findings that larger decelerations are observed for more experienced individuals and better performance have been taken as evidence that this phenomenon reflects preparatory mechanisms. However, it is unclear what these mechanisms are.

**Method.** We co-analyzed the electrocardiogram (ECG) and the electroencephalogram (EEG) of 16 young adults of varying golf expertise as they putted 60 balls to a 4-m distant target on a flat golf carpet. We computed the heart rate series from the timing of the ECG R-waves and expressed it as percentage change from the 1-s time window in which the golf swing movement started. We also extracted the EEG time-frequency power and expressed it as decibel change from a pre-putt rest period. Finally, we scored performance as distance from the target. Our analysis strategy consisted of cluster-corrected permutation testing based on Spearman rank correlations.

**Results.** Better putting performance was associated with larger decreases in heart rate within the 5 seconds preceding movement initiation. This effect decreased the most when partialing out central-parietal EEG power around 10 Hz, corresponding to the alpha frequency.

**Conclusion.** Cardiac deceleration may share some of its performance-enhancing mechanisms with similar cortical alpha changes that have been previously reported to correlate with performance. This finding aligns with earlier reports of diminished posterior alpha following stimulation of the vagus nerve—the main component of the parasympathetic system—whose activation is typically inferred through its modulations on the variability of the heart rate. This study supports the account of preparatory cardiac deceleration in target sports as an attentive phenomenon likely associated with the transient activation of the parasympathetic system.

**The myth of beneficial effects of left-hand contractions on sport performance**

Kanta Mizuno <sup>1</sup>, Hiroaki Masaki <sup>2</sup>

<sup>1</sup> *Graduate School of Sport Sciences, Waseda University, Saitama, Japan* <sup>2</sup> *Faculty of Sport Sciences, Waseda University, Saitama, Japan*

**Objectives:** Left-hand contractions (LHCs) have been proposed as a technique to prevent choking under pressure. Beckmann et al. (2013) argued LHCs leads to inhibition of conscious motor controls by hemispheric brain asymmetry (activating the right hemisphere while deactivating the left hemisphere). However, studies on the effects of LHCs are not consistent and researchers have not treated neurophysiological mechanisms underlying this approach in much detail. In a series of three experiments (studies 1 and 3 on golf putting and 2 on dart throwing), we examined the effects of LHCs on both neural and behavioral levels.

**Methods:** Thirty novice players for Study 1, 40 novice players for Study 2, and 22 players (among them 11 expert golf players, handicap: M=2.8) for Study 3 were recruit-

ed. Performance indicators included mean radial error (MRE) and distance from the bull's eye. Neurophysiological changes induced by LHCs were measured using EEG, EMG, and ECG.

Results: In Study 1, although unilateral HCs induced hemispheric asymmetry, no differences in putting performance (MRE) were observed by conditions. The LHCs, however, reduced EMGs of the left forearm during golf putting. In study 2, performance did not differ between a passive control group and LHCs, although LHCs induced hemispheric asymmetry. In study 3, neither experts nor novices show beneficial effects of LHCs on putting performance (MRE) under pressure. The LHCs, however, inhibited the heart rate elevation.

Conclusion: Our results did not show any effects of LHCs on performance suggesting that previously reported beneficial effects of LHCs on performance might be a fallacy. These findings align with Luan et al. (2023), in which the authors highlight that there is no evidence for the effectiveness of LHCs on (motor) performance and suggested that there is a need for stronger evidence for LHCs to be accepted as a pre-performance routine.

**Performance under (time) pressure: A neural oscillatory investigation into approach and avoidance conditions**

Arash Mirifar <sup>1</sup>, Hannah Engel <sup>1</sup>, Andreas Keil <sup>1</sup>

<sup>1</sup> Center for the Study of Emotion & Attention, University of Florida, Gainesville, Florida, United States

Objective: When the result of a performance is extremely important, psychological pressure may adversely affect performance (i.e., "choke"), but sometimes give rise to a superior performance (i.e., "clutch"), for example, an individual interviewing for a job, making a sale to receive a commission, or sinking a putt in the final hole of a golf tournament for a huge check. The topic of choking under pressure has received substantial attention; however, thus far, too little attention has been paid to the neurophysiological mechanisms underlying choking when an individual is performing in crucial moment to gain something or avoid it. This study attempts to shed light on the potential differences between the approach and avoidance conditions.

Methods: We conducted a multi-variable study to examine EEG, pupil diameter, response times, and self-reporting of arousal and valence. Three conditions are used: A) a potential threat condition in which a participant may avoid aversive electric shocks by pressing a key as fast as possible. B) a potential reward condition in which a participant may receive a monetary reward by pressing a key as fast as possible; and C) a control condition in which a participant is instructed to press a key as fast as possible. N = 27 participants (16 females, M = 20.76 years, SD 4.14) were recruited.

Results: Time-frequency analyses of EEG data focused on posterior and central oscillatory activity in the alpha range. We found substantial posterior alpha reduction throughout the trial. A greater reduction in the approach condition compared to avoidance and control conditions was observed in response to the cue as well as

prior to the motor response.

Conclusion: The preliminary results show that brain oscillatory activity in range of alpha in visual and motor cortices differ between approach and avoidance conditions and can predict performance under time pressure.



## The Potential of Virtual and Mixed Reality for Research and Application in Sport Psychology, Police, and other First Responder Settings

Marie Ottilie Frenkel<sup>1</sup>

<sup>1</sup>Hochschule Furtwangen/Furtwangen University, Freiburg i. Br., Germany

Symposium 03: Other topics, Hall Strassburg Süd, Juli 15, 2024, 13:30 - 14:30

This symposium presents research programs, studies and trainings using virtual reality (VR) and mixed reality (MR) to investigate human performance in highly demanding settings. VR refers to presenting 3D-audio-visual information to participants using head-mounted devices. MR combines VR with stimulation through physical objects or environments.

The first talk of the symposium focuses on firefighting/mountain rescuing. Paletta, an Austrian researcher, develops a bio-signal sensor-driven decision support tool for AI-based risk stratification of first responders' effective cognitive readiness directly at the mission site. In this study a wearable psychophysiological measurement technology is applied to estimate stress levels under immersive training conditions.

This will be followed by a talk on police psychology. Kleygrewe et al. present a Dutch study which was part of a EU-Horizon 2020 project (<https://shotpros.eu>). The scrutinizes the application of VR as a training tool in police practice and explores the effect of a pain stimulus device, eliciting an electric shock.

Then Baetzner et al. investigates with a multinational researcher group, medical first responders in mass casualty incidents. The presenter from Germany gives insights on triage training in MR from a EU-Horizon 2020 project (<https://www.med1stmr.eu>) and offers a comparison of MR training with real-life training.

Finally, Frenkel, derives conclusion from the two EU-projects and from other studies of VR, and compares them to MR. The last talk also includes the transfer between high-performance settings, drawing conclusions for future research topics in sport psychology.

The presentations include experimental and field studies, and examine attention, cognition, decision making, and action. Altogether, the studies demonstrate the key potential of VR/MR: Manipulating experimentally factors that are too complex, expensive, time-consuming or too dangerous to recreate in real life. These advantages offer sport psychologists, athletes, trainer and curriculum developers new avenues to enhance core phenomena, such as performance under pressure and stress training.

### Measurement of First Responder Situation Awareness in Virtual Reality Environments

Lucas Paletta

Institute DIGITAL Joanneum Research Graz, Austria

Introduction: First responders are engaged in highly stressful situations at the emergency site. Under these circumstances, staying cognitively under control is a necessary condition to perform efficient decision-making to maintain own health and pursue mission objectives efficiently. We are aiming at bio-signal-based decision support for AI-based risk stratification of first responders' effective cognitive readiness directly at the mission site. To achieve optimized routines at the emergency site, the VRonsite platform is used to train and assess the situation awareness of trainees for further optimization of their future behavior at the mission site. Situation awareness will be quantified on the basis of the theoretical framework of Endsley (1995).

Methods: Wildland firefighters and mountain rescuers were selected as first responders for the study. We recruited emergency forces of the Austrian volunteer fire brigade of Gumpoldskirchen (n = 7) as well as paramedics of the Johanniter organization Vienna (n = 6). Wearable psychophysiological measurement technology was applied to estimate the cognitive-emotional stress level under immersive training conditions. In this work we particularly focus on the potential of predicting the risk level for failures in situation awareness in a using digital analysis of parameters from highly available wearable bio-signal sensors, i.e., heart rate (HR) and heart rate variability (HRV). The classification into levels of situation awareness were applied using Machine Learning (Support Vector Machine).

Results: The results provide statistically significant indications for bio-signal-based risk stratification of cognitive readiness based on Endsley's situation awareness theory. High and low situation awareness were classified with an accuracy of 76.1%.

Conclusion: A field trial with first responders demonstrated the utility of applying the predictive model under real world conditions. The methodology offers a great potential to be applied in sport psychology, particularly, in type of sports that relate intensive physiological strain with challenging perception and attention tasks.

### Virtual Reality for Police: Bridging the Gap Between Immersive Training and Operational Performance

Lisanne Kleygrewe<sup>1,2</sup>, Vana (R.I.) Hutter<sup>1,2,3</sup>, Raoul R.D. Oudejans<sup>1,2,4</sup>

<sup>1</sup> Department of Human Movement Sciences, Faculty of Behavioural and Movement Sciences, Vrije Universiteit Amsterdam, Amsterdam Movement Sciences, the Netherlands <sup>2</sup> Institute of Brain and Behaviour Amsterdam, Amsterdam, the Netherlands <sup>3</sup> Netherlands Institute for the Study of Crime and Law Enforcement (Nederlands Studiecentrum Criminaliteit en Rechtshandhaving; NSCR), Amsterdam, the Netherlands <sup>4</sup> Faculty of Sports and Nutrition, Amsterdam University of Applied Sciences, Amsterdam, the Netherlands

Objectives: The goal of operational police training is to prepare officers for on-duty situations. With advancements in technology, Virtual Reality (VR) is being explored as a training tool which offers flexible and highly immersive operational scenarios. This presentation aims to highlight the importance of representativeness in designing and applying VR as a training tool in police practice.

Methods: To assess the influence of representativeness in VR, we conducted a study with 219 police officers of the City Police Zurich, Switzerland. Half of the police officers were equipped with a pain stimulus device (eliciting a mild electric shock) during the VR training, while the other half trained in VR without the pain stimulus device.

The pain stimulus was elicited only when an officers was hit by a shot of the perpetrator in the virtual environment (a reality-based operational element shown to elicit realistic behavioral responses in real-life training). We assessed officers' physical training responses (i.e., heart rate), psychological training responses (i.e., mental effort, perceived stress), and sense of presence in the virtual environment.

Results: Adding a pain stimulus to immersive VR training did not seem to influence the level of representativeness. During VR training, there were no significant differences in physical training responses, psychological training responses, and sense of presence measures between police officers who trained with a pain stimulus and officers who trained without a pain stimulus.

Conclusion: Operational elements that are used in reality-based training design for police practice may not yield the same training responses in VR training. VR training appears to elicit high levels of perceived stress and requires higher levels of mental effort compared to real-life training. It seems that adding new elements to an already highly demanding VR training experience may not further increase the already high levels of perceived stress.

### **Enhancing Medical First Responder Training: A mixed reality solution for simulating mass casualty incident operations**

Anke S. Baetzner<sup>1</sup>, Friederike Uhlenbrock<sup>1</sup>, Arne Nieuwenhuys<sup>2</sup>, Juliane Kämmer<sup>3</sup>, Cornelia Wrzus<sup>4</sup>, Marie Ottilie Frenkel<sup>5</sup>

<sup>1</sup>Institute for Sports and Sports Sciences, Heidelberg University, Germany <sup>2</sup>Department of Exercise Sciences, University of Auckland, New Zealand <sup>3</sup>Department of Emergency Medicine, Inselspital Bern, University of Bern, Suisse <sup>4</sup>Psychological Institute, Heidelberg University, Germany <sup>5</sup>Health, Safety, Society, Furtwangen University, Germany

Objectives: Ensuring the effective performance of medical first responders (MFRs) in high-stress situations is crucial to patient survival. Effective training under close-to-realistic circumstances is therefore pivotal, especially for high-stress operations like mass casualty incidents (MCI; Baetzner et al., 2022). Based on the integrated model of anxiety and perceptual-motor performance (Nieuwenhuys & Oudejans, 2017), subjectively overwhelming demands can lead to losses in attention, decision-making and action. The aim of the EU Horizon 2020 project MED1stMR was to evaluate a Mixed Reality (MR) training solution for MFR triage training and to compare it to the current gold standard, real-life exercises.

Methods: A total of 274 MFRs (Mage 40.31, SD=10.33; 33% female) participated as teams of four. The MR setup, consisting of two virtual MCI scenarios (tunnel and country road) and implemented manikins for haptic feedback, was tested across six European countries. Participants wore ECG devices and responded to questionnaires and interviews regarding their stress, attention, mental effort, decision-making, and actions. Additionally, a subsample of one field trial (n=36) was employed for comparison with two real-life exercise scenarios involving patient actors and manikins (n=14), focusing on stress, presence, and learning experiences.

Results: Initial findings suggest slightly higher levels of stress and mental effort in the first scenario, with possible habituation effects observed in the second. Elevated

stress levels were associated with alterations in attention, decision-making, and actions. When comparing MR to real-life exercises, similar stress levels were noted, but lower subjective learning scores were reported. Physical presence in the MR environment was more akin to real-life exercises than social presence.

Conclusion: MR has the potential to supplement current MCI training by offering more frequent, hands-on training with reduced organizational demands. Future challenges include a realistic implementation of social interaction possibilities with patients as well as an adaptive scenario control to in-/decrease demands.

### **The potential of Virtual and Mixed Reality for Research and Application in Sport Psychology**

Marie Ottilie Frenkel<sup>1</sup>

<sup>1</sup>Health, Safety, Society, Furtwangen University, Germany

Within the last years, virtual and mixed reality (VR/MR) have been hyped in sports, first responder contexts (medical, police, firefighting), medical education, performing arts, business, and daily life. In both, VR and MR, digital stereoscopic 360° scenarios are usually presented in head-mounted displays. Furthermore, MR includes tangible real-world simulators. Only recently, sport psychological research started to utilize the theoretical-methodological advantages of VR/MR. Understanding attention, decision-making, and behaviour in VR/MR in comparison to real-life simulations is a genuinely psychological, currently understudied topic (Wrzus, Frenkel, & Schöne, 2023, preprint).

therefore, this talk presents an overview of the current applications of VR/MR in psychological research, mainly focusing on “performance under pressure” and “stress training”. Results from empirical studies with police officers, medical first responders and firefighters (Heil, Owens, & McDaniel, 2023; Voigt & Frenkel, 2023; Voigt, Hill, & Frenkel, 2023; Giessing, Plessner, & Frenkel, 2021) are used to derive implications for sport psychology. The aim of the talk is to inform, update, and improve researchers', trainers', and curriculum developers' knowledge of VR/MR. They are tools to address the need for representative stress training opportunities and its strengths (e.g., realism, experimental control, effectiveness of educational interventions), while acknowledging its challenges and weaknesses (e.g., differences in experiencing presence, interacting with VR/MR content including avatars). The usefulness of technologies measuring and displaying performance and stress in real-time, smart scenario control through individual adaptation of VR/MR-scenarios, or video debriefing tools are critically discussed.

For both research and application, VR/MR offers a contemporary extension of the sport psychological toolkit, allowing for new avenues to investigate and enhance core phenomena of psychology, such as performance under pressure and stress training. Nevertheless, it is crucial to be cautious in its application, as excessive and careless use of VR/MR can pose a significant risk to athletes' mental and physical health.

## Charting mental health frontiers: Partnering with athletes, coaches, leaders, and organizations to collaboratively enhance well-being in sports

Natalie Durand-Bush<sup>1</sup>

<sup>1</sup>University Of Ottawa, Ottawa, Canada

Symposium 04: Well-being and quality of life,  
Hall Brüssel, Juli 15, 2024, 13:30 - 14:30

### #GGNation: A case study exploring student-athlete mental health at a Canadian University using Design Thinking

Sydney Graper

University of Ottawa, Canada, & Diane Culver, PhD, University of Ottawa, Canada

**Objectives.** Varsity sports departments (VSD) are pivotal in fostering student-athletes' mental health and overall dual-career success (U Sports, 2020). While several best practices for addressing student-athletes' mental health exist, few case studies on VSDs are available as real-world examples, providing practical guidance to other institutions looking to optimize their environments (Albert et al., 2022). Thus, we conducted a case study on a Canadian VSD to explore diverse stakeholders' support strategies and observe student-athletes' experiences concerning mental health. **Methods.** Using Design Thinking (DT), we followed the first half of the Hasso Plattner Institute's (2018) six-step model (Understand, Observe, and Point of View). A stakeholder map, analysis, and interviews (n=9) provided contextual insights about the VSD and diverse perspectives on support strategies. Then, student-athletes (n=6) used digital storytelling to showcase the pains and gains of their experiences. Results were analyzed using empathy mapping and condensed into three fictional personas. **Results.** The explored VSD highlighted three overarching strategies: 1) Enhancing accessibility to MH support services, 2) Providing proactive and holistic care, and 3) Building a sustainable integrated support team model. Further, an array of pains (e.g., academic stress, burnout, and injury) and gains (e.g., social support, flexible schedule, accessible support services, and mental skills) were conveyed across the persona profiles and presented in a visual and narrative format to elicit compassionate responses from readers and influential decision-makers. Finally, we interpreted a need for improved communication and coordination between the varsity sport and academic stakeholders to alleviate the identified dual-career stressors. **Conclusions.** In sum, this case provided a Canadian perspective to dual-career research and showcased a novel human-centered and innovate approach for addressing complex sport psychology issues. Findings will shape the next steps for this specific project to co-design holistic support resources to enhance mental health outcomes of Canadian student-athletes.

## Co-designed athlete retirement prototypes for the Canadian high performance sport system

Iman Hassan

University of Denver, United States, & Diane M. Culver, PhD, University of Ottawa, Canada

**Objectives:** A significant influencing factor in athletes' retirement experience is their preparation. Researchers have highlighted a plethora of challenges that underprepared athletes can face when retiring from high performance sport, including psychosocial, emotional, and psychological challenges (Clemmet et al, 2012; Gouttebarga et al., 2017; Stambulova & Wylleman, 2014). High performance athletes (HPAs) in the Canadian sport system are granted access to free proactive and reactive retirement resources addressing their mental health, education, skill development, and community outreach needs. However, these resources are only utilized by 36% of eligible HPAs (Brassard et al., 2022). As researchers, we collaborated with members across the Canadian sport system to explore, understand, and address the contextual factors that influence athletes' willingness to prepare for life after sport. **Methods:** Through the reflective, iterative, innovative, and human-centered methodology of Design Thinking (DT), the design team (researchers and sport system members) progressed through Stanford's d.school's 5-stage DT process (define, empathy, ideate, prototype, and test) to create a needs-based design to address HPAs' retirement needs. The researchers conducted a total of 19 empathy interviews with active athletes, retired athletes, support personnel, and performance partners to explore sport members' perspectives and understanding of retirement support mechanisms. Following an analysis, researchers then facilitated co-design sessions with a new group of 15 sport members to design solution-driven prototypes. **Results:** The co-design sessions resulted in three prototypes (a) new funding model to re-structure and prioritize holistic wellness, (b) collaboration between sport organizations and retirement support organizations, and (c) further coach education about athlete retirement. **Conclusion:** This study provides new insights into a process that empowered sport members to collaborate and co-design practical prototypes targeted at increasing athletes' abilities to prepare for retirement.

### The impact of sport culture on mental health and performance: The perspectives of athletes who were selected and not selected to compete in the 2020 and 2022 Olympic and Paralympic Games

Natalie Durand-Bush<sup>1</sup>, Rachel Jewett<sup>2</sup>, Connor Primeau<sup>3</sup>, Krista Van Slingerland<sup>4</sup>

<sup>1</sup>University of Ottawa, Canada, <sup>2</sup>Metropolitan University, Canada, <sup>3</sup>MHK, University of Ottawa, Canada, <sup>4</sup> University of Ottawa, Canada

**Objectives:** There is growing awareness of the impact of high performance (HP) sport participation on athletes' mental health, mental performance, mental illness, and sport performance. Stressors such as injury, maltreatment, and performance expectations can, among other factors, influence these experiences (Reardon et al.,

2019). Less understood is the role of sport cultures (e.g., set of attitudes, beliefs, and behaviours in training and competition environments) on athlete well-being and performance. The purpose of the study was to explore Canadian HP athletes' lived experiences and perspectives regarding the interplay between their mental health, mental performance, mental illness symptoms, sport performance, and sport culture. Methods: Twenty-two athletes (M=28.8 years) who were training to compete at the Tokyo or Beijing Olympic and Paralympic Games in various sports (13 summer; 9 winter) participated in a semi-structured interview. Ten and twelve of these athletes were selected and not selected to attend the Games, respectively. Sixteen athletes identified as women and six as men, and two were para-athletes. The interviews were analyzed thematically and a composite narrative approach was used to present the findings. Results: The athletes' voices were captured in four composite narratives that exemplify various sport culture experiences perceived as supportive or non-supportive of well-being and performance: (a) "I felt valued and respected"; (b) "I felt misunderstood and hesitant to open up"; (c) "I felt supported and free to perform"; and (d) "I felt left in the dark". Each narrative represents athletes with different mental health, mental performance, and mental illness profiles during the Olympic/Paralympic quadrennium. Conclusion: The concept of mental health literacy as a core cultural value, the importance of mental health and athletic performance as inextricably linked priorities within sport environments, and the need for all stakeholders within a sport organization to cohesively establish the sport culture were key findings of this research.

**Designing an inclusive and accessible mental health literacy program for Canadian coaches: Lessons learned from cross-sectoral collaboration**

Jennifer Misurelli<sup>1</sup>, Natalie Durand-Bush<sup>1</sup>

<sup>1</sup>University of Ottawa, Canada

Objectives: The development and provision of holistic, evidence-based, and culturally-informed mental health literacy (MHL) programming for coaches has been deemed critical to improving the mental health outcomes of participants across the sport landscape (Bissett et al., 2020; Vella and Liddle, 2020). Importantly, the design of MHL interventions must be guided by cross-sectoral collaboration between knowledge experts and diverse community representatives, and implemented by qualified and trained personnel to enhance accessibility, inclusivity, and context-specificity (e.g., O'Connor et al., 2023). The purpose of this project was to revamp the Canadian Centre for Mental Health and Sport's (CCMHS) existing MHL program in collaboration with the Coaching Association of Canada, the Public Health Agency of Canada, and other community partners. Methods: A diverse multi-partner task force (N=20) participated in multiple group meetings over a 6-month period to review the CCMHS' three workshops to be able to offer a cutting edge MHL program for coaches that integrated anti-oppressive, trauma-informed, and culturally relevant language, activities, and examples applicable to different coaching levels and contexts in Canada. Results: The content, graphics, and language of the three MHL workshops were

updated to reflect the most recent literature (e.g., mental health) and coaching best practices (e.g., trauma-informed). The workshops were also adapted to be offered in synchronous and asynchronous formats and in English and French for widespread dissemination across Canada. A facilitator guide and workbook were developed to assist the 15 mental performance and mental health practitioners who were hired and trained to deliver the workshops. Conclusion: This presentation will shed light on the complexities inherent in developing a comprehensive, inclusive, and accessible MHL program tailored to a wide range of coaches. It will also reveal strengths and challenges encountered (e.g., program development, recruitment, timeline) and the input the task force provided throughout the collaborative investigative process.

**Tennis Canada aims to create system-wide changes by designing a sport-specific mental health strategy: What have we learned to help other national sport organizations?**

Mikaela Papich<sup>1</sup>, Natalie Durand-Bush<sup>1</sup>

<sup>1</sup>University of Ottawa, Canada

Objectives: The Mental Health Strategy for High Performance Sport in Canada (MH Strategy) was developed by multiple sport partners to guide sport leaders to improve the mental health outcomes of Canadian athletes, coaches, and staff (Durand-Bush & Van Slingerland, 2021). The Strategy includes five mental health priorities (1-leadership, 2-promotion, 3-prevention, 4-treatment; 5-evaluation) and must be adapted to meet the needs of each sport organization. The purpose of this project was to develop a long-term strategic plan to fulfill Tennis Canada's mental health objectives using the national MH Strategy as a framework. Methods: A Core Leadership Team (CLT) and 21 Task Force Members (TFM) contributed to the design phase of the project. The CLT and TFM engaged in group discussions at four different time points throughout a 9-month period to design the sport-specific strategy. A mental health needs and gaps assessment tool was used to identify which elements within the MH Strategy were most relevant to Tennis Canada, which were then consolidated into a strategic map. Results: Tennis Canada's strategy includes several objectives and actions across the five mental health priorities found in the national MH strategy. Required resources and potential barriers were also identified to increase chances of success during the implementation phase. In sum, Tennis Canada will strive to achieve 18 different objectives (e.g., increase mental health literacy) and perform 45 concrete actions over a 3-year period. Priorities 1 and 2 will be the focus of the first year while Priorities 3, 4, and 5 will be mainly targeted in the second and third year. Conclusion: Overall, this project demonstrated the feasibility of assisting a national sport organization to develop its own sport-specific strategy. The CLT and TFM played a key role in optimizing buy-in and alignment, and ensuring the needs of different sub-populations across the organization were considered.

**Discussion:**

**Lessons learned from this collective body of work**

Göran Kenttä

*The Swedish School of Sport and Health Sciences, Sweden*

The discussant will highlight both contributions and limitations emerging from the collective presentations and make recommendations for future research. Practical implications to inform meaningful multi-sector collaborations and the development of novel approaches to continue expanding knowledge and practices related to mental health within the context of high performance sports will be provided.

**Beyond the early versus late specialization debate: New research trends**

**Louise Kamuk Storm**<sup>1</sup>, Nicklas Stott Venzel<sup>1</sup>, Charlotte Downing<sup>2</sup>, Jannicke N. Pettersen<sup>3</sup>, Bryan Charbonnet<sup>4</sup>

<sup>1</sup>University of Southern Denmark, Odense, Denmark, <sup>2</sup>The Swedish School of Sport and Health Sciences, Stockholm, Sweden, <sup>3</sup>Inland Norway University of Applied Sciences, Elverum, Norway, <sup>4</sup>Institute of Sport Science, University of Bern, Bern, Switzerland

Symposium 05: Youth, Hall Igls, Juli 15, 2024, 13:30 - 14:30

**The youth sport specialization paradox**

Nicklas Stott Venzel<sup>1</sup>, Kristoffer Henriksen<sup>1</sup>, Louise Kamuk Storm<sup>1</sup>

<sup>1</sup>University of Southern Denmark

Research has repeatedly demonstrated that early specialization is not a precondition for future athletic success (Güllich et al., 2022), with evidence suggesting that it even jeopardizes the mental health and long-term development of the prospective athletes (Jayanthi et al., 2019). Despite this, we hear reports from sport specialists around the world of earlier specialization in youth sport. The objective of this study was to understand this paradox, by identifying and exploring contextual factors that shape youth sport specialization. Designed as a qualitative study, we interviewed 18 athletes aged 19-24 from three different sport about their specialization process combining a holistic whole-person approach (Wylleman et al., 2023, Storm et al., 2012) and a holistic ecological approach (Henriksen & Stambulova, 2023). Across the three different sports, we see a pattern where most Danish specialization pathways are multisport based in the early childhood and youth. The athletes describe how their decisions to specialize were shaped by their environment. In these environments, we identified that specialization pathways are influenced by different factors at micro and macro level. Especially the specific sports culture and structure influenced how the specialization pathways were shaped. Athlete development does not happen in a vacuum. All specialization pathways are unique and shaped by contextual factors at micro and macro level and from both a sporting and non-sporting domain. This study contributes to the existing literature in sport specialization, by giving a more contextualized understanding of mechanisms impacting youth sport specialization.

**Intensive but worth it? High-level athletes' reflections on their experiences of early specialization**

Charlotte Downing<sup>1</sup>, Karin Redelius<sup>1</sup>, Sanna Nordin-Bates<sup>1</sup>

<sup>1</sup>The Swedish School of Sport and Health Sciences

Researchers continue to debate the nature and value of early sport specialization. Previous research largely advises against early specialisation (e.g., LaPrade et al., 2016), yet such training continues to be common. Early specialization might be par-



ticularly prevalent in aesthetic sports such as gymnastics and figure skating, where intensive early training from a young age is said to be beneficial or even necessary for achieving high-level performance (e.g., Côté et al., 2009; Starkes et al., 1996). This study explores how high-level gymnasts and figure skaters talk about their experiences of early specialization. The study includes two key research questions; 1) how do aesthetic athletes reflect on the intensity of their early specialized training? and 2) to what extent do aesthetic athletes perceive early specialization as necessary for reaching a high level?

Ten Swedish high-level athletes (2 figure skaters, 3 artistic gymnasts, and 5 team gymnasts) aged 18-24 who self-identified as early specializers participated in semi-structured interviews. The interviews ranged from 65 to 87 minutes ( $M = 77.60$  minutes). The reflexive thematic analysis is currently underway. The preliminary results highlight that overall the athletes perceived their childhood training as intensive, but also varied to some extent. Interestingly, challenges associated with intensive training, such as balancing their training alongside school and social activities, did not typically arise until after the early specialization period (i.e., after age 13). This suggests that the athletes perhaps found school relatively easy up until this point. Another preliminary result indicates that early specialization is perceived as “worth it” regardless of whether the athletes felt such intensive training was necessary. Notably, the interviewed athletes invested a large amount of time to their training and have achieved a high-performance level. Therefore, we question to what extent the athletes able to critically reflect on whether early specialization was “worth it”.

#### **Coaches' View of Factors Involved in the Children-to-Youth Sport Transition in Norway.**

Jannicke Nikolaisen Pettersen<sup>1</sup>, Stiliani “Ani” Chroni<sup>1</sup>, Natalia Stambulova<sup>2</sup>

<sup>1</sup> *Inland Norway University of Applied Sciences, Elverum, Norway,* <sup>2</sup> *Halmstad University, Halmstad, Sweden*

The transition from children-to-youth sport (CYT) is under-researched worldwide. Around the time of this transition (about 12 years of age), some sports participants will decide to leave sports (Bakken, 2019), some will choose the recreational pathway, and others commit to their sport and enter sports specialization years (DiSanti & Erickson, 2019). Coaches play a key role in supporting athletes during transitions (Adams et al., 2015; Tamminen & Holt, 2012), rendering their understanding of what athletes are facing and are challenged by while transiting important knowledge that so far is uncharted. Informed by the holistic developmental perspective (Wylleman et al., 2020) and career transition one (Stambulova, 2003, 2023), the presentation will share what some of Norway's youth sport coaches perceived as impactful during their athletes' CYT and committing to their sport. We conducted semi-structured interviews with three handball and three cross-country ski coaches and analyzed the data using reflexive thematic analysis (Braun & Clarke, 2022). Through the coaches' eyes, the athletes were challenged by the increased load and onset of evaluation in both school and sport, changes in sports equipment, and peer relations. To cope with

the demands, the athletes took the time to structure their days with/without help from coaches/parents, searched for and found their place among peers, accepted their changing bodies, and committed to sport when their perceived competence was challenged. Key factors for commitment to sport were athletes' high perceived ability, growth mindset/mastery orientation, knowledge of how their body develops and impacts mastery, and support from their coach, family, and friends. Practical implications for youth sports coaches will be offered with regard to the role they can play in making the CYT an efficient one and increasing the chances for athletes to commit to their sport.

#### **Moving beyond dichotomies and one-size-fits-all solutions: Early specialization versus sampling? Neither... nor...!**

Bryan Charbonnet<sup>1</sup>, Achim Conzelmann<sup>1</sup>

<sup>1</sup>*Institute of Sport Science, University of Bern, Switzerland*

The debate surrounding optimal talent development in youth sports often juxtaposes early specialization with early sampling. To move beyond this dichotomy, we introduce a 2x2x3 framework considering two goals (performance and positive youth development), two dimensions (task-specificity and exercise mode), and three perspectives (nomothetic, group-specific, and idiographic). The aim of this contribution is to emphasize the group-specific perspective, categorizing groups based on sport, age, and cohort along both dimensions while considering the performance goal. Ninety-minute interviews were conducted with youth elite sport managers from 11 Swiss sports federations to determine sport- and age-specific positions along both dimensions. Cohort-specificity was examined in football, by comparing the training patterns of 87 national team female football players from three cohorts (C1: up to 2000, C2: 2001–2010, C3: 2011–2022) using ANOVA. Across all sports and age groups, no federation advocated for a high exercise mode with low task-specificity. While most cgs sports maintained lower levels of task-specificity and exercise mode for an extended period (random sampling), game sports and artistic composition sports required higher levels of both dimensions at earlier ages (task-related sampling, that is, ball-related and acrobatics-related sampling, followed by specialised sampling). Cohorts exhibited minor adjustments in sport-specific positions, indicating a trend toward increased specialization, alongside significant variations in training volume. There is no one-size-fits-all solution for optimal talent development in childhood. Instead, we recommend identifying nomothetic principles for initial guidance regarding task-specificity and exercise mode. These principles should then be customized to account for group-specific factors like sport, age, and cohort (considering societal changes, e.g., professionalization), and further fine-tuned based on individual traits at the idiographic level.



## Psychophysiological Studies of Performance under Pressure

Andrew Cooke<sup>1</sup>

<sup>1</sup>*Institute for the Psychology of Elite Performance (IPEP), Bangor University, Bangor, United Kingdom*

Symposium 06: Psychophysiology, Hall Strassburg Nord, Juli 15, 2024, 14:40 - 15:40

The ability to perform under pressure is key to sporting success. Pressure can stem from “any factor or combination of factors that increase the importance of performing well on a particular occasion” (Baumeister, 1984). Such factors could include, from a psychological perspective, the promise of rewards for success, or unpleasant consequences for failure. From a physical perspective, pressure-inducing factors could include the invasion of space from an attacking opponent, through to extreme physical fatigue. Psychophysiology concerns the scientific study of the reciprocal relations between mind and body. Characterized by an interdisciplinary and often multi-measure approach, psychophysiological experiments are well placed to tackle the important mechanistic questions at the core of performance science. In this symposium we are delighted to present a range of cutting-edge psychophysiological experiments that shed new light on the complex relationships between pressure and performance. The collection of studies showcase a range of psychophysiological measurements (e.g., brain, heart, eyes) and interrogate how the measures are impacted by psychological and physical pressures, and how they relate to behaviour. The first two presentations will investigate the interactive effects of personality on performance under pressure, exploring phasic heart rate reactivity to psychological pressure (presentation 1), and tonic cardiac reactivity plus eye-gaze behaviour (presentation 2) as the underlying mechanisms. The third presentation explores the effect of attacking versus defensive actions on eye-gaze behaviour in fencing to understand how visual attention relates to behaviour during varying physical pressure situations. The final presentation sheds novel light on the time-course of electrocortical changes during exhaustive physical exercise. This study will have important implications for all interested in the neural underpinnings of physical endurance and fatigue. This spectrum of talks and measures have been assembled to capture the essence of contemporary psychophysiology and pressure-performance research.

### The effects of Punishment and Reward Sensitivity upon Mentally Tough Behavior: A Psychophysiological Approach

Stuart Beattie<sup>1</sup>, Turki Alzahrani<sup>2</sup>, Andrew Cooke<sup>1</sup>

<sup>1</sup>*Institute for the Psychology of Elite Performance (IPEP), School of Sport Science and Psychology, Bangor University, United Kingdom* <sup>2</sup>*College of Education, Taif University, Saudi Arabia*

Objectives: The purpose of the current study was to examine underlying causes of why athletes who are sensitive to punishment and insensitive to reward (e.g., Gray &

McNaughton, 2000), are reported as being mentally tough under pressure by their coach (Beattie et al., 2017; Hardy et al., 2014). Although there are many underlying causes that could explain this finding, the current study focussed upon stress reactivity. We hypothesised that when reward sensitivity was low, increases in punishment sensitivity would be associated with decreased heart rate reactivity. Further, when reward sensitivity was high, increases in punishment sensitivity would be associated with increased heart rate reactivity.

Methods: 104 participants were recruited in pairs and were presented on arrival with £60. They attempted 30 golf putts each and were told that for each putt they missed, they would forfeit £1 from their combined pot. Afterward, in a stress condition, participants had to take one more putt each. If one of them made the putt, they would keep their money. If they both made the putt, they would double their money. If they both missed, they would lose all their money. Heart rate (and other variables) was continually monitored.

Results: When reward sensitivity was low, increasing punishment sensitivity was associated with less stress-induced disruption of the phasic deceleration profile. When reward sensitivity was high, increasing punishment sensitivity was associated with increased stress-induced disruption of the phasic deceleration profile.

Conclusion: Since phasic heart rate deceleration before golf putts is considered to partly reflect the extent to which individuals have prepared their motor response, with greater deceleration indicating better preparation (Cooke, 2013), our findings can be interpreted as supportive of the idea that the combination of sensitivity to punishment and insensitivity to reward with appropriate early threat warning prompts superior preparation for stressors.

### Examining the interactive effects of punishment and reward sensitivity upon attentional control and psychophysiological reactions to stress

Louisa Codd<sup>1</sup>, Stuart Beattie<sup>1</sup>, Andrew Cooke<sup>1</sup>

<sup>1</sup>*Institute for the Psychology of Elite Performance (IPEP), School of Sport Science and Psychology, Bangor University, United Kingdom*

Objectives: The purpose of this study was to examine the role of punishment and reward sensitivities on cognitive performance and psychophysiological responses to stress. Individuals who are sensitive to punishment and relatively insensitive to reward have been reported to show mentally tough behaviours under stress (Beattie et al., 2017). This could be due to such individuals making effective decisions under pressure (e.g., Hardy et al., 2014), or displaying superior attentional control strategies including increased focus on task-relevant stimuli, and reduced distraction from irrelevant stimuli (Gillie et al., 2015). Our study investigates this hypothesis.

Methods: Participants completed three bespoke attentional control tasks designed to load on shifting, inhibition, and updating executive functions. Each task involves coins with various monetary values rapidly appearing and then disappearing from a screen. Participants are tasked with clicking on the coins. In one condition they

earn money (reward) for every coin they click (gain/no gain) and in another they lose money (punishment) for every coin they fail to click (loss/non-loss). The tasks are performed in low stress (monetary values earned but not carried through to the next block) and high stress (monetary values contribute to earning real monetary rewards) conditions. Eye tracking and heart rate variability are monitored throughout.

Results: It is hypothesised that individuals high in punishment and low in reward sensitivities will display enhanced attentional control, indexed by inhibiting distraction from high value gain/no gain targets while diverting attention to avoiding the loss of high value loss/non-loss targets. These participants may also show a decreased cardiac reactivity during the high stress block. Data collection is in progress and will be complete by the time of the congress.

Conclusion: This study is designed to shed new light on the psychophysiological and attentional mechanisms underlying the interaction between personality and performance under stress.

### Exploring the Relationship Between Gaze Behaviour and Fencing Performance

Marika Berchicci<sup>1,2,3</sup>, Francesco Di Russo<sup>2</sup>, Luca Bovolon<sup>1</sup>, Andrea Nicolò<sup>2</sup>, Michele Girardi<sup>2</sup>, Massimo Sacchetti<sup>2</sup>, Maurizio Bertollo<sup>4</sup>.

<sup>1</sup> Department of Psychological, Humanistic and Territorial Sciences, University "G. d'Annunzio", Chieti-Pescara, Italy. <sup>2</sup> Department of Movement, Human and Health Sciences, University of Rome "Foro Italico", Rome, Italy. <sup>3</sup> Behavioral Imaging and Neural Dynamics Center, University "G. d'Annunzio", Chieti-Pescara, Italy. <sup>4</sup> Department of Medicine and Aging Sciences, University "G. d'Annunzio", Chieti-Pescara, Italy.

Objectives: Quiet Eye (QE), defined as the final fixation before initiating a motor behaviour, has been shown to be a significant factor in athletic performance (Vincze et al., 2022). Previous study has proposed that extended QE durations allow the athlete to acquire more relevant information and better calibrate their upcoming action. However, it remains unclear if QE influences performance in dynamic and interactive sports. Fencing is a complicated, dynamic, and interactive sport, and little has been done to understand the workings of gaze behaviour, including QE in this sport. In this study, we will investigate if longer QE is associated with better fencing performance. Furthermore, fencing actions can be broadly separated into two pressure conditions: low pressure (when the fencer is attacking) and high pressure (when the fencer is defending). Accordingly, we will investigate whether defensive actions are preceded by more fixations and scans of locations, given the increased need to sample the visual field in order to anticipate an opponent's attack.

Methods: Athletes performed a 10-minute fencing assault, where they had to score as many points as they can. Gaze behaviour was captured using Tobii Glasses 3 eye tracking system.

Results: Pilot data from fourteen fencers indicate the following: (1) the duration of QE was longer before successful touches compared to unsuccessful touches,  $t(13) = 2.80$ ,  $p = .008$ ,  $dz = 0.75$ ), (2) the number of fixations and (3) of the scanned locations was higher prior to high pressure actions compared to low pressure actions (all  $t(13)$

$= >2.39$ ,  $ps < .016$ ,  $dzs > 0.64$ ).

Conclusion: This research contributes to a greater understanding of the cognitive processes underlying realistic sports performance and has implications for athlete training and performance.

### Neural underpinnings of incremental cycling exercise to exhaustion

Andrada Vincze<sup>1</sup>, Iacob Felicia<sup>3</sup>, Răzvan Jurchiș<sup>2</sup>, Dragoș Iliescu<sup>3,4</sup>

<sup>1</sup>The Research Institute of the University of Bucharest, Romania <sup>2</sup>Cognitive Psychology Laboratory, Department of Psychology, Babeș-Bolyai University, Romania <sup>3</sup>Department of Psychology, University of Bucharest, Romania <sup>4</sup>Department of Industrial Psychology, Stellenbosch University, Stellenbosch, Western Cape, South Africa

Objectives: The present study investigates the effect of incremental cycling exercise to exhaustion on neural oscillations.

Methods: Twenty-seven healthy males (mean age:  $27 \pm 9.2$  years; BMI:  $23.2 \pm 1.6$ ; VO<sub>2</sub>max:  $3.47 \pm 0.3$ ) performed an incremental cycling test until subjective exhaustion. The test started at 50 W and the power output was increased every 4 min by 50 W. The final workout load depended on subjective capacity; the final four test stages for each participant were included in the analysis, leading to six measurement points in total (baseline, fourth last, third last, second last, last and recovery). During the exercise test, a continuous electroencephalographic (EEG) recording was performed together with monitoring of heart rate, respiratory frequency and VO<sub>2</sub>. The subjective perception of effort was collected after each test stage using the RPE scale.

EEG data were processed, and theta, alpha and beta frequency bands were extracted for each measurement point. The EEG channels were pooled into six regions of interest (ROIs), as follows: prefrontal, medial, and parietal-occipital, each of them for medial, left and right hemisphere. Based on previous findings, the theta band was considered at prefrontal ROIs, the alpha band over central ROIs, and beta band over central and parietal-occipital ROIs.

Results: Results showed different patterns of activity across frequency waves and ROIs during the exercise task: theta waves showed a right hemispheric dominance and a stage-related increase in power; the alpha band showed a steep power increase during the last two stages of task; the beta band showed the highest power in concomitance with the last stage, followed by a fast recovery.

Conclusion: Present data have potential for multiple applications in different fields, from exercise psychology to sports science and rehabilitation, and confirm the feasibility to investigate the athlete's brain in ecological settings using high-density EEG.

## Beyond the Game: Unraveling Interpersonal Violence in Sports

**Laurie Schwab**<sup>1,2</sup>

<sup>1</sup>Swiss Federal Institute Of Sport, Magglingen, Switzerland, <sup>2</sup>Institute of Sport Sciences of the University of Lausanne, Lausanne, Switzerland

Symposium 07: Other topics, Hall Brüssel, Juli 15, 2024, 14:40 - 15:40

### The Perceived Instrumental Effects of Violence in Sport (PIEVS) scale: Development (and application) of the German version

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<sup>1</sup>Swiss Federal Institute of Sport, Magglingen, Switzerland <sup>2</sup>Institute of Sport Sciences, University of Lausanne, Switzerland <sup>3</sup>Institute of Sport Sciences, University of Bern, Switzerland

Context. Findings from prevalence studies consistently show that the occurrence of interpersonal violence in sport contexts is a common phenomenon, which can pose risks to the mental and physical health, safety and integrity of athletes. The perceived instrumental effects of interpersonal violence (i.e., the belief that interpersonal violence motivates athletes and improves their performance) are a key factor in explaining violence in sport. The development and validation of a reliable German scale to assess these beliefs is essential to advance our understanding of this construct. Method. The development of the German version of the Perceived Instrumental Effects of Violence in Sport (PIEVS-G-14) scale is presented in three studies. Study 1 examines the translation and assessment of the scale structure, the development of a short version (PIEVS-G-6), and the construct validity and reliability of the full and short versions in a sample of youth sports coaches (n = 628). Providing further evidence of the construct validity and reliability of the scales, Study 2 (n = 444) and Study 3 (n = 423) focus on cross-validating the structure of the PIEVS-G-14 and PIEVS-G-6 in two independent samples of youth sports coaches. Results. The PIEVS-G-14 demonstrated robust measurement properties despite a reduction in the number of items compared to the original instrument. The PIEVS-G-6 also showed promising psychometric properties in assessing coaches' beliefs about the instrumental effects of violence, consistently outperforming the PIEVS-G-14 across all fit indices. The reliability and validity of both the PIEVS-G-14 and the PIEVS-G-6 were further supported by rigorous examination with two independent samples, providing strong evidence of their construct validity. Conclusion. The PIEVS-G-14 and PIEVS-G-6 are suitable for use in assessing beliefs about the instrumental effects of interpersonal violence in given German-speaking sports contexts. Initial perspectives for further use of the scale are proposed.

### Diversity of profiles among adolescent athletes reporting sexual violence in sport

Authors: Gillard, A.<sup>1,2,3,4</sup>, Labossière, S.<sup>1,7</sup>, Vaillancourt Morel, M.P.<sup>1,3,6</sup> Parent, S.<sup>1,2,3,4,5</sup>

<sup>1</sup>Research Chair in Security and Integrity in Sport, Université Laval, Québec, Canada <sup>2</sup>Department of Physical Education, Faculty of Education, Université Laval, Québec, Canada <sup>3</sup>Interdisciplinary Research Center on Intimate Relationship Problems and Sexual Abuse (CRIPCAS), Montréal, Canada <sup>4</sup>Équipe Violence Sexuelle et Santé (ÉVISSA), Université du Québec à Montréal, Montréal, Canada <sup>5</sup>International Research Network on Violence and Integrity in Sport (IRNOVIS), Antwerp, Belgium <sup>6</sup>Psychology Department, Université du Québec à Trois-Rivières, Canada <sup>7</sup>Faculty of Educational Sciences, Université Laval, Québec, Canada

Context. Victims of sexual violence (SV) are not a homogenous group. Their experiences can vary according to contextual factors such as its form, type of perpetrator, and frequency of acts. This study aims to explore the heterogeneity of SV experiences in sport using latent class analysis and to compare the victimization profiles based on personal and sport characteristics as well as on outcomes. Method. A sample of 1357 athletes aged 14 to 17 years old practicing an organized sport who reported SV in sport were included in the study (37,8% boys and 62,2% girls). Results. Four profiles of sexual victimization emerged from the results: (a) a low harassment from peers victimization profile (84.5%), (b) a low "poly-victimized" profile (6.9%), (c) a moderate "poly-victimized" profile (5,2%) and (d) a victimization from authority figure profile (3,5%). Results revealed that the participants in profile c reported lower sport level compared to all other profiles. Girls were also less likely to belong to profile c compared to profiles a and b. Participants in profile a and d were more likely to participate in a collective sport than participants in profile b. Participants in profile c had more problematic eating behaviors and attitudes compared to participants in profile a and d. Profiles do not differ in terms of depressive symptoms. Conclusion. Results confirm that victims of SV in sport are not a homogenous group. Different personal and sport characteristics are associated with the obtained profiles and these profiles are distinguished by the degree and severity of problematic eating behaviors and attitudes Results can be used to better target prevention and intervention strategies.

### Sports-specific characteristics as risk factors of interpersonal violence in German sports clubs

Authors: Greither, T.<sup>1</sup>, Mayer, S.<sup>1</sup>, Allroggen, M.<sup>1</sup>

<sup>1</sup>Department of Child and Adolescent Psychiatry/Psychotherapy, University Hospital Ulm

Objective. Interpersonal violence (IV) in sports is a fast-evolving topic of research, but it still lacks a thorough and robust database exploring the risk factors which are associated with its occurrence (Mountjoy et al., 2016). This study aims to differentiate sports-specific aspects such as time spent in training, level of competition, and early specialization, and their associations with five forms of IV (psychological violence, physical violence, non-contact sexual violence, contact sexual violence, and neglect). Additionally, differences in the prevalence of IV across types of sports (e.g., team and individual sports) are explored. Method. Current and former German sports club members over the age of 16 years (n=4367) took part in a cross-sectional online survey. The survey included questions about demographics (including sport-specific demographics), experiences of IV in sports clubs, and questions about the context of

these experiences. Results. More time spent in training, a higher level of sports, and early specialization in a single sport were all linked to experiences of IV in sports (e.g., level of sports and physical violence: international level 55%; recreational level: 18%). Prevalence was significantly different in team- and individual sports for psychological violence (team: 40%; individual: 37%) and physical violence (team: 26%; individual: 19%); but not for sexual violence with- and without-body contact, and neglect. Conclusion. Differences in IV victimization across different types of sport (e.g., team vs. individual sport) can be used to tailor prevention and intervention approaches on the level of sports teams, clubs, and federations. Sports-related risk factors such as more training hours, higher competitive levels, and early specialization in a single sport are associated with IV experiences. Therefore, relevant stakeholders such as sports organizations, coaches, parents, and support staff need to be educated about these factors to raise awareness and improve protection from all forms of IV in sports clubs.

### **Weight-related maltreatment in sport and its impact on eating behaviors among young athletes**

Authors: Franzoni, A.<sup>1</sup>, Antonietti, J.-P.<sup>1</sup>, Messerli-Bürky, N.<sup>1</sup>

<sup>1</sup> Family and Development research center (FADO), Institute of Psychology, University of Lausanne, Switzerland

Context. Athletes may experience various forms of maltreatment during their careers including weight-related maltreatment causing dysregulated eating behavior, but evidence on young athletes is still missing. This study aimed at investigating weight-related maltreatment and its impact on eating behaviors in young athletes. Method. A total of 725 adolescent athletes (aged 14-20 years) of various sports completed an online survey on weight-related maltreatment from coaches and peers and eating behaviors. Results. During their athletic careers, 63% had experienced at least one episode of weight-related maltreatment by either coaches or peers. No differences were found for sport gender categories (i.e., female and male). Significant differences were found for the frequency of weight-related maltreatment by coaches ( $\chi^2(4, N = 725) = 9.77, p=.044$ ) and peers ( $\chi^2(4, N = 725) = 10.2, p=.038$ ) across sport categories. Athletes in weight-dependent sports experienced more weight-related maltreatment than others. In addition, 37% reported using compensatory eating behaviors (i.e., compulsive exercise, self-induced vomiting, and laxative use). Analysis revealed that eating behavior was influenced by sport gender category, sport category, and weight-related maltreatment ( $R^2 = .228$ ). Indeed, highest scores in dysregulated eating behavior was found for athletes in female's sport category, for those in aesthetic sports and for those who had previously experienced at least one form of weight-related maltreatment during their athletic career. Conclusion. The study findings indicate that weight-related maltreatment from coaches and peers is prevalent even in young athletes and is one of the factors influencing dysregulated eating behaviors which may have a long-term impact on the athletes' health conditions.

### **Development and Initial Validation of the Individual Readiness to Change on Violence in Sport Scale**

Authors: Radziszewski, S.<sup>1,2,3,4</sup>, Parent, S.<sup>1,2,3,4,5</sup>, Gillard, A.<sup>1,2,3,4</sup>

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Context. Readiness to change has been related to successful prevention strategies for interpersonal violence (IV) outside of sport. In sport, a few qualitative studies have identified resistance in organizations as an obstacle in implementing IV prevention strategies. To our knowledge, no instrument was available to measure quantitatively individual readiness to change related to IV in sport. This communication will present the development and initial validation of the Individual Readiness to Change on Violence in Sport (IRCVS) scale. Method. The data was collected as part of a larger project on needs analysis of sport coaches regarding violence toward athletes in Québec, Canada. The IRCVS was developed based on conceptual models of readiness to change, with a focus on training as the IV prevention strategy specific to the study. A convenience sample of 690 sport coaches, 18 years or older, completed the IRCVS scale included in an online questionnaire. Most participants were male (66.7%), aged between 36 and 45 years old (33.0%), and coached at a provincial level (32.8%). Exploratory structural equation modeling (ESEM) was used to test model fit and identify the latent factors underlying the IRCVS. Results. The 4-factor ESEM solution had an excellent fit to the data ( $\chi^2(17) = 24.451, p = .108$ ; RMSEA = .025, 90% CI [.000 to .046]; CFI = 0.998; TLI = 0.99). The four factors identified were: recognizing the importance of the issue (2 items); recognizing the importance of taking action (3 items); receiving support from one's organization (2 items); and recognizing the importance of the proposed change (4 items). Conclusion. This initial validation shows that the IRCVS scale has the potential to increase our understanding of an important factor in supporting cultural changes toward IV in sport organizations. Future studies should seek to replicate these findings with other samples as well as adapt the items to diverse prevention strategies.



## The Ecology of Athlete Development

Kristoffer Henriksen<sup>1</sup>, Louise Kamuk Storm<sup>1</sup>

<sup>1</sup>University Of Southern Denmark, Svendborg, Denmark

Symposium 08: Developmental/lifespan perspectives,  
Hall Igls, Juli 15, 2024, 14:40 - 15:40

### Exploring Youth's Sport Environments Through Giving a Voice to the Young Athletes

Line Maj Sternberg, Louise Kamuk Storm, Kristoffer Henriksen

University of Southern Denmark, Denmark

Recently, athlete development was described as a journey through various sporting and non-sporting environments that support the athlete's pursuit of career excellence (Henriksen & Stambulova, 2023).

However, research with a holistic ecological approach (HEA) has mainly looked at a part of this long journey (the talent development years between the ages of 16 and 20). This calls for attention to the other environments that form part of an athlete's journey, including the youth sport environments. We conceptualize the youth sport environments as 12-16 years.

Based on a scoping review, an overview of existing knowledge and gaps for further exploration within the area of youth sport environments will be presented.

Additionally, I will delve into the distinctive methodological requirements essential for a case study focused on working with HEA and aspiration to investigate the youth sport environments. The aim of this study is to investigate what characterize good youth sport environments. The study is designed as a multiple case study, and I will therefore look into newer trends that give more room for and hear the voice of the adolescents. We will use a combination of methods that are developed and uniquely suitable for giving voice to the young people (e.g., social media).

### A Holistic Ecological Approach to Whole Person Development: A Case Study of a British Sport School

Reuben Poole, Camilla Knight

Swansea University, United Kingdom

Objective: An essential feature of successful Dual Career Development Environments (DCDEs) identified in Holistic Ecological Approach (HEA) research is a 'Whole Person Approach' (WPA) (Henriksen et al, 2010; Storm et al., 2021). A WPA typically acknowl-

edges that all domains influence an athlete's sporting and academic development (Storm et al., 2021). However, we would contend that other aspects of adolescent development should also be encompassed within a WPA. Specifically, we propose that DCDEs shift their focus from adopting WPAs to develop athletes for success in academic and/or sporting domains towards developing whole people for success in all domains. The purpose of the current study was to define Whole Person Development (WPD) and explore how a sport-school facilitates the WPD of late adolescents.

Methods: A holistic, single case study methodology was used (Yin, 2014). Data collection occurred over a 12-month period through observations, informal conversations, and semi-structured interviews with 64 sport-school environment members (37 males, 27 females). Data were analysed following guidance by Miles et al., (2019).

Results: Analysis of the data resulted in a definition of WPD as, "individual, ongoing and future oriented development of a person in all aspects." Four factors appeared to influence WPD: social interaction, social awareness, exposure to new experiences, and autonomy. The sport-school structure fostered social interaction and awareness through exposing adolescents to a range of settings, such as small class sizes and shared living. Staff's expertise and connections, along with varied extracurricular activities, enabled tailored learning experiences. Development of autonomy and accountability was promoted to some extent across the environment; however, scheduling and safeguarding constraints affected the extent to which this aspect of WPD was facilitated.

Conclusion: Despite some shortcomings, the sport-school environment provided a reasonable foundation for WPD, presenting late adolescents with varied challenges, opportunities, and situations to navigate within and beyond sport.

### Exploring Functional and Dysfunctional Environmental Features: A Case Study on a TDE in a German Olympic Sport

Luca-Lars Hauser, Oliver Höner, Svenja Wachsmuth

Eberhard Karls University Tübingen, Germany

Objectives: Previous studies predominantly investigated the effectiveness of successful talent development environments (TDEs) in terms of athletes' transition to senior sports. However, regarding the outcome level, there is an urge for a more holistic view that considers wellbeing and personal development alongside athletic development. In this regard, empirical studies have demonstrated beneficial as well as harmful features of TDEs impacting athletes' holistic development (Hauser et al., 2022). This case study therefore aims to (1) identify functional and dysfunctional environmental features experienced by different stakeholders within a TDE and (2) to examine their impact on the holistic development of elite youth athletes.

Methods: Data was collected via interviews with 13 stakeholders (e.g., athletes, coaches, support and managerial staff) and observations of a TDE of a German Olympic sport. The transcribed interviews and observational notes are analysed using an abductive content analysis (Hsieh & Shannon, 2005) based on holistic TDE frameworks

(i.e., Hauser et al., 2022; Henriksen & Stambulova, 2023).

Results: Preliminary results indicate that the TDE is characterized by several functional (e.g., competent staff) but also dysfunctional (e.g., limited financial and personnel resources) preconditions of the sport environment. Building upon positive internal relationships the TDE's organisational culture is based on core values increasingly recognizing the athletes' health and wellbeing. Yet, difficulties in the integration of efforts regarding dual careers place a wide array of demands on athletes and are a significant challenge in the pursuit of a more holistic talent development approach.

Conclusion: The present study illustrates a dynamic relationship between functional and dysfunctional features within an Olympic sport's TDE. Especially, the efforts of various stakeholders to implement targeted cultural change measures to develop a more functional environment were notable. However, it appears to be challenging for the talent development system to constantly adapt to new conditions despite limited resources.

### **The Nature Of Successful Elite Sport Environments**

Anusofia Schlawe, Kristoffer Henriksen

*University of Southern Denmark, Denmark*

The Holistic Ecological Approach (HEA; Henriksen, 2010) has been extensively used in research on athletic talent development (Henriksen and Stambulova, 2017). This research collectively highlights the significant influence of the environment on athletes' personal and athletic development (Hauser et al., 2022). However, the HEA has not yet been applied within an elite sport context, where the environment remains unexplored as a distinct construct with unique features that foster athletes' performance and flourishing.

To address this gap, this interview study employs the HEA to explore the perspectives of twelve elite sport experts on the features of successful elite sport environments. The participants, including coaches, sport psychologists, high-performance directors, and managers working in Danish elite sport, were asked to reflect on: 1) what characterizes a successful elite sport environment, and 2) how they work to build such environments.

The project is currently in the data analysis phase, and findings will be finalized by the time of the conference. However, preliminary analyses suggest that successful elite sport environments adopt a holistic approach to development, providing support for athletes to establish meaningful goals and relationships, and pursue a fulfilling athletic career. Initial results indicate that factors related to how environments are organized, managed, and led, along with organizational culture, play a key role in enabling success.

The presentation will discuss the applicability of the HEA in an elite sport context and the key features of the environment contributing to successful elite performance and athlete flourishing.

### **Ecology in Policy: Holistic Ecological Approach in the updated Swedish National Guidelines for Elite Athletes' Dual Careers**

Lukas Linnér & Natalia Stambulova

*Halmstad University, Sweden*

Athletes' dual careers (DC) can be understood as an individual process of using personal resources and strategies to cope with the challenges of being a student-athlete (e.g., Brown et al., 2015), summarized as viewing DCs from a holistic developmental approach (Wylleman, 2019). DCs can also be understood from a holistic ecological approach (HEA; Henriksen & Stambulova, 2023), considering athletes as embedded into a system of interrelated sport-, study- and private life relationships in a DC development environment (DCDE; Henriksen et al., 2020). In this presentation we will share how the HEA has supported an update of the Swedish national guidelines for elite athletes' DCs (Swedish Sports Confederation, 2018) to promote an ecologically informed system of DC support across Swedish sports universities. This updated policy document (2024) is informed by the HEA in several ways to help optimize environments for student-athletes and strengthen the cooperation between stakeholders involved. For example, the updated guidelines outline the organizational model for Swedish sports universities centered around optimizing DCDEs and their essential features (Storm et al., 2021). Here, the HEA helped to clarify a leading role of a DC support team with a DC-coordinator and DC support providers in sport and study domains, in charge of interorganizational collaboration (Mathorne, 2021), macro- and micro-level integration, holistic structure, and developing a shared DC philosophy across stakeholders (e.g., Linnér et al., 2020). The guidelines also emphasize the importance of career transition support based on transition environment frameworks (Henriksen et al., 2023) for example, in student-athletes' transition from national elite sport high schools to sports universities. Annual national DC education held by the Swedish Sports Confederation has supported the process of integrating an environment perspective in the DC support across Swedish sports universities.



## Sport, exercise and performance psychology: old challenges and new opportunities for the professional field

Anastasiya Khomutova<sup>1</sup>

<sup>1</sup>University Of Brighton, Eastbourne, United Kingdom

Symposium 09: Professional development and mentoring,  
Hall Strassburg Süd, Juli 15, 2024, 16:10 - 17:10

### Career pathways of European sport psychologists: Moving beyond formal academic training

Svenja Wachsmuth<sup>1</sup>, Zsanett Bondar<sup>2</sup>

<sup>1</sup>Institute of Sports Science, University of Tübingen, Germany <sup>2</sup>Elite Sport department, Swiss Federal Institute of Sport Magglingen, Switzerland

Building upon the existing literature covering the roles of sport psychology practitioners in performance sport (Sly et al., 2020), their professional philosophies and working models (Poczwadowski & Sherman, 2011), as well as distinct professional experiences (Quartiroli et al., 2021), the current study aims to explore career pathways of sport and exercise psychologists (SEP) across Europe focusing on shared developmental experiences beyond academic education. 20 narrative interviews were conducted with experienced ASPs across 10 European countries to inquire about educational experiences and professional development journeys along individuals' career pathways. Interviews were analyzed using a collaborative approach to reflexive thematic analysis (Braun & Clarke, 2022), a fifth researcher served as a critical friend and group moderator. A total of five themes was developed covering participants' learning and development experiences along their career pathway outside their formal academic education. With regards to building a career as an SEP, participants ascribed meaning to (1) gaining diverse (life) experiences in and outside of sport (e.g., athletic history, teaching and consulting), (2) opportunities to grow into the profession step by step, (3) the pursuit of diverse further education and development initiatives, (4) the necessity to wear different hats and have different jobs, as well as (5) the need to grow together as a profession. While formal requirements to become an SEP differ across Europe, participants seem to share several developmental experiences deemed crucial for their career in sport psychology. While some of these experiences may be explained by the nature of performance sport (e.g., athletic history; sport culture) and natural career progression (e.g., learning by doing), others point towards more general shortcomings in SEP' education and training (e.g., appropriate supervision, self-referential skills, basic clinical training) which should be considered in the curricula of inter/national professional bodies.

### Research-Practice-Bridge? Opportunities and challenges of a scientist-practitioner-model from the perspective of an early-career sport psychologist

Martin Leo Reinhard

*Institute of Sports Science, University of Tübingen, VfB Stuttgart, Germany*

In the field of sport and exercise psychology, a gap between research and practice has long been highlighted as one of the main challenges of the profession. The scientist-practitioner paradigm is thought as a valuable perspective to address this concern. This has already been discussed in the presidential address at the second and third annual conference of the association for the advancement of applied sport psychology (Smith, 1987; Weinberg, 1988) and has recently gained a new momentum though a position paper forwarded by the International Society of Sport Psychology (ISSP; Schinke et al., 2024). For early-career sport psychologists in central Europe employing the scientist-practitioner approach typically means combining the pursuit of both a doctoral thesis (i.e., research) and a certification for becoming a recognized applied practitioner (i.e., practice). Depending on one's priority this may translate into identifying as scientist-practitioner or practitioner-scientist (Harwood et al., 2013), however, either way following the call for practical research and evidence-based practice (Keegan et al., 2016). Guided by critical publications within the field and based upon personal reflection, supervision, and critical peer discussions about my own career path as a doctoral student and sport psychologist at a football youth academy, this presentation sets out to highlight opportunities and challenges of adopting a scientists-practitioner perspective as an early-career professional. Reflection will evolve around (a) formal education and training, (b) (scientifically) knowing vs. (practically) doing sport psychology, (c) resulting (self-)efficacy as a SEP professional, (d) performance evaluation within the two domains, and (e) organizational and logistical issues. The presentation will close by three calls for a continuous and high-quality research-practice bridge on an individual SEP practitioner, individual client, and institutional level.

### Beyond Sport and Exercise: A Philosophical Exploration of the Role of the Sport and Exercise Psychologist

Aura Goldman

UK/BEL

Private practitioner

Traditionally, sport and exercise psychology primarily addressed performance enhancement within its namesake domains, grounded in positivistic and cognitive-behavioural frameworks (Goldman et al., 2022; Turner et al., 2020). However, this paradigm faces limitations and is beginning to appear unsustainable. A purely performance-orientated stance does not reflect the changing zeitgeist of the new generation of sport and exercise psychologists (SEPs) who recognise the need for proficiency in working with mental health and well-being, as much as performance,

and who are changing the way they practise to account for this (i.e., humanistic and contextual professional philosophies are becoming more commonplace) (Sly et al., 2020). Moreover, the traditional model further entrenches us in an unavoidable problem: that there are too few opportunities in sport and exercise for too many practitioners.

As the field of sport and exercise psychology undergoes this period of change, expansion, and philosophical re-evaluation, it becomes ever more incumbent on SEPs to examine their professional philosophy in order to define their scope of practice. Successful examples of the application of SEP beyond sport and exercise contexts can be found, for example, in performance contexts that include the military, the performing arts, healthcare, business, and education (Barker et al., 2016), as well as with green exercise and ecotherapeutic approaches (Rogerson et al., 2020), and in somatic work with the body (Kimiecik & Newburg, 2023) – and this list continues to expand.

We are beginning to understand that SEPs can be effective in multiple contexts, both in, and beyond, sport and exercise environments. Given the dearth of employment opportunities for SEPs in traditional settings, embracing the expansion of the role of SEPs will help the next generation to find new and authentic employment opportunities, and establish the sustainability of the profession. But of course, this change necessitates us as a community to return to our philosophy, to genuinely ask of ourselves: who are we, what do we do, and why do we do it?

**Two supervisors’ perspectives on working with a new generation of sport psychology trainees: Challenges and opportunities.**

Anne-Marie Elbe, Nadja Walter

*Leipzig University*

The two year international English language Master’s Program in Sport and Exercise Psychology was established at Leipzig University, Germany in 2021 (Walter & Elbe, 2021). It offers a specialization in either sport psychology research or applied sport psychology (ASP) and is open to students with a bachelor degree in either sport science or psychology. Students wishing to establish a future career in ASP can e.g. very easily become certified through the German Association of Sport Psychologists (asp) after having completed their master’s studies in Leipzig. The master’s program was designed so that its content would meet asp’s certification requirements. This presentation will focus on two supervisors’ perspectives on working with a new generation of sport psychology students enrolled in this master’s program. The new generation is characterized by having experienced a large number of worldwide crises (e.g. climate, covid, wars), poorer mental health, a strong sense of ethics, very advanced digital skills but also a large desire for individualism, self-fulfilment, and autonomy (Hurrelmann & Albrecht, 2020). These student characteristics need to be considered when guiding them on their way to a career in ASP and present both a challenge as well as offer opportunities for supervisors. On the one hand, we recognize a large

interest in the importance of promoting mental health and resilience also through the use of digital tools and we notice that ethics is a topic that highly resonates with young trainees. On the other hand, the ASP profession calls for huge time and financial investments especially at the beginning of one’s career as well as group work and networking skills often not compatible with a strong desire for individualism and self-fulfilment. Our perspectives are further enriched by the international make-up of our students and the subsequent cultural differences we observe.

**Bridging Boundaries: Charting the Future of Sport Psychology Through Unity, Innovation, and Identity**

Ale Quartiroli

*University of Wisconsin - La Crosse*

The symposium on sport psychology’s future highlighted the profession’s evolution, stressing the need for a unified approach that combines research with practice. Central to this discussion was the scientist-practitioner model (Schinke et al., 2023), advocating for evidence-based practice and hands-on experience to tackle challenges for new professionals. This model supports the development of skills necessary for managing dual roles, enhancing self-efficacy, and overcoming institutional challenges, urging a reform in sport psychology education to be more inclusive and reflective of the field’s varied career trajectories.

A significant insight from the symposium was the call to extend sport psychology’s reach beyond traditional sports, promoting its application in wider performance contexts. This expansion not only opens new career paths but also encourages practitioners to revisit and refine their professional philosophies, contributing to the profession’s long-term viability. Furthermore, the importance of professional identity was emphasized (Quartiroli & Wagstaff, 2024), highlighting its role in legitimizing the profession to the public and enhancing practitioner effectiveness. This recognition underscores the need for professional bodies to incorporate these perspectives into training and education, tailoring professional development to the unique journey of sport psychology practitioners, distinct from other helping professions (Fogaça et al., 2023).

The symposium concluded that sport psychology is moving towards a more inclusive, diverse, and person-centered approach. This evolution requires a collective effort from practitioners, educators, and researchers to create a supportive environment that balances performance enhancement with mental health and well-being. As the field evolves and innovates, its significance and influence are set to grow, promising a strong and enduring future for the profession. After a brief wrap up of the content offered across presentations, the audience will be invited to share their considerations and questions with the speakers.

## Safeguarding I - Advancing understandings and prevention of interpersonal violence and abuse in sport

Melanie Lang<sup>1</sup>

<sup>1</sup>Edge Hill University, Ormskirk, United Kingdom

Symposium 10: Well-being and quality of life,  
Hall Brüssel, Juli 15, 2024, 16:10 - 17:10

### Prevalence of interpersonal violence towards children in sport: Results from a large sample of Quebec teenagers

Parent, S., Labossière<sup>1</sup>, S., Gillard, A.<sup>2</sup>, Radziszewski, S.<sup>2</sup>, Blais, M.<sup>3</sup>, Dion, J.<sup>4</sup>, Daignault, I.<sup>5</sup>, Goulet, C.<sup>2</sup>, Hébert, M.<sup>3</sup>, Vertommen, T.<sup>6</sup>

<sup>1</sup>Université de Sherbrooke, Canada; <sup>2</sup>Université Laval, Québec, Canada; <sup>3</sup>Université du Québec à Montréal, Québec, Canada; <sup>4</sup>Université du Québec à Chicoutimi, Québec, Canada; <sup>5</sup>Université de Québec, Québec, Canada; <sup>6</sup>Thomas More University of Applied Sciences, Belgium

**Objective:** Research documenting the prevalence of interpersonal violence (IV) in sport is rapidly growing. However, many studies suffer from limitations such as low sample size and lack of validated tools to measure IV. The objective of this study was to describe prevalence rates of IV toward children in sport in a large sample of Quebec teenagers.

**Methods:** Between November 2022 and May 2023, an online survey was conducted using the Violence Toward Athlete Questionnaire (VTAQ) (Parent et al., 2019). The sample (n = 9,120) consisted of teenagers aged 14 to 17 years old practicing various organized sports at the time of the study (53.7% girls, 45.7% boys, 0.6% gender-diverse).

**Results:** Results showed that 46.0% of athletes reported at least one experience of psychological violence, while 25.2% reported physical violence, 17.5% sexual violence, and 15.8% instrumental violence (from an authority figure). Boys (23.4%) were more likely to report having experienced physical violence from peers than girls (14.7%) and gender-diverse youth (20.3%), although the association was weak (Cramer's V = 0.11). Gender-diverse teenagers (38.4%) and girls (30.5%) were more likely than boys (22.4%) to report having experienced psychological violence by a person in authority (Cramer's V = 0.10).

**Conclusion:** This study shows that a significant number of youth practicing organized sports experience IV and prevalence rates of forms of IV vary among genders. These results can support policymakers in better targeting violence-prevention practices.

### The role of health professionals in the prevention of athlete harassment and abuse: A Belgian and an international study

Adriaens, K.<sup>1</sup>, Verhelle, H.<sup>1</sup>, Vertommen, T.<sup>1</sup>

<sup>1</sup>Thomas More University of Applied Sciences, Belgium

**Objective:** Studies indicate that not all athletes are free from harassment and abuse. Youth athletes in high-performance settings are particularly vulnerable to harassment and abuse by coaches, parents, officials, entourage members and peer athletes, significantly impacting their well-being. Often, bystanders do not notice or intervene when harassment and abuse occur. It is imperative to stimulate positive bystander behaviors in the athlete health and performance team (sports psychologists, physiotherapists, sports doctors, nutritionists, etc.) since they play a vital role in (early) detection and responding to signs of athlete harassment and abuse.

**Methods:** A Belgian study (n = 72 health professionals) and a global study (n = 406 sports medicine physicians) used an online questionnaire to assess current knowledge, attitudes, norms, and competence of professionals regarding the detection and response to signs of athlete harassment and abuse. Data were analyzed using descriptive statistics and chi-squares or t-test to test possible differences between groups.

**Results:** Half of Belgian health professionals encountered concerns related to athlete harassment and abuse in the past 12 months. One third of professionals indicated not knowing what the role of a safeguarding officer entails, had no knowledge of where to report or of the reporting standards. Most professionals were positive toward a mandatory reporting code. In the international study, sports medicine physicians acknowledged the importance of vigilance and reporting suspected cases yet expressed discomfort in doing so. When reporting, they faced several barriers and a lack of knowledge about reporting pathways. The majority felt undertrained in handling cases.

**Conclusion:** Both studies underscore the critical role of basic safeguarding training and guidance of the athlete (health) entourage in ensuring a safe sports environment and promoting athletes' well-being. Reporting barriers and pathways should be addressed to encourage professionals to report suspected cases and disclosures of harassment and abuse.

### Athletic identity affects prevalence and disclosure of emotional abuse in Finnish athletes

Muhonen, J.<sup>1</sup>, Stirling, A.<sup>2</sup>, Kokkonen, M.<sup>3</sup>, Toivonen, V.<sup>3</sup>

<sup>1</sup>University of Helsinki, Finland; <sup>2</sup>University of Toronto, Canada; <sup>3</sup>University of Jyväskylä, Finland

The present study offers novel insight into the topic of experienced and observed emotional abuse by researching factors that affect athletes' responses to emotional abuse by coaches. The research aimed to explore three main questions: (1) whether

athletic identity was associated with the prevalence of emotionally abusive coaching practices, and (2) disclosure of emotional abuse, and (3) whether demographic variations existed in the frequency of emotional abuse, athletic identity, and disclosure of the abuse. Study participants who filled in an anonymous digital survey consisted of athletes from elite to leisure levels living in Finland (N=3687, aged 12–80, gender 61% female, 37.7% male, 0.8% other genders). The research findings highlighted three key insights. Firstly, Pearson correlations revealed that a salient athletic identity was related to a higher prevalence of emotional abuse. Secondly, ANOVA/Kruskal-Wallis tests between-groups indicated that particularly children were susceptible to the abuse. Thirdly, a mediation analysis showed that self-identity (aspect of athletic identity) influenced the relationship between experienced emotional abuse and disclosure, by reducing disclosure. As a result, holistic identity development is recommended for athletes and particularly children in sports.

### **A Delphi study with coaches and athletes about their perceptions of 'grey zone' behaviors in psychological coach-athlete violence**

Laureys, F.<sup>1</sup>, Morbée, S.<sup>1</sup>, Adriaens, K.<sup>2</sup>, Vertommen, T.<sup>1,2</sup>, Haerens, L.<sup>1</sup>

<sup>1</sup> Ghent University, Belgium; <sup>2</sup> Thomas More University of Applied Sciences, Belgium

**Objective:** Recent research highlights that psychological violence is often accepted, normalized, legitimized, even encouraged when working with youth athletes. Consensus on what constitutes (un-)acceptable in sport is lacking, and the issue creates debate and polarization within the sports community. Therefore, the objective of this project was to take the first step in reaching a consensus and give voice to athletes and coaches.

**Methods:** Using an online questionnaire, athletes (min. age 14; n = 196) and coaches (n= 174) shared their perceptions on the acceptance and impact of (un-)acceptable psychological behaviors by scoring 15 newly developed coach-athlete scenarios. These covered toxic leadership, controlling coaching styles, and psychological violence. Participants gave their perceptions of severity and grade of violence of the coach behavior by scoring a 7-point Likert scale and scored the impact of this behavior on the athlete with a 5-point scale. Chi-squares were used to analyze these scores for each scenario.

**Results:** Overall, no difference in perceptions between coaches and athletes was found. However, large inter-variability between the scores was observed, i.e., 66% of participants perceived these situations as psychological violence, whereby 33% scored them as 'high', 42% as 'moderate', and 33% as 'low' psychological violence. Participants mostly agreed (86%) that, although not perceived as violent coach behavior, the behavior would have a negative impact on the mental well-being of athletes. In contrast, almost 13% said the scenarios could have a positive impact on performance.

**Conclusion:** There is still no consensus on unacceptable behaviors in sport, hindering the creation of effective prevention and intervention programs. With these scenari-

os, we can create awareness and educate coaches and athletes to reach the ultimate goal: encouraging and supporting a violence-free environment for sport participants in Flanders.

### **Development and evaluation of an e-learning platform supporting small sport organizations in creating a safeguarding concept**

Ohlert, J.<sup>1</sup>, Hoffmann, U.<sup>2</sup>, Maier, A.<sup>2</sup>, Fabry, C.<sup>1</sup>, Fegert, J. M.<sup>2</sup>

<sup>1</sup> German Sport University Cologne, Germany; <sup>2</sup> University of Ulm, Germany

**Objective:** Many small sport clubs and organizations, especially those that are led by volunteers, have not yet established a safeguarding concept. Thus, an e-learning platform targeting German voluntary organizations was developed and evaluated. The platform comprises an online course for volunteer coordinators (workload 15 hours) focusing on the development of a safeguarding concept, an online module for volunteers (4 hours) providing basic sensitization regarding interpersonal violence, and an information platform accessible to everyone offering materials and further information.

**Methods:** The online course for volunteer coordinators was evaluated using the Theory of Planned Behavior (TPB; Ajzen, 2002). Participants filled out questions regarding TPB factors at the start of the online course (T1), immediately after completing the course (T2), and six months after the course (T3). In total, 593 participants completed the survey at T1 and T2, while 81 individuals responded at T3.

**Results:** Results indicated a significant increase in intention and perceived behavioral control (PBC) between T1 and T2. Attitude did not change. Long-term changes over six months could not be found for the different factors: Subjective norm did not change from T1 to T3, and the increased values of intention and PBC at T2 dropped back to the level of T1 at T3.

**Conclusion:** Our results suggest a short-term effect on important variables regarding behavior change in favor of safeguarding. The reason for the fall back in intention might be that after six months measures had already been taken and it was not necessary to do more. Regarding planned behavior change, it is possible that after the course, people felt engaged but were afterwards confronted with restrictions of reality and thus lost the feeling of personal control. Possibilities to prevent this will be discussed.

## An external focus enhances performance: is it as black and white as we think?

**Vicky Gottwald**<sup>1</sup>, Robin Owen<sup>2</sup>, David Marchant<sup>3</sup>, Thomas Simpson<sup>3</sup>, Henrik Herrebrøden<sup>4</sup>, Kevin Becker<sup>5</sup>

<sup>1</sup>Bangor University, Bangor, Wales, United Kingdom, <sup>2</sup>Liverpool Hope University, Liverpool, England, United Kingdom, <sup>3</sup>Edge Hill University, Liverpool, England, United Kingdom, <sup>4</sup>Kristiania University College, Oslo, Norway, <sup>5</sup>University of Tennessee, Tennessee, United States of America

Symposium 11: Motor development,  
Hall Igls, Juli 16, 2024, 11:00 - 12:00

The proposed symposia will consist of an introduction talk to set the scene and present the applied context, followed by four further independent talks all related to the brief (i.e., an external focus enhances performance: is it as black and white as we think?). Symposia talks will be followed by a final summary and closing remarks before an opportunity for questions and discussion. An abstract for each of the four talks is provided below.

### An external focus enhances performance: is it as black and white as we think?

Vicky Gottwald

*Bangor University, Wales, United Kingdom*

Coaching instruction is one of the most effective methods of supporting athletes to learn, refine, and perform motor skills effectively. Whilst there is robust support for instructions that induce an external focus of attention, more recent research directions have begun to explore some of the outliers in the field. Suggested anomalies have included: situations where a salient external focus is absent or impractical, sports such as artistic gymnastics where proprioceptive information is important for task success and subsequently more congruent with an internal focus of attention, or situations where skill refinement or re-learning of a motor skill may be required. The purpose of the present symposium is to address some of the nuances and complexities of effective instruction, propose guidance for practitioners, and stimulate discussion for potential new directions within the focus of attention knowledge base.

### Words in Motion: Unpacking the Verbal Instructions in Attentional Focus research

David Marchant, Thomas Simpson,

*Edge Hill University, England, United Kingdom*

Verbal instructions play a pivotal role in shaping instructor-learner interactions, and the ability to follow instructions is critical for successful learning. For over twenty

years, research has attempted to unravel the impact of attentional focus direction, as emphasised through verbal instructions, on the learning and performance of motor skills. While research highlights the positive influence of instructions that direct attention externally towards movement outcomes, as opposed to an internal focus on movement mechanics, there is a notable gap in the critical examination of instructional approaches adopted within this field. This comprehensive review covers studies published between 1998 and 2023 that employed verbal instructions to focus attention prior to the execution or learning of movement skills. We recorded specific instructional wording from direct quotes and descriptions when the quotes were unavailable. Our objective was to scrutinise the methodological approaches, prevailing practices, and conceptual challenges evident in this research area. The findings revealed inconsistencies in the reporting of instructional approaches and content, with many studies failing to provide direct quotes for instructions. Descriptions, when available, are often brief or unrepresentative, omitting the critical grammatical content and temporal features essential for understanding the instructional process. Moreover, there was variance in adherence to the conceptual definitions evident in the instruction content. Instruction development processes and pre-instructional procedures are underreported, and considerations of instructional use, comprehension, and information recall are rarely incorporated into study designs. We encourage a critical perspective on the development, delivery and reporting of instructions used in attentional focusing instruction for motor skill learning and performance research field.

### Ecological uses of external and internal foci of attention: A qualitative investigation into OPTIMAL Theory of Motor Learning

Vicky Gottwald,

*Bangor University, Wales, United Kingdom and Dr Robin Owen, Liverpool Hope University, England, United Kingdom)*

Recently, research has begun to shift away from investigating attentional and psychological mechanisms in isolation when accounting for the focus of attention phenomenon. Numerous studies have demonstrated that autonomy, enhanced expectancies, and an external focus of attention can benefit motor learning and performance by enhancing the goal-action coupling. A prominent theoretical framework accounting for these effects is the OPTIMAL Theory of Motor Learning. However, no study to date has utilised inductive qualitative approaches to investigate athletes' natural tendency to utilise all these facets in their performance and learning environments. Recreational gymnasts and darts players took part in semi-structured interviews which evaluated their perceptions of autonomy, enhanced expectancies, and focus of attention facets when learning or performing their sport. Preliminary thematic analysis revealed that the use of OPTIMAL facets differed between sports. In line with OPTIMAL theory, autonomy and enhanced expectancies were perceived as beneficial by both gymnasts and darts players. However, contrary to OPTIMAL, gymnasts more so than darts players reported benefits to adopting an internal focus (e.g.,



on body positioning) over an external focus (e.g., environmental movement effects). This is explained by differing congruence between afferent information most pertinent for task success and focus of attention. Whereby proprioceptive information is prioritised for processing during a gymnastics (form-based) task and thus more congruent with an internal focus of attention. Conversely, visual information is likely prioritised for task success in darts (a far-aiming task) and subsequently more congruent with an external focus. The present results encourage re-evaluation of OPTIMAL Theory; additional flexibility may be needed, instead of OPTIMAL's staunch advocacy of an external focus of attention in all scenarios, to account for sporting situations where an internal focus of attention may be best for learning and/or performance. An Ecological Dynamical Account of Attentional Focus may offer such flexibility.

### **Internal and external focus in tandem?**

Henrik Herrebrøden

*Kristiania University College, Norway*

The attentional focus literature has clearly distinguished between internal and external focus in motor contexts. Scholars have provided equally clear recommendations for using external focus and warned against using internal cues. However, when examining the specific instructions used in different studies, attentional focus cues often have questionable ecological validity and/or suboptimal relevance to the task at hand. This presentation will provide examples of focus cues adopted by elite athletes. This will include qualitative data from a rowing ergometer experiment in which elite rowers (qualified for the Olympic Games) participated. The latter participants were given the freedom to generate their own focus cues which they verbally described before and after trials. Findings indicate that elite athletes frequently use internal focus cues, that the distinction between internal and external can be unclear, and that athletes may use a combination of internal and external cues. In sum, data from ecologically valid settings contradict current recommendations and conceptualizations in the literature. Skilled athletes seem willing to adopt focus cues that do not necessarily align with the scholarly literature's frameworks and recommendations, as long as the cues contain task-relevant information.

### **Presentation 5: Beyond the dichotomy: considering the role of a holistic focus of attention in optimizing motor performance**

Kevin Becker

*University of Tennessee, United States*

A robust body of literature has been assembled over the last 25 years suggesting that using an external focus of attention enhances motor performance and learning relative to an internal focus. While this evidence is widespread, athletes and coaches infrequently report using an external focus. Rather, they often report using internally

focused cues, as well as cues that do not cleanly fit in either of these established categories (e.g., "easy speed"). Cues that fall outside the traditional internal/external dichotomy are often categorized by researchers as "other", or "neither" cues, but it is rare that the potential performance enhancing benefits of these cues are explored. Based upon the content of some athlete self-reported cues, recent research has begun testing the efficacy of a holistic focus (i.e., focusing on the general feelings or sensations associated with completing a skill) relative to that of using an internal and external focus of attention. The purpose of this presentation will be to consider how holistic cues might fit into a broader model of effectively managing attentional focus. First, we will present self-reported data from skilled athletes and coaches describing their use of cues consistent with the definition of a holistic focus. Next, we will present an overview of the current literature experimentally testing the effects of a holistic focus relative to an internal and external focus. Finally, based on this evidence, we will suggest an expanded framework for how coaches and athletes might best identify individualized focus cues that are most likely to promote optimal performance.

Closing remarks and discussion (Dr Robin Owen, Liverpool Hope University, England, UK)



## Health and safeguarding in youth sport: implications for sport psychology

**Víctor J. Rubio**<sup>1</sup>, Gretchen Kerr<sup>2</sup>, Kat V. Adams<sup>3</sup>, Robert J. Booth<sup>4</sup>, Giulia Cosi<sup>5,6</sup>

<sup>1</sup>University Autonoma Madrid, Madrid, Spain, <sup>2</sup>University of Toronto, Toronto, ON, Canada, <sup>3</sup>Utah State University, Logan, UT, United States, <sup>4</sup>Loughborough University, Loughborough, Leicestershire, United Kingdom, <sup>5</sup>University "G. d'Annunzio" of Chieti-Pescara, Chieti, Italy, <sup>6</sup>Sapienza University of Rome, Rome, Italy

Symposium 12: Youth,  
Hall Aalborg, Juli 16, 2024, 11:00 - 12:00

### Controlling Coaching, Psychological Abuse, or Both?

Gretchen Kerr, Sophie Wensel, Candidate

*University of Toronto*

International cases of athlete maltreatment have raised concerns about the integrity of sport. Of all forms of maltreatment, psychological abuse is consistently shown as the most prevalent; it is often normalized in sport as a method of talent development and is associated with potential negative implications for mental health and well-being. The purpose of this presentation is to posit that psychologically abusive behaviours and controlling coaching practices are conceptually the same. This is important because quality research, interventions, and policy development require consistent conceptualization and operationalization. Further, if controlling coaching practices were labelled as abusive, there may be a greater likelihood of mitigating or preventing these practices. Psychologically abusive coaching behaviours include, as examples, degrading and humiliating comments, threats, body shaming, and control of athletes' personal choices (Stirling & Kerr, 2008). Similarly, controlling coaching behaviours, as identified in the Controlling Coach Behavior Scale (Bartholomew et al., 2010), include the use of controlling rewards, conditional regard, intimidation, and excessive personal control. Controlling behaviours may also be understood using the lens of coercive control. Across the intimate partner violence literature, coercive control refers to a repeated pattern of undermining the autonomy of another and includes acts of intimidation, threats, and humiliation; in several countries, coercive control is a criminal offence (Barlow & Walklate, 2022). The overlap in conceptualizations of controlling coaching and psychological abuse is also informed by parenting literature. Researchers have highlighted the similarities between harsh parenting styles and child maltreatment by demonstrating that all items pertaining to emotional behaviours such as scolding, yelling, screaming, threatening, insulting, humiliating, making fun of, and being sworn at, were included in instruments designed to assess child maltreatment and instruments designed to assess harsh parenting (Backhaus et al., 2023). Recommendations are made for preventing athlete maltreatment in sport by accepting controlling coaching practices as a form of psychological abuse.

### Athlete Perceptions of Abusive Coaching: It Depends – On What?

Kat V. Adams, Katie N. Alexander, Travis E. Dorsch

*Utah State University*

Athlete abuse and maltreatment has garnered increased attention in recent years as cases of abuse have reached the public's interest (Kavanagh et al., 2020). However, many coach behaviors that are identified as violent (Parent et al., 2019, Vertommen et al., 2016; Hartill et al., 2023) are highly normalized in high-performance sport and therefore seen by coaches and athletes as necessary to improve competitiveness and achieve goals (Parent & Fortier, 2018). The present study was designed to interrogate Stirling and Kerr's (2008) definition of emotional abuse by exploring whether college athletes identified coaching behaviors as acceptable or emotionally abusive. Twenty former college athletes (16 women, 17 NCAA, Mage = 26.0 years) across nine sports participated in semi-structured interviews ranging from 65 to 189 minutes (M = 105.8, SD = 58). Interpretive description (Thorne, 2016) was used to generate a coherent conceptual description of the themes and shared experiences that characterized the phenomenon of emotionally abusive coaching (Pynn et al., 2019; Thorne et al., 2004). This was accomplished using an inductive-deductive thematic analysis (Braun & Clarke, 2006), with collection and analysis occurring iteratively to comprehend the data, synthesize meanings, theorize relationships, and recontextualize the data into meaningful findings (Thorne et al., 2004). Results are organized into three categories –immediate appraisal of the coach's behavior, perception of coach motivation, emotional response – that provide insight into whether athletes labeled a coach as emotionally abusive or not. This study extends past research and theory (e.g., Alexander et al., 2023), and adds to the literature by highlighting how identification of emotional abuse is nuanced and dependent on several contextual (sport, institution), relational, and individual (gender, race, expectations, goals, disposition) factors. Results highlight the ways individualized coaching centered on athlete autonomy and effective communication between coaches and athletes foster safe training and competition environments.

### Playing fair beyond the whistle: the TAP model for navigating banter and bullying in male youth community football

Robert J. Booth, Ed Cope, Daniel J. A. Rhind

*Loughborough University, United Kingdom*

Objectives: Physical and psychological abuse among young people in football, such as bullying, has been disguised as banter (Newman et al., 2022), with research emphasising the need to view banter as a fluid concept rather than a fixed behaviour (Booth et al., 2023). The ongoing challenge is conceptualising and navigating banter and bullying well, recognising their interrelated yet distinct nature, and learning from overstepping from humour to abuse. This UK study explores the navigation of bullying and banter within male youth community football.

Methods: Utilising pragmatist grounded theory (Morgan, 2020) and qualitative methods, 12 months of overt observations and 33 semi-structured interviews (24 participants, 9 repeated) were conducted. The study recruited 15 male youth players (Mage = 21), 6 coaches (Mage = 34) and 3 safeguarding officers (Mage = 33) across 3 UK community football clubs.

Results: Participants revealed that banter and bullying are intersubjective concepts centred around navigating learned social relationship boundaries rather than distinct behaviours. Consequently, three actionable categories were founded on priorities within the TAP (Think, Act and Prevent) model of navigating banter and bullying. First, 'Educational responsiveness' addresses the internal navigation of humour, emphasising commitment to learning social boundaries and being perceptive to reactions. Second, 'Relational literacy' underscores external relationships, fostering interpersonal comfortability, consideration for ambiguity and power differentials. Third, 'Cultural sensitivity' highlights the wider social-cultural context, spotlighting social awareness of feelings and pressured norms, particularly masculinity, in football culture.

Conclusion: This study stresses the importance of understanding banter and bullying as concepts rather than set behaviours in football clubs and sport. Starting with coaches, a proactive, reflexive environment is needed to promote inclusive humour, foster enjoyment, and facilitate learning when social boundaries are crossed. The implications of these findings for educating football and sport communities to help establish a safe sport environment are discussed.

### **Child safeguarding and abuse in sport: the Safe Place Safe Play Project**

Cosi G.<sup>1</sup>, Fontanesi L.<sup>2</sup>, Marchetti D.<sup>2</sup>, Verrocchio M.C.<sup>2</sup>

<sup>1</sup>Sapienza University of Rome, Rome, Italy <sup>2</sup>University "G. d'Annunzio" of Chieti-Pescara, Chieti, Italy

Objective: Several International agencies (i.e. IOC, UNICEF, EU) agreed on defining non-accidental sport maltreatment as any form of physical, sexual, and psychological abuse, including neglect that can be perpetrated both by adults on young children and between peers. The "Safe Place Safe Play" (SPSP) project was developed to promote consciousness and increase knowledge among sports professionals and stakeholders about the negative effects of the abuses that can affect the psycho-physiological development of young athletes.

Methods: The project was scheduled in different steps with different targets and goals, directed to sport clubs in the Abruzzo region in Italy. In the first steps, a technical board was set up involving all the institutional figures of the region. Then, experts in forensic, sports, and clinical psychology held courses for educators, coaches, and sports managers aimed at increasing awareness and knowledge about the different forms of abuse in sports. Young athletes, moreover, were involved in laboratories targeting emotional skills and resilience. A project website and an app were created to share information, and project materials, and to share the mission of SPSP through

"formative pills": cartoons, quiz, and chats about the different forms of abuse.

Results: The technical board developed a Network agreement to protect minors in sport, a Policy and a Code of Ethics to advise parents, coaches and athletes on the best practices in the sport environment. 179 staff members, 120 young athletes, and 272 parents from 58 clubs benefited from the activities of the project. Moreover, a focal point was established to support the clubs in managing alleged cases of abuse.

Conclusions: The project increased awareness about dysfunctional coach-athlete dynamics, the recognition of abusive behaviors, and promoted the implementation of best practices to create safe environment for children in sports. Limitations, barriers for projects implementation, and future directions will be discussed.

### **DESIGNING AN EARLY DETECTION PROTOCOL TO DETECT BURDENS TO YOUNG PEOPLE SAFE AND HEALTHY DEVELOPMENT IN ORGANIZED SPORT**

Víctor J. Rubio, Roberto Ruiz-Barquín, Gema Martín, Teresa González-González.

*University Autonoma Madrid (Spain)*

Sport yields numerous positive effects that can last a lifetime when practiced safely and in a healthy manner, addressing the needs and rights of children and adolescent. Unfortunately, the protection of children is not always upheld. Maltreatment and abuse pose serious concerns with severe consequences (Kerr, Battaglia, & Stirling, 2019) but also do several emerging issues related to child protection in sport such as the increase in severe sports injuries among young people (Räisänen et al., 2018; Shaw & Finch, 2017), the rise of burnout or the incidence of mental health issues among young athletes (Aubert et al., 2018; Hoffmann et al., 2022), including eating disorders (Sundgot-Borgen, & Torstveit, 2004).

As stated by Vella and Swann (2020), sports clubs must have access to procedures and tools that can assist them in promoting a safe and healthy environment. This entails creating a sport environment that is free from harm and threats, and that nurtures the mental health and well-being of athletes and all those involved. These procedures and tools must enable the early detection of concerns that may impede the healthy development of participants.

The objective of the current study is to develop an instrument that captures a range of outcomes associated to the mentioned burdens. The instrument is designed as an easy to administer checklist that can be implemented in sport organizations as an epidemiological surveillance system to facilitate early detection of such burdens and provide the opportunity to introduce preventive measures.

## Single and Team Cognitive Processes and Performance Under Environmental Constrains

**Gershon Tenenbaum**<sup>1,2</sup>, Roy Bedard<sup>4</sup>, Hila Sharon-David<sup>5</sup>, Thomas Schack<sup>3</sup>, Shiau-Chuen Chiou<sup>3</sup>, Jonas Kämpfer<sup>3</sup>, Ludwig Vogel<sup>3</sup>

<sup>1</sup>Reichman University, Herzliya, Israel, <sup>2</sup>Ariel University, Ariel, Israel, <sup>3</sup>Bielefeld University, Bielefeld, Germany, <sup>4</sup>RRB Systems International, , United States, <sup>5</sup>Ono Academic College, Kiryat Ono, Israel

Symposium 13: Other topics,  
Hall Orangerie, Juli 16, 2024, 11:00 - 12:00

Covered areas: The symposium consists of four presentations which together present the notion of “information processing, decision-making, and performance” under conditions which vary in scope and nature. The first presentation centers on teamwork of law enforcement personnel encountering situations which unfold under sudden, tense, and rapidly changing conditions. Under such conditions, teamwork becomes imperative for the safety of the officers and those they police. The core components of effective teamwork include leadership, mutual performance monitoring, reliance on backup, adaptability, and team orientation. The second presentation centers on developing a method which generates a model of memory-dependent movement mental representations which mimics the model held in LTM. The methodology was used for developing a Mobile Adaptive Assistance System (MAAS) in the form of intelligent glasses that provide unobtrusive, anticipative, and intuitive mental support for athletes who compete under temporal and emotional stressful conditions. The third presentation introduces an information processing framework underlying observational learning and provides some examples illustrating how the design of modal demonstration (e.g., sequence length, maintenance delay, spatiotemporal organization) can affect visual perception and working memory for a whole-body movement. The final presentation shifts from the scope of the motor and security domains into the exercise domain. The presentation focuses on the pivotal role of exercise as a coping strategy, which offers individuals a constructive outlet to manage stress and adapt to changing life circumstances. The decision-making process surrounding the adoption and maintenance of regular exercise is discussed. Overall conclusion: Together, the symposium integrates knowledge and research findings from several independent domains which establish a psychological framework of perceptual-cognitive skills required for motor performance.

Intended audience: Academicians and practitioners.

Keywords: Cognition, stress/pressure, decision-making, performance.

## An Information Processing Framework Underlying Observational Learning

Shiau-Chuen Chiou<sup>1,2</sup>, Thomas Schack<sup>1,2</sup>

<sup>1</sup>Neurocognition and Action Research Group, Center for Cognitive Interaction Technology (CITEC), Bielefeld University, Germany <sup>2</sup>Faculty of Psychology and Sports Science, Bielefeld University, Germany

Theoretical Background, Aims and Objectives: Observational learning is one of the most common methods for acquiring and refining motor skills. From an information processing perspective, learning through observation implies that task-relevant information must be perceived through vision and temporarily retained in memory before it can be physically reproduced. However, it also suggests that the efficiency of learning is susceptible to the processing constraints in the visual perception and working memory systems. On one hand, an information gap exists between “what is perceived” and “what is presented,” especially when the richness and multi-dimensionality of human movements is considered. For example, it is likely that information that is selected for processing is not task-relevant or that task-relevant information is not easily perceivable. On the other hand, the task-relevant information, albeit perceived, restricts behavior (e.g., motor reproduction) when not successfully retained in memory. Results and Conclusions: In this presentation, we introduce an information processing framework underlying observational learning and provide some examples illustrating how the design of modal demonstration (e.g., sequence length, maintenance delay, spatiotemporal organization) can possibly influence visual perception and working memory for whole-body movements.

Audience: Academicians and practitioners.

Keywords: Visual perception, memory, Information processing, observational learning.

## The Survival Mindset: Team Tactics During Law Enforcement Engagements

Roy Bedard

RRB Systems International, United States

Aims and Objectives: Professional law enforcement personnel are occasionally faced with time/pressure constraints when managing critical incidents. Because police officers interact interdependently and adaptively to accomplish common goals, they must develop cognitive models and shared mental models to address situations that are often sudden, tense, and rapidly unfolding. Theoretical background: Relying upon interdisciplinary studies, the “Big Five” theory (Salas et al., 2005) is used to describe the coordinating mechanisms required for teamwork effectiveness in critical tactical operations. Teamwork becomes imperative for the safety of the officers and those they police. The core components of effective teamwork include leadership, mutual performance monitoring, reliance on backup, adaptability, and

team orientation. Underpinning these criteria is mutual trust among individual team members. Results: The presentation explores how law enforcement teams can better interact when answering calls for service, responding to crimes in progress, and making arrests while under pressure. Conclusions: We further discuss stress-related phenomena frequently reported by law enforcement officers in situ and contrast them with observations in more controlled situations such as sport.

### **Mental Representation in Motor Action: Perspectives for Mental Training and New Technologies**

Thomas Schack<sup>1,2</sup>, Jonas Kämpfer<sup>1,2</sup>, Ludwig Vogel<sup>1,2</sup>

<sup>1</sup>Neurocognition and Action Research Group, Center for Cognitive Interaction Technology (CITEC), Bielefeld University, Germany <sup>2</sup>Faculty of Psychology and Sports Science, Bielefeld University, Germany

**Aims and Objectives:** Mental representation and memory structures play a central role in the control and organization of motor learning and perception in sport. For improving performance in practice, it was our interest to measure such structures in memory and use the results for developing new tools in mental training and technology. **Method:** By using the expert-novice paradigm, differences in the mental representation structure in various sports, such as soccer, volleyball, tennis, climbing were produced. In a recent collaboration with the German swimming association, we investigated the structure of mental representations associated with several swimming styles, and in athletes of different caliber. We also studied how such information can be used for learning processes within the context of technical preparation. **Results:** The study resulted in developing new tools for mental training (Schack & Frank, 2020). Moreover, the results allowed visualization of the cognitive structure of motor and mental learning and provided a foundation for developing useful technologies in sport. **Conclusions:** A Mobile Adaptive Assistance System (MAAS) was developed in the form of intelligent glasses that provide unobtrusive, anticipative, and intuitive mental support for athletes. Knowledge about memory and motor learning enables the coach and the technical system (intelligent glasses) to address the current level of learning in athletes, and accordingly, to use valuable instructions to optimize the learning processes and maximize performance.

**Audience:** Academicians and practitioners.

**Keywords:** Mental representations, Information processing, motor performance

### **The Role of Exercise as a Coping Mechanism: Understanding Decision-Making and Multi-Level Interventions**

Hila David-Sharon

*Ono Academic College, Israel*

**Aims and Objectives:** Regular exercise is widely recommended for stress reduction (Koschel et al., 2017), yet many individuals, especially those facing challenging life circumstances such as medical or mental issues, or major changes, refrain from exercising as a coping mechanism (CDC, 2021). This gap hinders exercise adoption despite its known therapeutic benefits (Riebe et al., 2015). **Theoretical Background:** People's views and approach towards exercise play a crucial role in the decision-making process of exercise adoption. While an "all or nothing" approach towards physical exercise prevails, a more flexible approach considering the therapeutic advantages of exercise proves more effective in promoting regular exercise (Sharon-David et al., 2020). The Transtheoretical Model of Behavior Change (TTM; Prochaska & Velicer, 1997; Nigg & Riebe, 2002) is used to illustrate how to promote effective decision-making processes underlying exercise adoption especially among people with mental, emotional, or physical challenges. **Results:** The pivotal role of exercise as a coping strategy offers individuals a constructive outlet to manage stress and adapt to changing life circumstances. The decision-making process surrounding the adoption and maintenance of regular exercise are introduced. In addition, the presentation relies on recent research data (i.e., Sharon-David et al., 2020; 2023) emphasizing the role of multi-level factor intervention approach to support individuals' use of exercise as a stress reduction mechanism. Specifically, methods for using emotional support, personalization, flexibility, and perceptual-shift strategies to support individuals in coping with exercise barriers in times of stress, are discussed. **Conclusions:** Building on these concepts and real-world case studies, a new multi-factor model is introduced to enhance the use of exercise as a coping mechanism. Attendees will gain valuable insights and practical applied tools that can be integrated into their work with clients undergoing times of stress, while facilitating the adoption of exercise as an effective coping mechanism.

**Audience:** Academicians and practitioners.

**Keywords:** Exercise, coping strategies, decision-making

## A brief contact intervention for novice applied training: A pyramid of parallel processing for optimal performance in a pressure cooker

Julie Hayden<sup>1</sup>, Vicki Tomlinson<sup>2</sup>, Michael Gerson<sup>3</sup>, Michael Gonzalez<sup>4</sup>, Alexa Garratt<sup>5</sup>, Neftali Beltran<sup>6</sup>

<sup>1</sup>National University, Martinez, United States, <sup>2</sup>National University, Redondo Beach, United States, <sup>3</sup>National University, Alameda, United States, <sup>4</sup>National University, Rossmead, United States, <sup>5</sup>National University, Cambridge, United Kingdom, <sup>6</sup>Ability First, Pasadena, United States

Symposium 14: Professional development and mentoring,  
Hall Strassburg Nord, Juli 16, 2024, 13:30 - 14:30

Presenter one is Julie Hayden, MA, CMPC and is the Director of Applied Training and professor for National University's Sport and Performance Psychology graduate program submitting the abstract for symposium consideration: A brief contact intervention for novice applied training: A pyramid of parallel processing for optimal performance in a pressure cooker. Ms. Hayden is an alum of the former John F. Kennedy University's Master of Arts in Sport Psychology graduate program and has executed the symposium-specific applied training experience as an intern, an aspiring CMPC supervisor, a CMPC supervisor, as the Assistant Director of Applied Training, and most recently as the Director of Applied Training for a total of six iterations over eight years. This presenter will introduce the symposia and the presenters as well as provide insight into the complexities of this training environment as the most current supervisor of the past two applied training opportunities in Summer of 2023 and Winter of 2024. Ms. Hayden will discuss the recent stressors encountered and overcome as described in the abstract submission. Ms. Hayden has a passion for facilitating and supporting this intern developmental training space that is designed to provide real-world sport and performance psychology services in a manner that genuinely challenges interns to embrace and model the techniques that empower optimal performance and inspire authentic reflection and growth. Ms. Hayden has welcomed every opportunity to learn and grow with the interns and clients in each 2-week brief contact intervention and celebrates the uniqueness that each intern team brings to the space, empowering each individual to step into the best versions of themselves, safely, and with a desire to receive and implement feedback to continually provide more impactful and rich content, connection with clients, and sustainable skills for each client-specific population. Lastly, Ms. Hayden's more recent experiences has led to a profound understanding that relying on peer networks and mentors, specifically, these fellow presenters, to process parallel emotions, thoughts, and reactions to stressors as the leader of these spaces has proved invaluable, necessary, and conducive to a more positive and rewarding experience for everyone involved from the top to the base of the pyramid.

Presenter two is Dr. Vicki Tomlinson, PhD, CMPC and has been the Academic Program Director, Professor, and the Director of Applied Training for National University's Sport and Performance Psychology graduate program and has completed this applied training experience as a CMPC, for a total of six iterations over nine years. This presenter will discuss the pressures faced as a program director to deliver a world class training opportunity as well as the stressors faced as both the CMPC supervisor as well as the training director of the program. Dr. Tomlinson has empowered the entire supervision team to lean into peer mentorship, the adherence to the highest of ethical standards, and reflective practice as the most impactful methods of providing supervision in these stressful spaces with incredibly tight time constraints. Dr. Tomlinson's more recent experiences of supporting supervisors, specifically, the first and fourth presenters, while in these training environments has also led to a deep appreciation that providing these support pillars via peer networking and mentorship to process parallel emotions, thoughts, and reactions to stressors for the leader of these spaces proved to be a critical and valuable aspect of this training experience. This has allowed for continued program and university support and belief that our approach to graduate/novel training sets us apart to develop culturally humble, ethical, and compassionate practitioners.

Presenter three is Dr. Michael Gerson, PsyD, CMPC and has been a professor and CMPC supervisor for National University's Sport and Performance Psychology graduate program and has completed this applied training experience as a CMPC, for a total of four iterations over six years. This presenter will discuss the pressures faced as both the supervisor as well as a critical member of the program's core faculty, strongly influencing the philosophy and pedagogy of the program from a curriculum and applied training perspective. Dr. Gerson has empowered several intern teams to lean into peer mentorship, reflect on core values, and identify key objectives needed to deliver a high-quality brief contact intervention for underprivileged populations, youth sports teams, and sport coaches. This has led to some of the most supportive and culturally informed methods of providing supervision in these stressful spaces with incredibly tight time constraints. Dr. Gerson's more recent experiences supervising through the extremely challenging conditions of the COVID-19 pandemic that pushed interns and clients beyond their limits has illuminated an even greater need to truly meet interns and clients where they are to genuinely establish rapport, trust, and relationships that serve as a vehicle for sustainable and meaningful change-making for everyone involved.

Presenter four is Michael Gonzalez, MA, CMPC and has been a graduate teaching assistant for National University's Sport and Performance Psychology graduate program who is also an alum of the program and has completed this applied training experience as an intern, aspiring CMPC, and a recently credentialed CMPC supervisor for a total of three iterations over five years. This presenter will discuss the pressures faced as both an intern and a supervisor-in-training as well as the lead supervisor of an organization's program (Ability First: College-to-Career; a program that supports university students with developmental disabilities) which the graduate program is



privileged to provide services for in this specified applied training opportunity. Mr. Gonzalez will speak to the incredible stressors of managing dual relationships as well as the importance of adapting the programming to meet the developmental needs of these clients, ensuring the programming is relatable, digestible, and impactful. He will impart reflections on his experience transitioning from a student-intern to an alum, and currently as a novice supervisor seeking to continue providing CMPC supervision to graduate student-interns. Michael has empowered intern teams to lean into embracing feedback, peer mentorship, and has provided education, insight, and best practices for working with a differently abled population. Michael will undoubtedly speak to the pressures experienced in the middle of the parallel processing pyramid facing stressors from above and below.

Presenter five is Alexa Garratt, MA and has recently earned a Master of Arts degree from National University's Sport and Performance Psychology graduate program and has completed this applied training experience as an intern, and an aspiring CMPC, for a total of two iterations over two years. This presenter will discuss the pressures faced as both an intern and an aspiring CMPC in the process of applying for the credential, as well as ingratiating herself into the BASES community, now residing in the United Kingdom. Alexa will speak to the formidable stressors that this brief contact intervention invokes and will describe the inherent experiences of self-doubt, elation, anxiety, confidence, and sense of accomplishment once the applied training internships are completed. Alexa will disclose reflections on her experience transitioning from student-intern to an alum, and currently a novice practitioner seeking to make her mark in the field of sport and performance psychology. Alexa has inspired intern teams to lean into receiving and implementing feedback, peer mentorship, and has provided unparalleled support to fellow interns as well as the clients being served in these spaces. Alexa will undoubtedly speak to the pressures experienced in the middle of the parallel processing pyramid facing stressors from above and below.

Presenter six is Neftali Beltran and is completing an Associates of Arts degree at Pasadena City College who participates in Ability First's College-to-Career program and is a client participant who has completed two iterations of this specific two-week brief contact intervention in the past year. Neftali is a student aiming to enhance abilities to increase confidence, embrace and reframe challenges, better regulate and control thoughts, and emotions, and remain committed to his goals for academics, physical exercise, and life. Neftali has demonstrated a dedication, passion, and desire to utilize and embrace the content, learning, and development from these two brief-contact intervention weeks. He has conveyed the invaluable impact of these interactions with our graduate-level interns and CMPC supervisors on his ability to realize his potential. Neftali will discuss not only the impact of this training regarding his own academic and life endeavors but will also speak to the feedback he has received from his colleagues in the College-to-Career program at Ability First. Neftali displays an unwavering commitment to self-improvement and is also a leader within the program exemplifying a willingness to learn and commit to his goals

as well as empower his colleagues to achieve the best version of themselves, continuously advocating and inspiring fellow program participants to dream, strive, and reach their respective pinnacles within their own pyramids of pressure.



## Sport Psychology in the Real World – Appreciating the Complex

Jannis Friedrich<sup>1</sup>, Markus Raab<sup>1</sup>

<sup>1</sup>German Sport University Cologne, Cologne, Germany

Symposium (research) 15: Research methods (incl. qualitative & quantitative),  
Hall Grenoble, Juli 16, 2024, 13:30 - 14:30

### Evidence for planning ahead in climbing whole-body kinematics.

Antonella Maselli<sup>1</sup>, Lisa Musculus<sup>2</sup>, Markus Raab<sup>2</sup>, Giovanni Pezzulo<sup>1</sup>

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Before starting a climbing route, experts plan ahead the sequence of moves needed to successfully complete the route. The close interaction between motor and cognitive planning processes in climbing is an example of embodied planning (Gordon et al., 2021; Musculus et al., 2021). In this study we investigated signatures of planning in the kinematics of climbing during execution. We hypothesize that in experts the kinematics of a move is implicitly modulated by the subsequent action(s) in the prepared plan. We further hypothesize that such modulation is limited, if not absent, in non (expert) climbers. To test these hypotheses, we designed a climbing task consisting of pre-defined two initial foot moves and two subsequent hand moves: the specifics of the hand moves – which hand is going to move and where to – varied in a set of eight experimental conditions, designed to assess whether the kinematics executed in the initial part of the climbing route, common to all conditions, could tell the different route unfolding apart. As a first step of our analysis we performed a spatiotemporal principal component analysis (stPCA), a dimensionality reduction technique that allows to obtain extremely compact descriptions of the whole-body kinematics preserving its accuracy (Maselli et al., 2019). To quantify how planning ahead has effects on the climbing kinematics, the stPCA representations were used to train a set of linear discriminant classifiers, which could provide quantitative estimates of the extent and the way in which planning ahead for future moves affects the kinematics during the climbing execution. Results showed that most participants, independently on their expertise, prepare to some extent to the next-to-come move by adapting accordingly their kinematics. Experts however display such preparatory adjustments at earlier stages and with a higher degree of whole-body motor coordination. These results can inform embodied planning and general embodied-choice models.

## Peripheral Vision in Team Sports: From Theory to Practice

Christian Vater, Svitlana Pinchuk, Bozo Vukojevic

University of Bern

In dynamic and often time constrained decision-making situations, it is key to process the most important information at the right time to make the right decision. High-skilled athletes not only show distinct gaze strategies compared to their lower skilled counterparts, but are also superior in using their peripheral vision. Being able to split attention to multiple important visual locations can help to react faster and more accurately than switching gaze between those locations (Vater et al., 2020).

In this presentation, we will first explain three peripheral vision strategies which have been identified in sports (Vater et al., 2020) as well as in everyday life tasks like driving (Vater et al., 2022). We will then provide two examples on how these peripheral vision strategies can be tested in laboratory settings with representative tasks. The first study will include a basketball situation with defense scenarios presented with 360° videos, where player positions have been systematically varied and the participant's task is to react to an opponent that is cutting to the basket. In the second study we will present how football players use their peripheral vision in 3 vs. 3 counterattack situations. In this study we created virtual reality animations, where we manipulated the time pressure for participants acting as the central defender and investigate how they use peripheral vision to process teammates and opponents.

In the discussion we will relate the findings back to the peripheral vision strategies, explain why representative task environments and responses are important also in laboratory settings and how the findings can be used to develop peripheral vision trainings.

### Pupil dynamics as an implicit marker of action recognition in a naturalistic anticipatory task

David Mann<sup>1</sup>, Jasper Elfrink<sup>1</sup>, Daniel Müller<sup>1</sup>, Luke Wilkins<sup>2</sup>, Kazunobu Fukuhara<sup>3</sup>, Hiroki Nakamoto<sup>4</sup>

<sup>1</sup>Vrije Universiteit Amsterdam <sup>2</sup>La Trobe University <sup>3</sup>Tokyo Metropolitan University <sup>4</sup>National Institute of Fitness and Sports in Kanoya

The ability to anticipate the action outcomes of others is a well-known hallmark of expertise in time-stressed sport tasks (Abernethy & Russell, 1987; Savelsbergh et al., 2002). However, much of what we know about anticipatory skill comes from experimental paradigms requiring athletes to provide explicit verbal or pen-and-paper responses to actions. This requirement fails to replicate natural conditions and may under- or even misrepresent the true ability of skilled athletes (Mann et al., 2010). A more implicit or unconscious way of registering action recognition is desirable. Pupil dynamics holds promise given that action recognition will likely lead to cognitive arousal, which in turn can alter the pupil size. Therefore, the aim of this study was to test the degree to which changes in pupil dynamics would reflect the ability to

identify action outcomes in an anticipatory task. Novice tennis players attempted to anticipate the direction of groundstrokes played by avatars in a virtual-reality environment. Avatars were created using kinematic data of skilled players performing groundstrokes to the left and right. Principal component analysis was used to distinguish the kinematics of strokes to the right and left, and then to exaggerate the differences between the strokes to produce a (1) high-exaggeration condition where it was easy to anticipate the direction of the ground-strokes, and a (2) low-exaggeration condition where it was very difficult. Results revealed that participants were indeed much more successful in anticipating the action outcomes in the high-exaggeration condition. Crucially, distinct differences were seen in the pupil dynamics between the two conditions, with a larger peak pupil diameter and a larger pupil diameter at key moments in the high-exaggeration condition. These striking findings suggest that pupil dynamics hold promise as an implicit marker of the ability to anticipate the action outcomes of others.

### **Estimating Memory Bias in Human Decision Making: An Application to the Fourth Down Decision in American Football**

Sandholtz, Nathan

*Brigham Young University*

We introduce a novel methodology for inverse decision problems which we call “Memory Learning”. Given a data set of observed human decisions and their consequences (i.e., rewards), we consider the situation in which the decisions appear to be “sub-optimal” according to a statistical analysis of the data. Our method seeks to explain these discrepancies by learning a reweighting of observations, or ‘memories’, such that the statistical model trained on the reweighted observations yields the observed human behavior. We illustrate our method in context of the fourth down decision in American football.

In American football, coaches’ observed behavior on fourth down decisions is often inconsistent with the optimal strategy recommended by data analysts. Inverse optimization (IO) is a methodology which aims to provide a mathematical explanation for discrepancies such as this, by estimating an unknown cost function (or reward function) that represents how the decision-maker values different potential outcomes. However, the IO approach does not make sense in this case as there is no ambiguity about the value of the possible outcomes.

We approach this problem by assuming coaches’ beliefs about the likelihood of the possible outcomes in the fourth down decision differ from the empirical likelihoods given by historical data. Our goal is to estimate the coaches’ unknown beliefs about these likelihoods for various fourth down situations. To do this, we learn a reweighting of the observations in the historical data, or ‘memories’, such that the statistical model trained on the reweighted observations yields the coaches’ observed behavior.

Our findings suggest that coaches believe the likelihood of an unsuccessful attempt

to gain a first down is far greater than the corresponding empirical likelihood. Remarkably, our research also reveals that our approach outperforms traditional classification methods in predicting coach decisions.

### **Studying the Complexity and Stability of Athletes’ Psychological and Physiological States: A Recurrence Network Approach**

Niklas D. Neumann<sup>1</sup>, Jur J. Brauers<sup>2</sup>, Fred Hasselman<sup>3</sup>, Ruud J.R. Den Hartigh<sup>1</sup>

<sup>1</sup>University of Groningen <sup>2</sup>University of Groningen, University Medical Center Groningen <sup>3</sup>Radboud University

An increasing body of research suggests that athletes’ psychological and physiological states develop out of complex and dynamic processes (Den Hartigh et al., 2022; Hill & Den Hartigh, 2023). However, a notable gap exists in empirical studies and methodological tools tailored to capture such complex dynamics. The present study bridges this gap by drawing upon the analytical methodologies offered by the fields of mathematics, physics, and the behavioural and social sciences, specifically tapping into the rich toolbox of complex dynamical systems. Notably, we leverage a novel recurrence network analysis strategy renowned for its proficiency in detecting recurring (stable) states and transitions between states of multivariate time series (Hasselmann, 2022; Hasselmann & Bosman, 2020)“type”:“article-journal”,“volume”:“13”,“uris”:["http://www.mendeley.com/documents/?uuid=1cb3b7de-5b87-40c8-a0f7-842479557767"],{"id":“ITEM-2”,“itemData":{"DOI":“10.3389/fams.2020.00009”,“ISSN”:“22974687”,“abstract”:“We discuss formal, theoretical, and practical issues with the statistical analysis of multivariate time-series data that represent self-reports of human experience, often referred to as Ecological Momentary Assessment (EMA). We collected data from 23 professional youth football players affiliated with an Eredivisie club in the Netherlands for up to three consecutive seasons. For every training and match day, we utilized a tailor-made application and sensors to measure psychological and physiological factors (e.g., self-efficacy, heart rate). We computed multiplex (cumulative) recurrence networks for each athlete and created so-called phase profiles. Our findings show individual-specific networks of interacting psychological and physiological variables. For instance, whereas for one athlete the subsystems enjoyment and performance showed structural similarities and played a central role in the network, this was not the case for other athletes. Likewise, athletes transitioned through distinct phases with different levels of stability. This novel analysis strategy can have widespread implications. For instance, a deeper understanding can be gained of the type of state and its stability when performing optimally, or when an athlete loses resilience and is vulnerable to injuries. Such investigations can advance scientific insights into the complex dynamics of health and performance in the sports context. Accordingly, in practice, insights could be used in daily monitoring and decision-making.”}”

## Sustainably in the Profession of High-Performance Coaches – Utopia or within reach?

**Marte Bentzen**<sup>1</sup>, Mr Joshua Frost<sup>2</sup>, Karin Hägglund<sup>3</sup>, Gavin Breslin<sup>4</sup>, Kristen Dieffenbach<sup>5</sup>, Göran Kenttä<sup>3</sup>

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Symposium 16: Elite sports and expertise,  
Hall New Orleans, Juli 16, 2024, 13:30 - 14:30

### The Mental Health of Elite-Level Coaches: A Systematic Scoping Review

**Objectives:** Elite-level coaches are exposed to multiple performance, organisational and personal stressors which may contribute towards reduced mental health and wellbeing. This systematic scoping review examined the current body of evidence to explore what is known about the mental health of elite-level coaches (i.e. wellbeing and mental ill-health), the risk and protective factors that influence coach mental health, and the relationship between mental health and coaching effectiveness.

**Methods:** The review adhered to the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines. A systematic search was undertaken and updated in September 2022 using six electronic databases. A quality appraisal was also performed using the Mixed Methods Appraisal Tool (MMAT).

**Results:** 12,376 studies were identified and screened, with 42 studies satisfying the inclusion criteria. Despite the paucity of high-quality research, findings indicated that 41% of the included studies examined themes connected to wellbeing, with 76% assessing the nature or prevalence of mental ill-health in elite-level coaches. Among studies exploring mental ill-health, coach burnout was the primary focus (50%), while scant research examined symptoms associated with clinical disorders (e.g. anxiety and depression) (<25%). Overall, psychological outcomes for elite-level coaches were shaped by risk and protective factors operating at the individual, interpersonal, organisational and societal level. Preliminary evidence was also found to suggest that poor mental health may contribute towards reduced coaching effectiveness. It is proposed that coaching effectiveness could therefore be employed as a 'hook' to engage elite-level coaches in greater consideration of their mental health needs.

**Conclusion:** Alongside the development of methodologically robust research, there is a need to examine dynamic individual (e.g. psychological skills), interpersonal (e.g. strong social supports) and organisational (e.g. workload) factors that aim to preserve the mental health and optimise the efficacy of elite-level coaches.

### Current Knowledge about Recovery and Self-care among High-performance Coaches: A Systematic Scoping Review

**Objectives:** High-performance (HP) coaches have a demanding and stressful job that may compromise both their overall wellbeing, mental health and coach performance (Frost et al., 2023; Kenttä et al., 2023; Norris et al., 2017; Potts et al., 2023). Being able to recover and taking care of oneself can be crucial in order to have a sustainable career and a balanced life for this population. The purpose of this study is to provide a broad overview of the existing research conducted on recovery and self-care from a psycho-social perspective among HP sport coaches.

**Methods:** The present systematic scoping review follow the guidelines of the Preferred Reporting Items for Systematic reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR) (Tricco et al., 2018). The systematic searches were finished in January 2024 using the databases of PsycINFO, SPORTDiscus, Web of Science, Pubmed, and Google Scholar.

**Results:** 6256 studies were identified by the searches. The studies are currently being screened for eligibility of inclusion. The data from the included study will be systematically charted and analyzed, resulting in displaying knowledge regarding 1) the size and scope of the research: frequencies (e.g., year of publication, coach demographics, type of sport, competitive level, work experience, and gender) and 2) narratives regarding research perspectives, associated variables, outcomes and methodology.

**Conclusion:** From the synthesized knowledge regarding recovery and self-care among HP coaches, the discussion will be focusing on how the individual HP coach, and the organizations the coaches work in, can obtain a more sustainable work life. Questions pertaining if, and how, a greater focus on a "balanced life" can be realized within the HP context. Finally, this holistic perspective will critically discuss how to optimize everyday life with attention to enhanced coach performance, in a longitudinal perspective.

### Exploring Self-Compassion Among High-Performance Coaches

**Objectives:** Stress and burnout research illuminates the complex demands placed on high-performance coaches (HPCs) nevertheless, mental health and well-being targeting HPCs have received limited attention. Self-compassion research shows promising results for well-being and performance among athletes (Cormier et al., 2023). To our knowledge, no studies have explored HPC's perceptions of self-compassion and to what extent their context might influence these. Thus, in this study, we aimed to extend theoretical knowledge of self-compassion in elite sports by targeting how HPCs perceive self-compassion.

**Methods:** Using a critical realist stance, we purposefully sampled HPCs with rich contextual knowledge; inclusion criteria were a prolonged experience as an HPC (range in sample: 10–25 years) and serial winning success (i.e., winning multiple medals at Olympics/Paralympics/World/European championships). Nine HPCs (1 Female, 8 Male; age = 43–63) were invited to self-compassion psychoeducation and a week of practice followed by individual interviews. The participants worked with team (n = 3), individual (n = 5) able-bodied sports and individual parasport (n = 1). The number of

Olympic/Paralympic Games attended as coaches ranged between 1–7 (M = 4). Data were analysed using reflexive thematic analysis (Braun & Clarke, 2019) and we used polyphonic vignettes to represent the data.

Results: The polyphonic vignettes reflect three themes generated from the reflexive thematic analysis: (1) Learning to become a better friend to myself; (2) I have no fear of self-compassion: it fits to meet the challenges of the HPC-context; (3) You have to take the “armour” off.

Conclusion: The results illuminate how self-compassion has the potential to provide support –concerning well-being and performance – in the demanding life of an HPC and challenge a frequently reported barrier of self-compassion in sport, namely, fear of self-compassion. The themes, allied implications for practice, and future research directions will be critically discussed in the presentation.

### **Increasing Coaches Mental Health Awareness and Intentions to Offer Support to Athletes: The Mood Matters Pilot Programme**

Objectives: Traditionally coaches have been poorly supported to manage their mental health yet they can have a critical role in supporting athletes. This study applied the Theory of Planned Behaviour to determine the effect of a mental health awareness programme on sports coaches’ knowledge and intentions to offer support to athletes who experience mental health problems. The programme also aimed to enhance coach self-awareness of their own mental health and how their coaching role can be stressful and how best they can be supported.

Methods: Adult coaches (n=244) were recruited to attend the Mood Matters in Sport (MMS) mental health awareness programme or act as a control. A 2 (group) x 2 (time) quasi-experimental design was adopted. All participants completed the Mental Health Knowledge Schedule and Reported and Intended Behaviour Scale at the beginning and end of the programme. Twelve coaches took part in focus groups six weeks after receiving the MMS programme to discuss how mental health can impact their performance and what additional support is required to support them in their role.

Results: A mixed 2 x 2 mixed measures ANOVA showed a significant interaction effect wherein there were improvements in mental health knowledge and intentions to offer support compared to the control group. Coaches felt they would like to receive more information on mental disorders, have the MMS programme as part of a qualification, and have more examples of how coaches have previously dealt with mental health concerns.

Conclusion: The already established social networks available in sport clubs can provide a safe environment for delivering mental health awareness programmes to support coaches and athletes.

### **No coach is an island: The impact of high performance from a family perspective**

Objectives: High-performance coaching has been recognized as stressful and demanding with a multitude of potentially negative health, relationship, and performance impacting consequences for the professional (Bentzen, et al., 2020; Olusoga & Thelwell, 2016). While the impact of occupational stress relative to coach well-being and coach-athlete relationships have appeared in the literature, little is known about the broader family dynamic, particularly as experienced by children.

High-profile coverage, invasive social media, and cultural investment in wins and losses that have increased the pressures of modern coaching are also felt by extended family members (Bentzen et al., 2017). The high time away vs. time home demands of coaching, have been noted to increase the relationship and childcare load and thus stress on partners and spouses (Blount et al., 2024). Although not yet examined within sport, stress associated with parental work-related absenteeism has been noted in children of public figures (Maheshwari, 2008). Thus, understanding the perceptions of coaching work-life balance challenges experienced by those within the family unit may provide valuable insight for supporting healthier individuals and families.

Methods: In this IRB approved study, four young adults were interviewed about their experiences growing up with a parent employed as a high-performance coach. A semi-structured interview format was used to support the exploration of relevant experiences and the data was content analyzed to identify themes.

Results: Major emerging themes included positive perks, perfect image expectations, missing parent, and navigating personal identity.

Conclusion: As the field of sport psychology continues to expand its understanding of how the discipline can support positive and healthy experiences in sport, the recognition of the professional demands on and resource needs of the high-performance coach emerge as a critical place for positive intervention and education. Implications for sport psychology consultants working within high-performance systems and with high-performance coaches will be discussed.

Discussant: Lessons learned from the five presentations regarding sustainability in the profession of high-performance coaches – utopia or within reach?

The discussant will highlight findings and limitations emerging from the collective presentations and engage the audience in a discussion about sustainability in the profession for high-performance coaches. The discussion will have an emphasis on the applied implication for HP coaches, coach education and for HP sport organizations.

## The Shared Path to Success: Exploring Shared Leadership Across Sports, Cultures, and Academia

**Katrien Fransen**<sup>1</sup>

<sup>1</sup>KU Leuven, Leuven, Belgium

Symposium 17: Leadership,  
Hall Aalborg, Juli 16, 2024, 13:30 - 14:30

### Shared Athlete Leadership and Teamwork: Two Peas in a Pod?

Mason B. Sheppard & Todd M. Loughead

University of Windsor, Canada

**Objectives:** Shared athlete leadership is a dynamic, team-level phenomenon, in which teammates utilize mutual influence and share responsibilities in pursuit of achieving common goals (Loughead et al., 2021). Similar to the definition of shared athlete leadership, teamwork is viewed as a dynamic process involving a collaborative effort by team members to perform behaviours that are required that assists a team achieving its goals (McEwan & Beauchamp, 2014). Given these similarities in operational definitions, the purpose of this study was to examine the discriminant validity between a measure of shared athlete leadership behaviours and teamwork.

**Method:** A total of 578 athletes completed inventories to assess the constructs of shared athlete leadership (Shared Professional Leadership Inventory for Sport Teams, SPLIT-S; Sheppard et al., 2024), teamwork (Multidimensional Assessment of Teamwork in Sport, MATS; McEwan et al., 2018).

**Results:** In order to examine discriminant validity, three types of analyses were performed. First, intercorrelations between all items of the two inventories were below .70. Second, an Exploratory Factor Analysis was conducted with the results indicating minimal cross-loadings between items from the SPLIT-S and MATS inventories. Third, using the Average Variance Extracted method, we compared the AVE of each construct with the squared correlations of the other dimensions from the two inventories. The findings suggested that all 17 dimensions (4 from the SPLIT-S and 13 from the MATS) had more variance with its own indicators than the other dimensions.

**Conclusion:** Taken together, the results from these three analyses showed that these two inventories are assessing specific and non-overlapping dimensions. As such, the shared athlete leadership and the teamwork inventories are capturing different constructs and can be viewed as representing distinct concepts rather than being highly correlated to one another.

### A Qualitative Exploration of How Shared Athlete Leadership Influences Teamwork

Eesha J. Shah<sup>1</sup>, Rachel Arnold<sup>1</sup>, Lee Moore<sup>1</sup>, Desmond McEwan<sup>2</sup>

<sup>1</sup>Department for Health, University of Bath, United Kingdom; <sup>2</sup>School of Kinesiology, University of British Columbia, Canada

**Objectives:** No prior research has investigated how shared athlete leadership influences teamwork, though the former is a theorised antecedent of the latter (McEwan & Beauchamp, 2014). Thus, in this study, we explored (a) how shared athlete leadership facilitates teamwork, and (b) how task, motivational, social, and external leaders, specifically, facilitate teamwork.

**Methods:** We conducted seven focus groups with three teams (N =24, MAge =19.9 ±4.5 years; secondary school female lacrosse team [3]; university male football team [1]; club male field hockey team [3]) to address our first objective. We then used social network analyses to identify task, motivational, social, and external leaders from these teams (Fransen et al., 2015). Four leaders (2 males; MAge =22.0 ±6.0 years) then took part in semi-structured interviews to achieve our second objective. Deductive framework analysis was used to analyse all qualitative data.

**Results:** With regards to our first objective, participants believed that teamwork was mainly facilitated by influential team members frequently performing some teamwork behaviours (e.g., psychological support) and encouraging their teammates to follow suit. Regarding our second objective, participants desired task and motivational leaders to perform teamwork behaviours that prioritised and enhanced social cohesion and psychological safety first, typically the purview of social leaders, before then focusing on regulating team performance. External leaders were not viewed as relevant to teamwork.

**Conclusion:** Our findings advance how leadership across the team, and those from task, motivational, and social leaders, manifest teamwork behaviours that maintain a team's interpersonal ecosystem and regulate its performance. We propose broadening the role of external leaders to include player advocacy to facilitate teamwork. Our findings imply that not all teamwork behaviours are equally important to overall teamwork; leaders may determine what is key.

### An exploration of the leadership experiences of professional female rugby players

Stewart T. Cotterill<sup>1</sup>, Richard Cheetham<sup>2</sup>

<sup>1</sup>AECU University College, <sup>2</sup>University of Winchester

**Objectives:** There has been an increasing number of research studies in recent years exploring athlete leadership different domains and contexts. However, while this has led to a significant expansion of knowledge and understanding relating to athlete leadership much of this research has been with male populations, with recommendations applied and generalized across both male and female sports. To date, there has been limited exploration of athlete leadership and leadership development



within women's sport, and specifically in elite and professional women's sport. As a result, this presentation focuses on a recent study that aimed to better understand the nature of leadership roles, needs and experiences within women's professional rugby union. Specifically seeking to understand the relationship between the captain, the coach, and the team.

Methods: Participants were eight professional women's rugby captains who were interviewed to understand their experiences. The data were analyzed using Interpretative Phenomenological analysis (IPA).

Results: Ten super-ordinate themes emerged: factors influencing success, challenges, amateur level, characteristics of a leader, role models, aspects of the role, types of leader, leading by example, election, the women's game. There were several interesting perspectives emerging from this research. Including understanding the differences between male and female rugby, and how the sports are treated differently, and the potential impact upon successful leadership. In addition, participants in this study chose to adopt a shared rather than a hierarchical leadership structure within the team even though a formal leader was appointed for the team.

Conclusion: An important conclusion to be drawn from this study is the need for more research focused specifically on understanding athlete leadership in female sport.

#### **Are Leadership Structures Shaped by Power Distance? A Cross-Cultural Analysis Using Social Network Analysis.**

Radhika Butalia<sup>1</sup>, Filip Boen<sup>1</sup>, S. Alexander Haslam<sup>2</sup>, Niklas K. Steffens<sup>2</sup>, Stef Van Puyenbroeck<sup>1</sup>, Nasrin Biglari<sup>4</sup>, Mark W. Bruner<sup>5</sup>, Aashritta Chaudhary<sup>6</sup>, Paweł Chmura<sup>7</sup>, Pete Coffee<sup>3</sup>, Alyson J. Crozier<sup>8</sup>, Emma S. George<sup>9</sup>, Swanaya Gurjar<sup>10</sup>, Chris Hartley<sup>11</sup>, Maciej Huzarski<sup>12</sup>, Francisco M. Leo<sup>13</sup>, Miguel A. López-Gajardo<sup>13</sup>, Todd M. Loughhead<sup>14</sup>, Moe Machida-Kosuga<sup>15</sup>, Colin D. McLaren<sup>16</sup>, Seyed Reza Hosseini Nia<sup>4</sup>, Matthew J. Slater<sup>17</sup>, Katrien Fransen<sup>1</sup>

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Objectives: Over the past three decades, the focus of research on leadership has shifted from hierarchical to shared leadership. This transition has been driven by the

recognition that shared leadership can yield a range of motivational, cognitive, affective, and behavioural benefits for teams. While the advantages of shared leadership are well documented, less is known about the factors that shape its emergence and thus its very presence. To advance this line of inquiry, the current study investigated whether cultures, and in particular differences in power distance (i.e., the perceived degree of inequality among people), shape the structure of (shared) leadership within teams across task, motivational, social, and external leadership roles.

Methods: We conducted a cross-sectional study and collected data from 178 football teams (N = 3,037) in 9 countries that were then categorised as being either high or low in power distance.

Results: Leadership structures are similarly shared across both high- and low-power distance cultures. Moreover, the leadership quality of the team and the coach is perceived to be higher in high power distance cultures. However, the leadership quality of the three best leaders within the team is comparable cross-culturally. In general, these results hold for task, motivational, social, and external leadership roles.

Conclusion: In effect, power distance shapes shared leadership structures across the four leadership roles. More specifically, cultures with high-power distance present higher-quality shared leadership structures. These findings suggest that leadership is a relational process that is enacted collectively and informally by team-members cross-culturally.

#### **Transferring insights on leadership from the sports arena to academia: Identifying key leadership roles of formal and peer leaders in universities**

Katrien Fransen, Charlotte M. Edelmann, Melissa Vanbeselaere, Debora Vansteenwegen, Norbert Vanbeselaere, Filip Boen

*KU Leuven, Belgium*

Objectives: Traditional research on leadership has predominantly emphasized the significance of the formal leader. However, recent insights from sports teams suggest that a shared leadership structure, incorporating peer leaders, offers notable benefits for team effectiveness and individual well-being. The current research aims to bridge the gap between a recently developed view on leadership in sports and its application in academic settings by identifying the specific leadership roles of formal and peer leaders that contribute to positive outcomes in academic environments.

Methods: Using a mixed-methods approach, this research comprises three distinct study phases. First, in qualitative interviews 36 university employees identified 52 and 40 leadership behaviours for formal and peer leaders, respectively. Second, in focus group discussions with HR professionals, these leadership behaviours were further categorized into 16 and 14 leadership roles. Third, a quantitative analysis involving 918 university employees assessed how the provided leadership quality on these different roles related to various outcomes (e.g., team effectiveness, job satisfaction).

Results: The observed diversity in the identified leadership roles, coupled with the emergence of novel context-specific roles, underscores that the academic setting



requires a customised leadership approach. By identifying not just the formal, but also the peer leadership roles we have laid the groundwork for establishing a shared leadership structure within academia. Here, the results endorse the generalisability of our classification for broader use in a university setting across different types of teams (i.e., board teams, research teams, and teams of administrative or technical staff). Importantly, as peer leaders showed to be equally, if not more important than formal leaders for obtaining diverse outcomes, this research suggests a re-evaluation of leadership dynamics in academia and encourages the adoption of a shared leadership model.

Conclusion: These findings might serve as a catalyst for initiating discussions about the diverse forms of effective leadership in universities, thereby inspiring academic leaders and team members how to demonstrate leadership in practice and maximally harness the leadership potential in their teams.

## Eating disorders in sport: Opening coaches' eyes

**Saša Cecić Erpič<sup>1</sup>**, Janja Usenik<sup>2</sup>, Renata Barič<sup>3</sup>

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Symposium 18: Coaching,  
Hall Strassburg Nord, Juli 16, 2024, 14:40 - 15:40

### Eating disorders in sport and the role of the coach: Project outline

Saša Cecić Erpič

University of Ljubljana, Slovenia

Athletes' mental health (MH) to become one of a key priority for the International Olympic Committee (IOC) (Reardon et al., 2019). The awareness of MH issues in athletes contributed to the need of better recognition of different signs and symptoms, as well as to the idea of development of specific procedures and services to support athletes in managing their MH issues (Moesch et al., 2018). One of the prominent MH disorder diagnoses that occurs in the athletic population is eating disorders (ED; e.g., Mancine et al., 2020; Reardon et al., 2019). The estimated prevalence of ED and/or disordered eating among athletes in range from 1% to 19% in males and 6% to 45% in females (Mancine et al., 2020) and is significantly higher than in non-athletes. Coaches play an integral role in an athlete's sporting life, and they are uniquely responsible to react when an athlete is suspected of having problems associated with ED or MH in general.

The project "Eating Disorders in Sport: Opening coaches' eyes; EDS-OCE) aims to gain insight into coaches' ability to recognize the symptoms of ED in their sport and to act in a way that protects and prioritizes athletes' MH over sport outcomes. Coaches from sports with a higher risk of developing ED (gymnastics, ski jumping and rock climbing, N = 40) from Slovenia and Croatia will participate in the qualitative study, which will focus on identifying their attitudes, beliefs, behaviors and common practices that influence their actions towards the ED problem of their athletes. The main objective of the project is to develop an interactive workshop focusing on the development of coaches' ED literacy and first aid competencies. The aim, methodology and intermediate results of the ongoing EDS-OCE project will be presented.

Keywords: eating disorders in sport, coach, coach education, mental health

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### Exploring Coaches' Perceptions of Eating Disorders in Sport: A Qualitative Analysis

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<sup>1</sup>University of Maribor, Slovenia <sup>2</sup>University of Ljubljana, Slovenia

**Objectives.** Eating disorders like anorexia nervosa and bulimia nervosa can significantly impact the health and athletic performance of individuals. The estimated prevalence of eating disorders and/or disordered eating among athletes is considerably higher than in non-athletes (Bratland-Sanda & Sundgot-Borgen, 2013; Joy et al., 2016). Coaches play an integral role in an athlete's sporting life, and they are uniquely responsible for reacting when an athlete is suspected of having problems associated with disordered eating or mental health in general (Plateau et al., 2014). This study aims to investigate coaches' perceptions of eating disorders in the context of sports, shedding light on their awareness, understanding, and strategies in dealing with athletes who may be at risk. **Methods.** A qualitative research design was employed, utilising semi-structured interviews with 20 experienced coaches coming from alpine skiing and sports climbing. Participants were asked open-ended questions related to their awareness and knowledge of eating disorders, experiences in identifying such issues within their athletes, as well as their attitudes and the strategies employed to support their athletes. **Thematic analysis** was applied to identify common patterns and unique perspectives in coaches' responses. **Results.** The findings of this study revealed a spectrum of awareness among coaches regarding eating disorders in sports, ranging from limited recognition to a comprehensive understanding. Challenges in identifying and approaching athletes with eating disorders are evident, reflecting the complexity of the issue within the competitive sports environment. **Discussion.** The results of this study emphasize the need for targeted coach education programs to enhance awareness and equip them with effective strategies for supporting athletes at risk of eating disorders. By addressing coaches' perceptions, behaviours, and knowledge gaps, it is possible to create a more supportive and informed environment for athletes, ultimately promoting their well-being and performance in sports.

**Keywords:** mental health, athletes, disordered eating, semi-structured interviews, thematic analysis

Bratland-Sanda, S., & Sundgot-Borgen, J. (2013). Eating disorders in athletes: Overview of prevalence, risk factors and recommendations for prevention and treatment. *European Journal of Sport Science*, 13(5), 499–508. <https://doi.org/10.1080/17461391.2012.740504>

Joy, E., Kussman, A., & Nattiv, A. (2016). 2016 update on eating disorders in athletes: A comprehensive narrative review with a focus on clinical assessment and management. *British journal of sports medicine*, 50(3), 154–162. <https://doi.org/10.1136/bjsports-2015-095735>

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### Eating disorder as a change-event and the role of a coach: A case study of young ballet dancer

Saša Cecić Erpič

University of Ljubljana, Slovenia

**Objectives.** In their athletic career, athletes go through challenging career transitions and life events some of which can significantly impact their lives. Stambulova et al. (2021) define career transitions as decisive points in the course of career development, characterized by demands that the athlete must cope with, resulting in successful or unsuccessful outcomes and relevant changes in the trajectory of the individual's career. The aim of this presentation is to investigate whether eating disorder (ED) can be perceived as a change-event, which is defined as an event that disrupts the athlete's current situation, generates emotional imbalance, and requires the athlete to respond with a psychological and/or behavioral change (Samuel et al., 2023).

**Method.** A case study of the process of adaptation to ED in a 25-year-old female former ballet dancer. Using an unstructured interview, the Empirical Meta-model of Adaptation in Sport (EMAS; Cecić Erpič & Usenik, in press) was used to examine how an acute event (i.e., ED) becomes a change event. The role that her teachers (i.e., coaches) played in the process of adapting to the consequences of ED will be analyzed.

**Results.** The narratives revealed the nuanced and dynamic nature of adaptation, highlighting the short-, medium-, and long-term periods of adaptation, and emphasizing the multifaceted nature of adaptation.

**Conclusion.** This case study is consistent with the dynamic and evolving nature of athletes' experiences, acknowledging that adaptation is not a linear process, but rather a multifaceted, ongoing adjustment to multiple demands and challenges.

**Keywords:** eating disorder, career transitions, model of adaptation, change-event, case study, ballet dancer

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A case study of a severe injury as a career-change event. Submitted to *Journal of Sport Psychology in Action*, Special issue: Working with Sport Clients in Transitions.

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### Exercise addiction and eating disorders – do men have it too?

Renata Barić, Sebastijan Sočić, Vedran Jakobek

*University of Zagreb, Faculty of Kinesiology*

**Objective.** The strong stigma of eating disorders (ED) in men and the preconception they are only present in specific subpopulations (e.g., gay man), make this topic a taboo, delaying men in recognizing symptoms and seeking help, especially in the sports world. ED in athletes often occurs in comorbidity with exercise addiction and distorted body image (Specter & Wiss, 2014); particularly in fitness exercisers who highly value physical appearance. This study aims to examine the prevalence of ED and exercise addiction in 100 Croatian recreational male fitness exercisers (M = 32.4 yrs.) and to examine the predictive validity of exercise addiction and body image dissatisfaction for ED symptoms.

**Methods.** FRS (Stunkard et al., 1983), EAT 26 (Ambrosi-Randić & Pokrajac-Bulian, 2005;  $\alpha = .78$ ), and EAI (Terry et al., 2004;  $\alpha = .84$ ) were applied. Descriptive statistics, Pearson correlations, and hierarchical regression analysis were calculated.

**Results.** Exercise addiction ( $\beta = .38, p < .01$ ) and body image dissatisfaction ( $\beta = .35, p < .01$ ) explained 25% of the variance in ED symptoms ( $F = 16.14, p < .01$ ). Additionally, 4 recreational exercisers meet the criteria for developed ED, and 5 of them show disordered eating patterns, being in high risk to develop ED. 11 exercisers show serious addictive behaviors and 19 are in high risk to develop exercise addiction.

**Conclusion.** Despite conventional findings about the positive effects of exercising, results of this study show the other side, sending warnings about endangered mental health in exercisers and the need for better prevention (in the forms of education and early identification of maladaptive psychological states). Due to real or apparent pressure to show toughness and masculinity, male athletes often deny their mental health issues, suffering in silence without support, which is one of the crucial factors for recovery.

**Keywords:** eating disorders, stigma, male athletes, recreational sport

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Terry, A., Szabo, A., & Griffiths, M. (2004). The exercise addiction inventory: A new brief screening tool. *Addiction Research & Theory*, 12(5), 489-499. <https://doi.org/10.1080/16066350310001637363>

### From A to B to C – stress and performing under pressure

**Paul Mansell**<sup>1</sup>, Katie Sparks<sup>1</sup>, Andrew Wilkinson<sup>1</sup>, Nanaki Chadha<sup>2</sup>, Liliana Fontes<sup>3</sup>

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Symposium 19: Cognition,  
Hall Grenoble, Juli 16, 2024, 14:40 - 15:40

#### “Altering stress mindset to enhance the wellbeing of young athletes”

Paul Mansell

**Brief introduction:** We were interested in the malleability of trait beliefs, and whether this could enhance young athletes' psychological well-being and performance. Our recent study aimed to investigate whether “Mindset: Performing Under Pressure”, a multimodal cognitive-behavioural intervention, would be efficacious in altering stress-related outcomes.

**Problem statement:** Young athletes experience stress daily and coping adaptively with these stressful situations is an important determinant of their well-being and performance. Rather than seeking to change the often-unavoidable stressful situations, it is possible to change the way in which young athletes think about the situations.

**Theoretical framework:** Evidence continues to support the use of REBT as a framework to enhance the performance and well-being of athletes (Nejati et al., 2022; Wood et al., 2018). One reason for this may be the flexibility of REBT-informed interventions (Turner, 2022). A core element of such interventions is education about the role of beliefs in influencing thoughts, emotions and behaviors, and helping individuals recognize that they are able to exert a sense of control over this process (Kara et al., 2023). Also demonstrating the possibility of altering trait beliefs, studies have also shown that an individual's stress mindset can be changed via education about stress (Crum et al., 2013). Consequently, education about stress coupled with promoting an ABC thinking approach posited within the REBT framework was utilised as a strategy to enhance athletes' stress mindset, psychological well-being, and performance.

**Brief description of methodology:** Split on a near-equal amount into an experimental and control condition, ninety-four footballers and swimmers (Mage = 17.49 years, SD = 3.53) completed measures in stress mindset, perceived performance, irrational beliefs, anxiety and negative affect at baseline and post-intervention. The intervention employed a combination of education and reappraisal delivered in 6 x 1-hour group workshops.

**Summary and implications of the result:** Results demonstrate that the intervention was successful at enhancing stress mindset and reducing negative affect in the experimental condition, compared to those in the control condition. There were no significant changes in performance, irrational beliefs, or anxiety. Findings offer sup-

port for targeting stress mindset to enhance young athletes' well-being. To reduce irrational beliefs, a more specific approach to the individual may be required.

**“The combination of irrational beliefs and cognitive appraisals in influencing the affective states of athletes”**

Nanaki J. Chadha

Brief introduction, problem statement, and theoretical framework: For individuals taking part in sport, the anticipation time prior to stressful situations such as a sporting competition (Neil et al., 2011) can be an extremely stressful experience and result in a gamut of emotions (Nicholls et al., 2012). Therefore, it is essential for researchers to try to understand how affective states are generated among athletes in the lead up to competition, and whether and to what extent these affective states impact upon performance.

Researchers have intimated that irrational beliefs might play an important role in the relationship between cognitive appraisals and affective states, but the precise mechanisms that explains how irrational beliefs lead to emotional and behavioural dysfunction has not yet been fully elucidated.

Our work is underpinned by cognitive appraisal theory (CAT; Lazarus, 1999; Lazarus & Folkman, 1984). Briefly, CAT comprises primary appraisals which are concerned with the extent to which the encounter is (a) relevant to one's well-being (motivational relevance), and (b) congruent with one's goals (motivational congruence). CAT also comprises secondary appraisals which concerns one's resources and coping resources (Smith & Lazarus, 1993). The primary and secondary appraisals combine to form different core-relational themes that shape emotion.

Brief description of methodology: Chadha et al. (2019) adopted a cross-sectional design to examine how athletes approach two different competitive situations; an imagined imminent competition (phase 1), and an actual future competition (phase 2). The more notable limitation of Chadha et al. (2019) was that the study adopted an atemporal cross-sectional design. This shortcoming is pertinent because cognitions and affective states change in the lead up to important events (e.g., Skinner & Brewer, 2002), and cognitive appraisals are considered to be dynamic (Blascovich & Mendes, 2000). Therefore, more recent research (Chadha et al., 2023) examined the tendency for cognitions and affective states to change in the lead up to an important event.

Summary and implications: In conclusion, the research indicates that irrational beliefs interact with cognitive appraisals and challenge and threat to determine affective states within athletes. Therefore, practitioners should consider the nature of cognitions and affective states in the lead up to competition, and intervene and implement strategies at specific time-points to enable athletes to approach pressured situations adaptively.

**“The role of physiological markers of challenge and threat states in athletic performance”**

Andrew Wilkinson

Brief introduction, problem statement, and theoretical framework: The Theory of Challenge and Threat States in Athletes (TCTSA) suggests that the way in which athletes appraise a competitive situation will determine whether they experience facilitative (challenge) or detrimental (threat) psychological and physiological responses (Jones et al., 2009). Challenge and threat states have been found to predict competitive performance outcomes in an array of settings (Behnke & Kaczmarek, 2018), yet the mechanisms in which these states specifically impact performance require further explication. In a revision of this theory, it has been contended that despite a plethora of evidence supporting the main tenets of the TCTSA, the performance pathways of challenge and threat states remain under researched, particularly the impact of these states upon the decision-making performance of athletes (Meijen et al., 2020). To better understand how decision making is implicated via these states would further conceptualise our understanding of the effects of stress upon sports performance.

Methodology: In this study, 23 elite cricketers performed a novel batting task under low- and high-pressure conditions. Each participant received 18-deliveries per condition (3-overs) with the delivery, game scenario, and field settings, manipulated to promote a particular shot. The order of conditions was randomised so that half of the participants performed the low-pressure condition first, whereas the other half performed the high-pressure condition first. Psychophysiological stress responses were collected prior to performance to determine challenge and threat states.

Summary and Implications: The vascular rather than cardiac markers of challenge states predicted superior decision-making performance under conditions of high-pressure compared to low-pressure, with the cardiac rather than vascular markers of challenge and threat related to anxiety responses. This suggests that challenge and threat states influence the decision making of athletes under pressure, but that there may also be different mechanisms in which these states effect performance. Although not directly assessed, it could be deduced that the neurological nuances of these states significantly impact performance, and so interventions that target an athlete's approach to competition (e.g., REBT), rather than interventions that target negative consequences of this approach (e.g., psychological skills training), may be most effective.

**“Pro•Stress – an intervention to enhance performance under pressure”**

Liliana Fontes

Brief introduction: Regardless of context, individuals are constantly faced with stressful situations. We have studied adaptation to stress across different domains and ages. This body of research and the resulting theoretical model has led to the development of the intervention program Pro•Stress.

Problem statement: Stress has been identified as one of the most pervasive health issues of this century. Our goal is to teach individuals how to deal with stressful situations at work, by teaching them stress management skills that can be transferred to other contexts.

Theoretical framework: The Pro•Stress program is anchored on the Adaptation to Stress Interactive Model (Gomes, 2014), which encompasses the stressor's characteristics and how they can facilitate or debilitate adaptation to stress, cognitive appraisal, the central part of the model, and how changing perceptions can lead to better adaptation. The model also encompasses reactions to stress to determine the final result of adaptation to stress.

Our research with this model has shown promising results in different contexts, such as sports (e.g., Gomes et al., 2022), teaching (e.g., Simões et al., 2022), and health (e.g., Simões et al., 2019).

Brief description of methodology: The experimental group includes approximately 50 adults that attended the Pro•Stress intervention program, once a week, totalling 45h. The control group did not participate in the intervention. Both groups completed questionnaires on stress mindset, irrational beliefs, cognitive appraisal, and perceived performance, at the beginning, end, and 2 months after the intervention. The experimental group also answered a questionnaire on their perceived stress management skills before and after intervention.

Summary and implications of the result: Results show that, overall, the participants' stress management skills improved with the intervention, with the experimental group showing better results overall. These promising results indicate that this program can be applied to successfully teach stress management skills.

**“Mindset: Performing Under Pressure” – a multimodal intervention to enhance wellbeing and performance under pressure”**

Katie Sparks

Brief introduction: A novel multi-therapeutic approach was developed using Rational Emotive Behavioural Therapy (REBT) and Self-Compassion to influence mental wellbeing and exam performance in adolescents.

Problem Statement: Adolescents' mental health is a course for concern, between the ages of 16-18 students have a substantial period of assessment which plays a significant role in their future. No longer are they dealing with just normative but also exam-related stressors (Pascoe et al., 2019), these have been identified as an additive risk factor to wellbeing (Ma et al., 2020).

Theoretical framework: One way of changing an individual's mindset is through altering their beliefs (Molden & Dweck, 2006), REBT is an approach that focuses on reducing irrational beliefs to lead to functional behaviour and emotional consequences (Ellis, 1957). Recently, it has been proposed that multi-therapeutic approaches that combine complimentary practices together may have greater effects (Young et al., 2023). Self-compassion felt like a good fit, as it is consistent with one of the main

assumptions of REBT, unconditional self-acceptance (Ellis, 1994). Self-compassion is part of this process that enables us to have self-acceptance, especially in the face of failure (Stephenson et al., 2018).

Methodology: Eighty-Six students (Mage = 16.92, SD = .99) were split into a control and intervention condition, completed measures in stress mindset, perceived performance, irrational beliefs, anxiety and depression at baseline and post-intervention. Additionally, they completed social validation qualitative feedback. The intervention employed a variety of REBT and Self-compassion informed practices across 6 x 1-hour sessions in schools.

Summary and implications of the result: Results demonstrated positive changes in depression, anxiety, perceived performance, stress-mindset for the intervention versus the control condition. Nevertheless, there was encouraging feedback for the multimodal intervention with most students reporting they enjoyed and are utilizing imagery, control mapping and self-kindness.



## Performing under new pressure: Post-PhD experiences of young career scholars

**Lukas Linnér<sup>1</sup>**, Xavier Sanchez<sup>2</sup>, Milla Saarinen<sup>3</sup>, Kristel Kiens<sup>4</sup>, Marta Borrueco<sup>5</sup>

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Symposium 20: Developmental/lifespan perspectives,  
Hall New Orleans, Juli 16, 2024, 14:40 - 15:40

The aim of the symposium is to invite young career scholars, who finalized their PhD within the last 3 years, to share their experience of transitioning into their post-PhD career phase in life. In this symposium each presenter chooses a career theory/framework and applies it as a guide for sharing their post-PhD career transition experience. Doing this we want to illustrate various career theories/frameworks (Stambulova et al., 2021) and exemplify different career trajectories both within and outside academia after PhD, as well as provide our experiences and coping for other scholars (e.g., PhD-students and/or supervisors) to learn from. After a short introduction, the first presenter will use Stambulova's (2009, 2020) transition model to share his experience of transitioning into the leadership-role at a sports university trying to practice what he preached in his PhD about athletes' dual careers. The second presenter will share her transition to a postdoctoral position in a new country using Savickas's (2005) theory on career construction as a lens. The third presenter will reflect on her career trajectory post-PhD and how openness and curiosity towards lived experiences (Harris, 2009), in both research and applied practice, has provided a sound foundation for a rich and meaningful, yet unpredictable and messy, career. The fourth presenter will follow providing an ecological examination (e.g., LaVoi, 2016) of a young woman's attempt to develop a career in academia outlining the challenges in trying to enter a high-performance and male-dominated context. After the presentations a general discussion will follow focusing on, for example, how the PhD-education prepared the presenters for the new pressures (i.e., challenges) in the post-PhD phase and how career-theory and research knowledge helped them to cope. Major lessons learned will also be shared to support the development and successful transitions of future PhD-graduates in sport and exercise psychology.

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LaVoi N. M. (2016). A framework to understand experiences of women coaches around the globe: The ecological-intersectional model. In N. M. LaVoi (Ed.), *Women in sports coaching* (pp. 13-34). Routledge.

Savickas, M. L. (2005). The theory and practice of career construction. In S. D. Brown & R.

W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 42-70). John Wiley & Sons.

Stambulova, N. (2009). Talent development in sport: A career transitions perspective. In E.

Tsung-Min Hung, R. Lidor, & D. Hackfort (Eds.), *Psychology of sport excellence* (pp. 63-74). Fitness

Information Technology.

Stambulova, N. (2020). Athlete transitions as a result of the pandemic: Developmental sport psychology perspective. In *Proceedings of the 35th Annual Conference of the Association for Applied Sport Psychology* (p. 7). AASP. [https://appliedsportpsych.org/site/assets/files/1047/012\\_2020\\_aasp\\_conference\\_](https://appliedsportpsych.org/site/assets/files/1047/012_2020_aasp_conference_abstracts_final.pdf)

[abstracts\\_final.pdf](https://appliedsportpsych.org/site/assets/files/1047/012_2020_aasp_conference_abstracts_final.pdf)

Stambulova, N., Ryba, T., & Henriksen, K. (2021). Career development and transitions of athletes: The International Society of Sport Psychology position stand revisited. *International Journal of Sport and Exercise Psychology*, 19, 524-550. <https://doi.org/10.1080/1612197X.2020.1737836>

## Practicing What You Preach: From a PhD about Athletes' Dual Careers to Leadership of a Sports University

Lukas Linnér

*Halmstad University, Halmstad, Sweden*

Coming into my PhD I never would have thought what would follow. What followed was several years of national and international collaboration on athletes' dual careers supporting my PhD on the same topic (Linnér, 2021). This granted me the opportunity to later accept a part-time position and take a lead as Head of operations and development at Halmstad university as one of six National sports universities in Sweden. Using Stambulova's (2009, 2020) athletic career transition model as an inspiration my aim for this presentation is to share my journey of transitioning from PhD to a multifaceted role encompassing teaching, administration, research and development, and the helm of operations and development running a sports university. In essence, my transition can be summarized as moving from researching athletes' dual careers and exploring dual career development environments (e.g., Henriksen et al., 2020) to developing a dual career development environment and support in practice, while continuing to do research and collaborate about athlete's career development and transitions. Keeping in mind a whole-person approach, my transition mainly revolved around vocational changes, whereas psychological, psychosocial, and financial aspects of my life remained mainly the same. I will outline my key transition demands including the dual responsibility of steering the sports university towards increased integration of efforts based on developing stakeholder relationships while also contributing to research through paper publication as a central expectation within the university. I will summarize my main coping resources (e.g., organizational skills, determination, an in-depth understanding of athletes' dual careers, pre-existing relationships with stakeholders, and supportive colleagues) and barriers (e.g., lack of understanding from the organization) and outline my coping strategies (e.g., strategic planning, self-compassion) in balancing the roles of being a young scholar and an organizational leader.

Henriksen, K., Storm, K. L., Kuettel, A., Linnér, L., & Stambulova, N. (2020). A holistic ecological approach to sport and study: The case of an athlete friendly university in Denmark. *Psychology of Sport and Exercise*, 47, 101637. <https://doi.org/10.1016/j.psychsport.2019.101637>



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Stambulova, N. (2020). Athlete transitions as a result of the pandemic: Developmental sport psychology perspective. In *Proceedings of the 35th Annual Conference of the Association for Applied Sport Psychology* (p. 7). AASP. [https://appliedsportpsych.org/site/assets/files/1047/012\\_2020\\_aasp\\_conference\\_abstracts\\_final.pdf](https://appliedsportpsych.org/site/assets/files/1047/012_2020_aasp_conference_abstracts_final.pdf)

### **From PhD to Postdoctoral Student in a new Country: Applying Savickas' Theory on Career Adaptabilities as a Lens**

Milla Saarinen

*Norwegian School of Sport Sciences, Oslo, Norway*

I completed my PhD in January 2023 at the University of Jyväskylä, focusing on female student-athletes' career construction within the Finnish Dual Career Study (Ryba et al., 2016). In my research I explored gendered perspectives on female student-athletes' dual career development. Following the completion of my degree, I transitioned into a postdoctoral researcher role at the Norwegian School of Sport Sciences in Oslo, Norway. My current focus involves studying the mental health of student-athletes in lower secondary schools as part of a larger research initiative. I will share my career transition using Savickas' career construction theory (2005) as a lens, emphasizing the importance of career adaptability. Career adaptability refers to the ability to regulate different career strategies (e.g., plan for the future, overcome challenges, and transitions) within the four dimensions of concern, control, curiosity, and confidence. For me, career concern and control meant that I proactively prepared for the transition by establishing networks and seeking postdoctoral opportunities well in advance. Juggling academic work with applied projects helped me build resilience, providing a buffer against stress and teaching me to navigate setbacks in my research. Curiosity and confidence have played pivotal roles in my post-graduation choices. Embracing openness to new experiences, I accepted a postdoctoral position in Norway and moved to a new country. I have gained confidence in understanding that an academic career may not be suitable for everyone, but I find it meaningful and worth pursuing. I also know that if doing research does not make sense to me in the future, I can always quit doing it. I encourage early career researchers in sport and exercise psychology to search for personal meaning in their research by exploring themes they find personally interesting. I believe that this leads to a sustainable and more enjoyable career in academia.

Ryba, T. V., Aunola, K., Kalaja, S., Selänne, H., Ronkainen, N. J., & Nurmi, J. E. (2016). A new perspective on adolescent athletes' transition into upper secondary school: A longitudinal

mixed methods study protocol. *Cogent Psychology*, 3(1), 1142412.

Savickas, M. L. (2005). The theory and practice of career construction. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 42-70). John Wiley & Sons.

### **Living My Messy and Unpredictable Career Trajectory Guided by Values and Supported by Mindfulness**

Kristel Kiens

*Tallinn University, Tallinn, Estonia*

Where do you see yourself in the next 3 years? There was an answer when I started my PhD in Tallinn University, while being supervised from abroad. Alongside, I continued working as a private applied practitioner and in a dual career development environment, which was also the focus of my PhD. Now? I have realized there is no answer, and I don't need one. I have been lucky being in communication with great people around me that has been an influential factor in shaping my career trajectory, aligning with Luhman's (1995) social systems theory. My social context, and wider environments, which have been quite varied throughout my career, have been in ongoing interconnectedness with discovering myself in this journey (McMahon & Patton, 1995). Discovering my own values on the journey has played a big role in guiding me along this rich, meaningful career-life (Harris, 2009). Having let go of needing a clear plan towards the future makes sense to me as Greek philosopher Heraclitus observed: "The only constant in life is change". I can choose to flexibly respond rather than react to the changes (Harris, 2009). I have learned that life offers unexpected opportunities, which first requires awareness and paying attention, including my own internal reactions to these, with a curious non-judgmental mindset (Kabat-Zin, 2003). Second, after taking the pause, I try to reflect on my guiding values, perhaps discuss with my trust group, and then make decisions. So far, my career continues being messy, unpredictable, and not obviously logical as systems theory suggests (McMahon, 2005). I am grateful being fully in it with applied practice, international project collaborations, academics, organizational development, policy making, and podcasting. The only plan is to continue with openness and curiosity.

Harris, R. (2019). *ACT made simple: An easy-to-read primer on acceptance and commitment therapy*. New Harbinger Publications.

Kabat-Zinn, J. (2003). Mindfulness-based stress reduction (MBSR). *Constructivism in the Human Sciences*, 8(2), 73.

Luhmann, N. (1995). *Social systems*. Stanford university Press.

McMahon, M. (2005). Career counseling: Applying the systems theory framework of career development. *Journal of Employment Counseling*, 42(1), 29-38. <https://doi.org/10.1002/j.2161-1920.2005.tb00896.x>

McMahon, M., & Patton, W. (1995). Development of a systems theory framework of career development. *Australian Journal of Career Development*, 4, 15-20.

**“Climbing the academic ladder? More like climbing up the walls”. An ecological examination of a young woman’s attempt to develop a career in academia**

Marta Borrueco

*Universitat Autònoma de Barcelona, Barcelona, Spain*

When I started my PhD on how the sports entourage, like coaches, could contribute to a more adaptive sport context, I read literature describing coaches career progression as climbing up a ladder or as progressing through different normative steps (e.g., Ronkainen et al., 2020). Along the same line, I always thought that completing a PhD was the first step in the ladder towards a senior (and full-time) position in academia. One of the main results from my PhD suggested that women’s coaching careers in sport are not linear, instead female coaches must navigate through a maze full of obstacles to sustain their positions (Borrueco et al., 2023). A couple of years after finalizing my PhD I have realized that women’s careers in sports and academia are similar as both describe women trying to progress and enter a high-performance and male-dominated context. I will share my experience using a critical realist perspective and by drawing on LaVoi’s ecological-intersectional model (2016) and LaVoi and Boucher’s stages of career progression model (2021). The presentation will summarize the interplay of individual and interpersonal barriers (e.g., lack of confidence, multiple roles and jobs) and the support (e.g., support network) I am encountering while trying to get a stable position in academia, as well as organizational and cultural aspects (e.g., university rules and conditions, precarity, hegemonic masculinity) that can jeopardize one’s mental health and in consequence lead to drop out from this path. These results suggest women’s careers in high-performance settings share similarities regardless of the context due to structural power mechanisms still prevailing in society.

Borrueco, M., Torregrossa, M., Pallarès, S., Vitali, F., & Ramis, Y. (2023). Women coaches at top level: Looking back through the maze. *International Journal of Sports Science & Coaching*, 18(2), 327-338. <https://doi.org/10.1177/17479541221126614>

LaVoi N. M. (2016). A framework to understand experiences of women coaches around the globe: The Ecological-Intersectional Model. In N.M. LaVoi (Ed.), *Women in sports coaching* (pp. 13-34). Routledge.

LaVoi, N.M., & Boucher, C.J (2021). Supporting and developing women in sport coaching – a lifespan career approach. In L. Norman (Ed.), *Improving gender equity in sports coaching* (pp. 177-197). Routledge.

Ronkainen, N.J., Sleeman, E., & Richardson D. (2020). “I want to do well for myself as well!”: Constructing coaching careers in elite women’s football. *Sports Coaching Review*, 9(3), 321-339. <https://doi.org/10.1080/21640629.2019.1676089>

**Courage in Sport Symposium**

**Harvey Anderson**<sup>1</sup>, Erkut Konter<sup>2</sup>, Violetta Oblinger-Peters<sup>3</sup>, Daniel Birrer<sup>4</sup>

*<sup>1</sup>Sheffield Hallam University, Sheffield, United Kingdom, <sup>2</sup>Istanbul Gelişim University, School of Physical Education and Sports, Istanbul, Turkey, <sup>3</sup>Institute of Sport Science, University of Bern, Bern, Switzerland, <sup>4</sup>Swiss Federal Institute of Sport, Magglingen, Switzerland*

Symposium 21: Other topics,  
Hall Orangerie, Juli 16, 2024, 14:40 - 15:40

This symposium looks to set the case to revive and further engage with the often forgotten virtue of courage (Corlett, 1996).

Dr Anderson sets the position of courage within the field and argues that the concept of courage may be more useful than the often used, but problematic concept of mental toughness, which Anderson suggests could be considered a potential ‘jangle fallacy’ (Martin et al., 2019). The field of existentialism is promoted as a framework for practitioners and researchers to work with the concept of courage within sport.

Dr Konter then reviews the extensive work that he and colleagues have carried out on sport courage. This review will cover defining and situating the concept, its measurement using the Sport Courage Scale-31 (Konter & Ng, 2012) and the Sport Courage Scale-28 for Children (Konter et al., 2013), the individual and situational variables that could be important for the concept of sport courage. Sport Courage also has implications in successful performance and coping for athletes and coaches.

Oblinger-Peters and Dr Ronkainen’s contribution then focuses on meaning making through the use of courage by integrating principles from Acceptance and Commitment Therapy (ACT) and existential perspectives. ACT intends to enable the client to live a more meaningful life despite facing challenging situations. This aligns with the existential thought, which seeks to illuminate the givens of human existence, inevitably including navigating through difficult moments and potential suffering.

Finally, Dr Birrer and Oblinger-Peters dive further into the use of ACT. The uncertainty of competition can threaten athletes’ need for control and for self-esteem protection, especially for those with a strong athletic identity (Albouza et al., 2022). Using case examples, the presentation will attempt to integrate approaches of existential psychology and ACT methods to help performance athletes overcome existential concerns in the line of competitive fire.

**Keywords:** Courage; Sport Courage; Performance; Acceptance and Commitment Therapy (ACT); Existentialism; Meaning

Albouza, Y., Chazaud, P., & Wach, M. (2022). Athletic identity, values and self-regulatory efficacy governing hypercompetitive attitudes. *Psychology of Sport and Exercise*, 58, 102079. <https://doi.org/https://doi.org/10.1016/j.psychsport.2021.102079>

Corlett, J. (1996). Virtue lost: Courage in sport. *Journal of the Philosophy of Sport*, 23(1), 45-57.

Konter, E. (2013). Towards Multidimensional Interactional Model of Sport Courage. *Energy Education Science and Technology Part B: Social and Educational Studies*. 5(2), 957-968.

Konter, E. Ng, J. (2012). Development of Sport Courage Scale. *Journal of Human Kinetics*. 33, 139-147.

Martin, J. J., Beasley, V. L., & Guerrero, M. D. (2019). Sport psychology research: Proper standards and limitations.

### Could we take the courage to lose mental toughness?

Harvey R Anderson

*Academy of Sport & Physical Activity, Sheffield Hallam University, United Kingdom.*

The concept of mental toughness presents many issues for researchers and practitioners alike. There is lack of coherence in the multiple definitions and interpretations available, including whether it is a state or trait phenomenon, and an assumption that all successful athletes by definition hold it (Crust, 2007; Eubank et al., 2017; Strand et al., 2022) making application of the concept difficult at best. Add to this, many top athletes identified as mentally tough, openly disagree that they actually have mental toughness. Much of this is to do with the connotations that go with the term 'toughness' and its potential to be interpreted as an innate quality. So, is it time to lose mental toughness altogether?

Existentialism has long championed the virtue of courage. Courage can be seen as having three elements: (a) a willing, intentional act, (b) involving substantial danger, difficulty, or risk to the actor, (c) primarily motivated to bring about a noble good or morally worthy purpose (Rate, 2010) or more simply described as "bravery as a result of approach by a fearful person" (Evans & White, 1981). Therefore, it recognises vulnerability, anxiety, and a cause, rather than implications of fearlessness and an innate resilience. It is also widely accepted that courage is something that anyone can take (May, 1994). This definition is more in line with many of the narratives used to illustrate mental toughness and what mentally tough athletes do to be attributed such.

It is argued in this presentation that the existential concept of *courage* is what both the researcher and practitioner are searching for in their work, and that an existential viewpoint in this area would lead to greater insight and better practices in both areas.

**KEYWORDS:** Courage; Existentialism; Mental Toughness; Sport Psychology Support; Coaching

Crust, L. (2007). Mental toughness in sport: A review. *International Journal of Sport and Exercise Psychology*, 5(3), 270-290.

Eubank, M. R., Nesti, M. S., & Littlewood, M. A. (2017). A culturally informed approach to mental toughness development in high performance sport. *International Journal of Sport Psychology*, 48(3), 206-222.

Evans, P. D., & White, D. G. (1981). Towards an empirical definition of courage. *Behaviour Research and Therapy*, 19(5), 419-424.

May, R. (1994). *The courage to create*. WW Norton & Company.

Rate, C. R. (2010). Defining the features of courage: A search for meaning.

Strand, B., Anderson, A., Kreuser, J., & Samuelson, J. (2022). A Coach's Role in Fostering Mental Toughness. *Strategies*, 35(6), 29-37.

### Review of Sport Courage Research

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<sup>1</sup>Sheffield Hallam University, Sheffield, United Kingdom <sup>2</sup>Istanbul Gelişim University, School of Physical Education and Sports, İstanbul, Türkiye

Ulaş AKSOY

*Ege University Sport Science Faculty, Doctorate Student, İzmir, Türkiye.*

Ahmet İslam

*Ordu University, Vocational School of Technical Sciences, Ordu, Türkiye*

Courage seems to be important in all cultures (Dahlsgaard, et al., 2005) for health, success, and performance (Konter & Beckmann, 2019). Sport has plenty of courageous actions and challenges developing it. For example, the last second decisive penalty kick in soccer or free throw shooting in basketball. However, there are more questions than empirical answers about courage in sports. Sport courage research has lately started gaining importance in different cultures including Turkey, Croatia, Malaysia, USA, and China (for example, Cigrovski, et al., 2018; Hidrus et al., 2020; Gao et al., 2023; Konter & Ng, 2012; Konter, 2013; Konter et al., 2020a and 2020b).

Sport courage was specifically defined as "natural and developed, interactional and perceptual concept between person and situation, and the task at hand that enables person to move in self-confidence (competence, mastery), determination, assertiveness, venturesome (coping with fear) and sacrificial (altruistic) behaviour on voluntary basis and in danger circumstances" (Konter, 2012, p. 6). In addition, sport specific model (Konter, 2013, 2022) and measurements put forward by Konter and his colleagues. Present research findings were mainly obtained applying the Sport Courage Scale-31 (Konter & Ng, 2012) and the Sport Courage Scale-28 for Children (Konter, Ng & Bayansalduz, 2013). Both scales have the same 5 factors including Self-Confidence (mastery, competence), Determination, Assertiveness, Venturesome (coping with fear) and Sacrifice (Altruistic) behaviour.

Review of sport courage research indicated that there are a number of individual and situational variables which could be important for sport courage. Literature review also shows that sport courage appears to be multidimensional, interactional, phenomenological, and dynamic process. Sport courage research also hints at its relevance to success, performance, and health in relation to physical, cognitive, emotional, social, character and personality development.

**Keywords:** sport courage research review, sport courage individual factors, sport courage situational factors, sport courage models and scales, interactional sport courage, phenomenological sport courage.

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Hidrus, A.B.; Kueh, Y.C.; Arifin, W.N.; Konter, E.; Kuan, G. (2020). Sports Courage in Malaysian Silat Athletes: Confirmatory Factor Analysis of the Malay Language Version. *Int. J. Environ. Res. Public Health*, 17, 1736.

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Konter, E.; Gledhill, A.; Kueh, Y.C.; Kuan, G. (2022). Understanding the Relationship between Sport Courage and Female Soccer Performance Variables. *Int. J. Environ. Res. Public Health* 2022, 19, 4654. <https://doi.org/10.3390/ijerph19084654> WOS:000785488800001

Konter, E. Kueh, Y. C. Kuan, G. (2020a). Courage in Competition: Adaptation of the Sports Courage Scale for American English and Validation of the Factor Structure with Student-Athletes at Clemson University. *International Journal of Environmental Research and Public Health*, 17, 4834, <http://dx.doi.org/10.3390/ijerph17134834>.

Konter, E. Kueh, Y. C. Kuan, G. (2020b). Relationship Between Passion and Courage among the Experienced Male Soccer Players. *Malays J Med Sci*, 27(4):85-96.

Konter, E. Ng, J, Bayansalduz, M. (2013). Revised Version of Sport Courage Scale for Children. *Energy Education Science and Technology Part B: Social and Educational Studies*. 5(1), 321-330.

Konter, E. (2013). Towards Multidimensional Interactional Model of Sport Courage. *Energy Education Science and Technology Part B: Social and Educational Studies*. 5(2), 957-968.

Konter, E. Ng, J. (2012). Development of Sport Courage Scale. *Journal of Human Kinetics*. 33, 139-147.

### Finding Meaning in Sport Through Courage – Ideas On Integrating ACT And Existential Approaches to Sport Psychology

Violetta Oblinger-Peters<sup>1</sup>, Noora J. Ronkainen<sup>1</sup>

<sup>1</sup>*Institute of Sport Science, University of Bern*

Performance sport represents an arena that offers athletes an opportunity for personal triumph and defeat. The pressure of challenging situations, e.g., during important competitions or career transitions, can evoke anxiety and lead athletes to believe that their very being is on the line. It is in those moments that existential concerns can arise, engendering deeper questions about the meaning of their sporting pursuits (Nesti & Ronkainen, 2020). Clarifying those existential concerns, acting in line with one's values and thereby committing to what is personally meaningful, requires the athlete to muster courage. Although the association between existential anxiety, personal meaning, and courage seems intuitive and highly relevant for performance sport, sport psychology does not provide much guidance on how to effectively address these themes in theory and practice. Notwithstanding, it has been noted that two vastly different approaches to sport psychology, namely existential psychology and Acceptance-And-Commitment-Therapy (ACT) conceptually overlap on exactly these ideas. More specifically, ACT intends to enable the client to live a more meaningful life despite encountering hardship and uncomfortable experiences. This aligns well with the existential thought aiming to clarify the givens of human

existence which inevitably involves facing difficult moments and potential suffering. An integration of those approaches, bringing together ACT's wealth of techniques and the acknowledgment of athletes' profound experiences through the existential perspective, could thus be a fruitful avenue for sport psychology (Oblinger-Peters, Henriksen, & Ronkainen, 2022). The presentation aims to contribute to the knowledge base on thriving in performance sport, i.e., recognizing that performing under pressure despite adversity represents an integral component of athletes' general well-being. Case examples drawing on overlaps between ACT and existential psychology will explore how courage might be the missing link for practitioners to tap into when addressing existential notions around personal meaning with athletes in performance sport.

Keywords: meaning, courage, existential psychology, ACT, thriving, well-being

Nesti, M. S. & Ronkainen, N. J. (2020). Existential approaches. In D. Tod & M. Eubank (Eds.), *Applied sport, exercise, and performance psychology: Approaches to helping clients* (pp. 87-100). Routledge. <https://doi.org/10.4324/9780429503702>

Oblinger-Peters, V., Henriksen, K., & Ronkainen, N. (2022). Integrating existential and mindfulness approaches for sport psychology practice: preliminary thoughts on conceptual overlaps. Abstract book of the 16th FEPSAC European Congress of Sport and Exercise Psychology, Padova, Italy, 11-16th July 2022, (p. 47).

### Helping Athletes to Thrive by Supporting Them to ACT With Courage

Daniel Birrer<sup>1</sup>, Violetta Oblinger-Peters<sup>2</sup>

<sup>1</sup>*Swiss Federal Institute of Sport Magglingen, Switzerland* <sup>2</sup>*Institute of Sport Science, University of Bern, Switzerland*

Performance sport is a playground for self-esteem enhancement. Nevertheless, personal experience tells that even athletes competing at the highest level consistently suffer from self-doubt and performance anxiety. This fear is sometimes so strong that it almost seems to take on an existential dimension, raising the question of what is actually at risk. Many sports are very safe and the risk of serious injury is low. This suggests that the perceived danger is more psychological in nature. Grawe (2007) postulates four basic psychological needs: (a) a need for orientation/control, (b) a need for self-esteem enhancement, (c) a need for attachment, and (d) a need for pleasure and avoidance of displeasure/pain. The uncertainty of competition can threaten athletes' need for control and for self-esteem protection, especially for those with a strong athletic identity (Albouza et al., 2022). The Merriam-Webster dictionary defines courage as the mental or moral strength to venture, persevere, and withstand danger, fear, or difficulty. Therefore, courage could be a way of overcoming these difficulties. Acceptance and Commitment Therapy (ACT) (Hayes et al., 2006) uses six core processes to increase clients' psychological flexibility and to treat psychosocial malfunctioning. The goal of ACT is to help people change or maintain behaviour when this serves valued purposes. In this context, courage may be a personal value to be pursued in itself, or courage may be needed as a means to act in line with

personal values in the pursuit of one's goals despite unpleasant thoughts, feelings and emotions. The presentation will explore the possible importance of courage in helping athletes to thrive (i.e., concurrent combination of performance, well-being and mental health). Using case examples, it will attempt to integrate approaches of existential psychology and ACT methods to help performance athletes overcome existential concerns in the line of competitive fire.

Keywords: values, courage, existential psychology, ACT, thriving, well-being, basic psychological needs

Albouza, Y., Chazaud, P., & Wach, M. (2022). Athletic identity, values and self-regulatory efficacy governing hypercompetitive attitudes. *Psychology of Sport and Exercise*, 58, 102079. <https://doi.org/https://doi.org/10.1016/j.psychsport.2021.102079>

Grawe, K. (2007). *Neuropsychotherapy: How the neurosciences inform effective psychotherapy*. Lawrence Erlbaum.

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, 44, 1-25. <https://doi.org/10.1016/j.brat.2005.06.006>

## Heart rate variability in sport & exercise psychology: Implications for training, performance, and well-being

**Sylvain Laborde**

<sup>1</sup>German Sport University Cologne, Cologne, Germany

Symposium 23: Psychophysiology,  
Hall Maximilian, Juli 16, 2024, 16:10 - 17:10

This symposium presents a comprehensive exploration into the psychophysiological implications of heart rate variability (HRV) within sport and exercise psychology. This collective body of research investigates the multifaceted role of HRV as a measure of autonomic regulation, specifically of the parasympathetic nervous system regulating cardiac functioning, coined "vagally-mediated HRV" (vmHRV).

vmHRV is here investigated with subjective psychological states in athletes, with relaxation techniques (slow-paced breathing), and with its application in esports and competitive exercise contexts. The first study examines the correspondence between vmHRV and subjective well-being indicators, enhancing the understanding of athletes' recovery and readiness. Transitioning to a novel domain, the second study evaluates the potential of vmHRV as a tool for self-regulation and performance monitoring in the rapidly growing field of esports, with a systematic review. The third presentation investigates the impact of slow-paced breathing on vmHRV, as well as on subjective emotional regulation. This research is particularly relevant for its practical implications regarding athletes' preparation and recovery. The last presentation explores the psychophysiological effects of competitive versus non-competitive exercise on aggression, highlighting effects on behavioral outcomes without corresponding physiological changes at the level of vmHRV.

Overall, this symposium offers an opportunity for interdisciplinary exchange, integrating psychological assessment with psychophysiological data (vmHRV) to advance training strategies, enhance performance, and foster athletes' well-being.

### Relationship between measures of resting vmHRV and subjective self-reported variables in athletes: a scoping review.

Alfonso, C.<sup>1</sup>; Capdevila, L.<sup>1</sup>; Laborde, S.<sup>2</sup>

<sup>1</sup>Universitat Autònoma de Barcelona, Spain <sup>2</sup>German Sport University Cologne, Germany

Background: Effective monitoring of training load in athletes is crucial to assess adaptations and to mitigate potential risks of non-functional overreaching, illness, and injury. In pursuit of this monitoring, various variables have proven insightful, including physiological measures like vagally mediated heart rate variability (vmHRV), and subjective data, including self-reported fatigue, motivation, or sleep quality, amongst others. While both vmHRV and subjective self-reported variables provide valuable information about training and performance in athletes, they do not nec-



essarily relate to one another. Thus, recent research suggests that measuring both in combination may help to better contextualize and deepen the understanding of load monitoring. The aim of this scoping review is to identify and synthesize existing literature delving into the interplay of vmHRV metrics and subjective variables in the context of performance and training.

**Methodology:** Following PRISMA-S Guidelines, we conducted bibliographic searches in PubMed, PsycINFO, Web of Science Core Collection and SportDiscuss. The keywords used were: "heart rate variability" AND "athlet\*" AND "subjectiv\*", along with synonyms. Searches were performed in February 2024. Inclusion and exclusion criteria were applied. Data extraction is underway, with an expected completion date by June 2024.

**Implications:** This scoping review aims to contribute to the evolving literature on how athletes respond to training, and to the growing need for integrating psychological assessment with biological data to further understand training workloads. The review delves into studies incorporating both types of variables in athletes, examining how they interact with each other. Additionally, the review aims to bring clarity to the term 'self-reported subjective' variables. The findings aim to guide coaches and athletes for more effective training strategies. The conclusive findings will be presented at the symposium.

### The Use of Heart Rate Variability in Esports: A Systematic Review

Welsh, M.R.<sup>1</sup>; Mosley, E.<sup>2</sup>; Laborde, S.<sup>3</sup>; Day, M. C.<sup>1</sup>; Sharpe, B. T.<sup>1</sup>; Burkill, R. A.<sup>4</sup>; Birch, P. D.<sup>1</sup>

<sup>1</sup>University of Chichester, UK <sup>2</sup>Bournemouth University, UK <sup>3</sup>German Sport University Cologne, Germany <sup>4</sup>International Federation of Esports Coaches, UK

**Objectives:** Heart rate variability (HRV) is a psychophysiological measure of particular interest in esports due to its potential to monitor player self-regulation. This study aimed to systematically review the utilisation of HRV in esports. Consideration was given to the methodological and theoretical underpinnings of previous works to provide recommendations for future research.

**Methods:** The protocol was made available on the Open Science Framework. Inclusion criteria were empirical studies, examining HRV in esports, using esports players, published in English. Exclusion criteria were non-peer-reviewed studies, populations with pre-existing clinical illness other than Internet Gaming Disorder (IGD), opinion pieces or review papers.

**Results:** In November 2022 a search of Web of Science, PubMed and EBSCOHost identified seven studies using HRV in esports. Risk of bias was assessed using the Mixed Methods Appraisal Tool. Narrative review identified two primary uses of HRV, investigating stress response and IGD in esports. A lack of theoretical and methodological underpinning was identified as a major limitation of current literature.

**Conclusion:** Further investigation is necessary before making recommendations regarding the use of HRV in esports. Future research should employ sound theoretical underpinning such as the use of vagally mediated HRV and the robust application of supporting methodological guidelines when investigating HRV in esports.

### The influence of competitive exercise on aggression, testosterone, cortisol, and cardiac vagal activity

Borges, U.<sup>1</sup>; Schwalb, F.<sup>1</sup>; Pels, F.<sup>1</sup>; Javelle, F.<sup>1</sup>; Hartmann, U.<sup>1</sup>; Chermette, C.<sup>1</sup>; Kleinert, J.<sup>1</sup>

<sup>1</sup>German Sport University Cologne, Germany

**Objectives.** Exercise is often used as an intervention to reduce aggressive behaviour. However, despite this widespread use, it is unclear under what conditions exercise can actually reduce aggressive behaviour (Pels & Kleinert, 2016). Competition is thought to increase aggression because it increases frustration (Breuer & Elson, 2017). This study aims to investigate the acute effect of competition on aggression during exercise. We expected exercise without competition to lead to less aggression than a competition-oriented exercise task, and, in accordance with the dual-hormone hypothesis (Mehta & Josephs, 2010), to lower testosterone and higher cortisol. Furthermore, cardiac vagal activity is expected to be higher in the individual condition compared to the competition condition.

**Methods.** 73 male students took part in the study. After an aggression induction, participants exercised on a bicycle ergometer at a moderate intensity in two conditions: They cycled either alone or against a fictitious opponent. Subsequently, the hot-sauce paradigm (Lieberman et al., 1999) was used to measure aggressive behavior, in which participants were asked to give to the fictitious opponent any amount of hot sauce. At 5 different time points, testosterone and cortisol were measured via saliva sample and cardiac vagal activity was measured via electrocardiogram.

**Results.** The competition group showed more aggressive behaviour after exercise than the individual group ( $t(71) = 2.123, p = .037, d = 0.498$ ). However, this difference could not be shown on a physiological level.

**Conclusion.** The study shows that exercise without a competitive stimulus can lead to less aggressive behaviour compared to exercise with a competitive stimulus, although this effect may not be strong enough to cause differences at the physiological level. The lack of correspondent physiological reaction might be due to the low intensity of aggression induction. Future studies should replicate the present study using a stronger aggression induction.

### Influence of Respiratory Frequency of Slow-Paced Breathing on Vagally-Mediated Heart Rate Variability

Laborde, S.<sup>1</sup>; You, M.<sup>2</sup>; Ackermann, S.<sup>1</sup>; Borges, U.<sup>1</sup>; Dosseville F.<sup>2</sup>; Mosley, E.<sup>3</sup>

<sup>1</sup>German Sport University Cologne, Germany <sup>2</sup>Normandie Université Caen, France <sup>3</sup>Bournemouth University, UK

**Objectives.** Breathing techniques, particularly slow-paced breathing (SPB), have gained popularity among athletes due to their potential to enhance performance by increasing cardiac vagal activity (CVA), which in turn can help manage stress and



regulate emotions. However, it is still unclear whether the frequency of SPB affects its effectiveness in increasing CVA. Therefore, this study aimed to investigate the effects of a brief SPB intervention (i.e., 5 min) on CVA using heart rate variability (HRV) measurement as an index.

**Methods.** A total of 75 athletes (22 female; Mage = 22.32; age range = 19-31) participated in the study, attending one lab session where they performed six breathing exercises, including SPB at different frequencies (5 cycles per minute (cpm), 5.5 cpm, 6 cpm, 6.5 cpm, 7 cpm), and a control condition of spontaneous breathing.

**Results.** The study found that CVA was significantly higher in all SPB conditions compared to the control condition, as indexed by both root mean square of the successive differences (RMSSD) and low-frequency HRV (LF-HRVms2). Interestingly, LF-HRVms2 was more sensitive in differentiating the respiratory frequencies than RMSSD.

**Conclusion.** These results suggest that SPB at a range of 5 cpm to 7 cpm can be an effective method to increase CVA and potentially improve stress management and emotion regulation in athletes. This short SPB exercise can be a simple yet useful tool for athletes to use during competitive scenarios and short breaks in competitions. Overall, these findings highlight the potential benefits of incorporating SPB into athletes' training and competition routines.

## Novel ways of thinking about motor imagery practice: the what, the when and the how?

**Stephan Frederic Dahm<sup>1</sup>**

<sup>1</sup>Universität Innsbruck, Faculty of Psychology and Sports Sciences, Austria

Symposium 24: Cognition,  
Hall Igls, Juli 16, 2024, 16:10 - 17:10

Motor imagery and action observation are two cognitive processes related to the mental representation and perception of actions. Exploring each of them and discussing their combination is a timely and prevalent opportunity. Motor imagery involves mentally simulating or imagining the execution of a movement without physically performing the movement (Jeannerod, 2001). Individuals create a mental image of themselves performing a specific action, going through the motions in their mind. Motor imagery can be used for skill rehearsal, motor learning, and cognitive preparation (Toth et al., 2020). Action observation is the process of visually perceiving and mentally processing actions. While watching an action, the brain mirrors the observed action. Action observation contributes to social learning, skill acquisition, and understanding of motor patterns. Research further suggests that combining motor imagery with action observation enhances motor learning and performance (Hardwick et al., 2013) questions remain regarding the areas that contribute consistently across paradigms with different task demands. For instance, sensorimotor tasks focus on learning novel movement kinematics and dynamics, while serial response time task (SRTT). For example, athletes may mentally rehearse a skill (action imagery) while simultaneously watching an expert performing the same skill (action observation). The first talk (from Poland) will address the question on how the ability to imagine situations in different time perspectives could be measured. The second talk (from Austria) will present mental chronometry data from a mental paper folding task. The third talk (from France) will focus on strength gains that follow embedded imagery practice. The fourth talk (from Israel) will discuss why dynamic motor imagery – the integration of physical movements into imagery – could be a valuable amendment. The final talk (from Canada) will address the impact of physical and observational experiences on subsequent (visual or kinesthetic) imagination of that action. The symposium will thus shed light on the effectiveness and the optimal conditions of motor imagery, before considering its concomitant use with action execution or action observation.

Hardwick, R. M., Rottschy, C., Miall, R. C., & Eickhoff, S. B. (2013). A quantitative meta-analysis and review of motor learning in the human brain. *NeuroImage*, 67, 283–297. <https://doi.org/10.1016/j.neuroimage.2012.11.020>

Jeannerod, M. (2001). Neural simulation of action: A unifying mechanism for motor cognition. *NeuroImage*, 14(1), 103–109. <https://doi.org/10.1006/nimg.2001.0832>

Toth, A. J., McNeill, E., Hayes, K., Moran, A. P., & Campbell, M. (2020). Does mental practice still enhance performance? A 24 year follow-up and meta-analytic replication and extension. *Psychology of Sport and Exercise*, 48(101672), 1–13. <https://doi.org/10.1016/j.psychsport.2020.101672>

### Imagery questionnaire in different time perspectives - psychometric data of the tool

Dagmara Budnik-Przybylska<sup>1</sup>, Karol Nędza<sup>2</sup>, Karol Karasiewicz<sup>3</sup>

<sup>1</sup>University of Gdansk, Gdansk, Poland <sup>2</sup> University of Plymouth, Plymouth, United

Kingdom 3University of Szczecin, Szczecin, PolandMotor imagery is a conscious activity of generating or recalling multisensory scenarios in the absence of visual stimuli. Research reveals the mechanism of imagery's effects on behavior and motivation through emotional responses to the above imagery (Ji et al., 2021). However, it is important to control imagery so that it can be used in training (Morris et al., 2005). The time perspectives in which an individual functions are associated with the ability to imagine (Szota, 2020). Higher past negative perspective correlated negatively with internal perspective imaginations. In contrast, past positive perspective correlated positively with imaginings from internal and kinesthetic perspectives. The aim of our study was to create a Polish-English tool to diagnose imaginations in several aspects: the study of imagery skills, which type of imagery prevails (positive, negative or neutral) as well as the aspect of motivation and emotions being associated with imagery. Students at the Universities of Plymouth, Gdansk and Szczecin filled out the Imagery Questionnaire in Different Time Perspectives (a new tool), the Time Perspective Questionnaire, the VMIQ-2 questionnaire and a shortened version of the Big Five Personality Questionnaire. The new tool was tested for reliability (test-retest) and relevance (pre- and post-intervention measurement and comparison with already existing measures of perceptions). Imagery was most closely related to the prospective future. Emotionality was high in all time perspectives. Preliminary results of the questionnaire indicate the reliability of the tool and its ability to measure the consistency of multisensory imagery at two different times 4 weeks apart. The analysis of the questionnaire suggests a single common factor for measuring imagery, but the distinction of subscales may have descriptive and individual significance in the practice of sports psychology.

Ji, J. L., Geiles, D., & Saulsman, L. M. (2021). Mental imagery-based episodic simulation amplifies motivation and behavioural engagement in planned reward activities. *Behaviour Research and Therapy*, 145, 103947.

Morris, T., Spittle, M. & Watt, A. (2005). *Imagery in Sport*. Champaign, IL: Human Kinetics.

Szota, S. (2020) Time perspectives, imagery and mental toughness among adult schoolchildren in Pomeranian Craft Schools in Gdansk, Poland, unpublished postgraduate thesis, University of Gdansk

### Mental chronometry in executed and imagined paper folding performance

Stephan Frederic Dahm, Pierre Sachse

University of Innsbruck, Austria

Motor imagery is the ability to mentally simulate movements without physically performing them (Jeannerod, 2001). The functional equivalence hypothesis states that motor imagery and execution rely on similar processes and are constrained by the same factors, such as individual differences or cognitive limitations (Jeannerod, 2001; Rieger et al., 2023)but also imagining actions, recognizing tools, learning by observation, or even understanding the behavior of other people. Studies using techniques for mapping brain activity, probing cortical excitability, or measuring the activity of peripheral effectors in normal human subjects and in patients all provide evidence of a subliminal activation of the motor system during these cognitive states. The hypothesis that the motor system is part of a simulation network that is activated under a variety of conditions in relation to action, either self-intended or observed from other individuals, will be developed. The function of this process of simulation would be not only to shape the motor system in anticipation to execution, but also to provide the self with information on the feasibility and the meaning of potential actions.,"container-title":"NeuroImage","DOI":"10.1006/nimg.2001.0832","ISSN":"1053-8119","issue":"1","journalAbbreviation":"Neuroimage","language":"eng","note":"P-MID: 11373140","page":"103-109","source":"PubMed","title":"Neural simulation of action: a unifying mechanism for motor cognition","title-short":"Neural simulation of action","volume":"14","author":{"family":"Jeannerod","given":"M."},"issued":{"date-parts":[{"2001",7}]}},"id":"4459","uris":["http://zotero.org/users/local/565qcARf/items/Q5UQZU8B"],"itemData":{"id":"4459","type":"article-journal","abstract":"Acting in the environment results in both intended and unintended consequences. Action consequences provide feedback about the adequacy of actions while they are in progress and when they are completed and therefore contribute to monitoring actions, facilitate error detection, and are crucial for motor learning. In action imagery, no actual action takes place, and consequently, no actual action consequences are produced. However, imagined action consequences may replace actual action consequences, serving a similar function and facilitating performance improvements akin to that occurring with actual actions. In this paper, we conceptualize action imagery as a simulation based on internal models. During that simulation, forward models predict action consequences. A comparison of predicted and intended action consequences sometimes indicates the occurrence of action errors (or deviations from optimal performance. To investigate motor imagery, mental paper folding was used. In this task, two-dimensional grids of a three-dimensional cube are mentally folded to determine whether two selected edges overlap or not (Dahm & Draxler, 2022)objective validated tests to measure such differences are scarce. In search of an objective testing method for action imagery ability, the present study investigated whether solving mental paper-folding tasks involves action imagery. The stimuli were two-dimensional grids of six squares. A total of 99 participants mentally folded each grid into a three-dimensional cube to judge whether two highlighted lines in the grid overlapped in the imagined cube. This was done in two sessions of 214 judgements

each, where the grids differed in overlaps, the least number of imagined folds, and the least number of imagined directional changes. Error rates and reaction times increased with the number of imagined folds and with the number of directional changes. Furthermore, more errors were committed with overlapping lines than with no overlaps. This was not reflected in the reaction times. Hence, the reaction times increased when the stepwise folding process was enlarged, but not when the final selection was more difficult. We concluded that the participants predominantly used action imagery as a task-solving strategy rather than for abstract problem-solving.”,“container-title”:”Psych”,“DOI”:”10.3390/psych5010002”,“ISSN”:”2624-8611”,“issue”:”1”,“journalAbbreviation”:”Psych”,“language”:”en”,“page”:”14-25”,“source”:”DOI.org (Crossref(Dahm & Draxler, 2022)). Within the paradigm of mental chronometry, imagery and execution were compared on reaction times and error rates. For this purpose, 34 participants performed two imagery conditions (mental paper folding on the computer, mental paper folding on paper) and one execution condition (physical paper folding). As expected, imagery performance and execution performance were strongly correlated and decreased with the number of folds. However, the expected correlation between performance in mental paper folding with subjective imagery ability ratings, working memory, or intelligence were not observed. The results indicate that mental paper folding predominantly involves action representations that are functionally equivalent to actual execution while other cognitive processes or subjective ratings appear to be of minor importance.

Dahm, S. F., & Draxler, C. (2022). Mental paper folding revisited: The involvement of visual action imagery. *Psych*, 5(1), 14–25. <https://doi.org/10.3390/psych5010002>

Jeannerod, M. (2001). Neural simulation of action: A unifying mechanism for motor cognition. *NeuroImage*, 14(1), 103–109. <https://doi.org/10.1006/nimg.2001.0832>

Rieger, M., Boe, S. G., Ingram, T. G. J., Bart, V. K. E., & Dahm, S. F. (2023). A theoretical perspective on action consequences in action imagery: Internal prediction as an essential mechanism to detect errors. *Psychological Research*. <https://doi.org/10.1007/s00426-023-01812-0>

### **Reconsidering the links between motor imagery and strength from a different viewpoint: shedding light on new perspectives for mental training**

Aymeric Guillot, Eric Piveteau, Franck di Rienzo

*University of Lyon, LIBM, France*

Motor imagery (MI) training contributes to improve maximal isometric force (Liu et al., 2023). While strong effects sizes were reported for finger muscles, only few applied settings targeted large upper or lower limb muscles engaged in dynamic contractions of multi-joint exercises (Paravlic et al., 2018). We first tested whether MI focusing a distinct movement than that trained physically promoted inter-task force transfer. Seventy-five participants underwent a physical back squat training. During inter-trial recovery periods, a first MI group mentally rehearsed the back squat, while a second MI group performed MI of a different anti-gravitational movement (deadlift). The control group completed a neutral cognitive task during equivalent time.

Data revealed that MI contributed to improve back squat performance, hence supporting the positive effects of MI on force during dynamic contractions. Data also revealed inter-task transfer of force gains when MI targeted the deadlift. In a second study (n=100), we examined the effectiveness of MI when performed during eccentric or concentric phases of the back squat. Data showed that MI performed during the eccentric phase outperformed both MI during the concentric phase and the control group. Overall, these findings support MI use in applied training settings to facilitate transfer of strength gains to sporting skills and enhance gains of resistance training programs.

Liu, X. J., Ge, S., Cordova, A., Yaghi, Z., Jiang Bo, Y., Yue, G. H. & Yao, W. X. (2023). Elderly may benefit more from motor imagery training in gaining muscle strength than young adults: A systematic review and meta-analysis. *Frontiers in Psychology*, 13, 1052826.

Paravlic, A. H., Slimani, M., Tod, D., Marusic, U., Milanovic, Z. & Pisot, R. (2018). Effects and dose-response relationships of motor imagery practice on strength development in healthy adult populations: a systematic review and meta-analysis. *Sports Medicine*, 48(5), 1165-1187.

### **Combining imagery and physical execution: Is the whole greater than its parts?**

Amit Abraham,<sup>1</sup> Anael Fitoussi,<sup>1</sup> Adi Bar Haim,<sup>1</sup> Eric Franklin<sup>2</sup>

<sup>1</sup> *Ariel University, School of Health Sciences, Department of Physical Therapy, Ariel, Israel* <sup>2</sup> *International Institute for the Franklin Method, Zurich, Switzerland*

Mentally simulating movement (aka motor imagery; MI) improves motor and non-motor aspects of sports performance. This cognitive process can take the form of either static or dynamic (without and with concurrent actual movement respectively) (Callow et al., 2006). 1,2 Dynamic MI is thought to improve imagery quality (e.g., vividness and effectiveness) (Guillot et al, 2013), evident by increased temporal equivalence (i.e., chronometry; the time taken to perform the actual vs. the imaged task) (Fusco et al., 2019). In the current study, we assessed the effect of concurrent actual upper (arm swinging) versus lower (stepping in place) extremity movements on gait MI quality by exploring chronometric differences. Thirty-five healthy female participants (M age: 16.29±0.29 years) actually performed 10-meter forward walking task, followed by six randomly ordered imagery conditions. Visual-external and kinesthetic MI modalities were each timed with a stopwatch in 3 standing positions: static (no movement), upper extremity (arm swinging) and lower extremity (walking in place). A 2x3 repeated measures ANOVA and t-tests assessed chronometric differences among conditions. A main effect for modality was detected, with visual-external imagery duration being shorter (p<.05) than kinesthetic MI. No main effect for position was detected. A modality-position interaction was detected, indicating that for kinesthetic imagery, static position duration was longer (p<.05) than the two dynamic positions. Visual-external imagery did not exhibit differences among positions. Further, kinesthetic static imagery duration was longer (p=.01) than physical performance, with all other MI conditions not exhibiting differences (p>.05) in duration from actual execution. Longer duration of static kinesthetic MI alone, compared to dynamic kinesthetic MI and actual execution, may suggest a specific difficulty of

kinesthetically imaging a gait task while physically standing still. The mechanisms underpinning such difficulty should be further explored. Researchers and clinicians may consider the most relevant modality and position used when investigating motor imagery and when designing therapeutic protocols.

Callow, N., Roberts, R., & Fawkes, J. Z. (2006). Effects of dynamic and static imagery on vividness of imagery, skiing performance, and confidence. *Journal of Imagery Research in Sport and Physical Activity*, 1(1).

Fusco, A., Iasevoli, L., Iosa, M., Gallotta, M. C., Padua, L., Tucci, L., ... & Guidetti, L. (2019). Dynamic motor imagery mentally simulates uncommon real locomotion better than static motor imagery both in young adults and elderly. *PLoS One*, 14(6), e0218378.

Guillot, A., Moschberger, K., & Collet, C. (2013). Coupling movement with imagery: A new perspective for motor imagery practice. *Behavioral and Brain Functions*, 9(8), 1-8.

### **Manipulating physical and observational practice in a novel gestural sequence task to probe the independence or co-dependence of kinesthetic and visual motor imagery**

Carrie M. Peters<sup>1</sup>, Matthew W. Scott<sup>1,2</sup>, AnnaMae Pond<sup>1</sup>, Ryan Jin<sup>1</sup>, Sarah N. Kraeutner<sup>2</sup>, Nicola J. Hodges<sup>1</sup>

<sup>1</sup>*Motor Skills Lab, School of Kinesiology, University of British Columbia, Vancouver, Canada*

<sup>2</sup>*Neuroplasticity, Imagery, and Motor Behaviour Lab, University of British Columbia, Kelowna, Canada*

Humans have the unique capacity to covertly practice with motor imagery by internally generating the visual and/or kinesthetic properties of an action without overt movement (Kosslyn et al., 2010). Yet, the dependence of motor imagery types (i.e., kinesthetic/KI and visual imagery/VI) on specific experience and their relative dependence on each other is unclear. We are investigating how isolated physical and observational experiences of a novel hand gesture sequence impact on the ability to perform VI and KI and their potential co-dependence. In a 3-group design (N = 66), imagery-ability (assessed via quality ratings and mental chronometry) was compared after no-vision physical practice, observational practice or no-practice (control). Both practice groups had shorter imagined movement times (MT) than the control ( $p < .01$ ), but, imagined MTs were longer than executed MTs only after physical practice, with a larger difference in VI than KI ( $p < .01$ ). Ratings of imagery quality also differed across the practice groups and were dependent on imagery type ( $p < .01$ ), with higher ratings of KI than VI for the physical practice group only. Drawing on applied frameworks, where a visual image is cued before layering the kinesthetic sensation (Scott et al., 2022), we speculate that visual and kinesthetic representations are concomitant, with KI relying on VI. We are testing these ideas in two further experiments, with and without measurement and manipulation of eye gaze (Poiroux et al., 2015). In these studies, the order of observational and no-vision physical practice experiences are manipulated in a within-participant design. We expect that only when physical practice precedes observational practice will there be differences between executed and imagined MTs, coupled with poorer ratings of imagery quality.

Gaze metrics will help alert to the visual components of imagery, further informing on the relative dependence of KI on VI.

Kosslyn, S. M., Ganis, G., & Thompson, W. L. (2010). Multimodal images in the brain. In A. Guillot & C. Collet (Eds.), *The Neurophysiological Foundations of Mental and Motor Imagery* (pp. 3-16). Oxford University Press.

Poiroux E, Cavaro-Ménard C, Leruez S, Lemée JM, Richard I, Dinomais M (2015) What Do Eye Gaze Metrics Tell Us about Motor Imagery? *PLoS ONE*, 10(11): e0143831.

Scott, M.W., Wright, D.J., Smith, D., & Holmes, P.S. (2022). Twenty years of PETTLEP imagery: An update and new direction for simulation-based training. *Asian Journal of Sport and Exercise Psychology*, 2(2), 70-79.

## Rational emotive behaviour therapy (REBT) for performance under pressure

Martin Turner<sup>1</sup>, Stuart Carrington<sup>4</sup>, Anna Jordana<sup>2</sup>, Nanaki Chadha<sup>3</sup>

<sup>1</sup>Manchester Metropolitan University, Stoke-on-Trent, United Kingdom, <sup>2</sup>Universitat Autònoma de Barcelona, Barcelona, Spain, <sup>3</sup>Private Consultant, Noida, India, <sup>4</sup>St Marys University, Twickenham, United Kingdom

Symposium 25: Consulting/counselling,  
Hall Grenoble, Juli 16, 2024, 16:10 - 17:10

This symposium brings together researchers and practitioners at the forefront of a new frontier in rational emotive behaviour therapy (REBT) who are extending the boundaries of REBT research and practice in sport. REBT is a cognitive behavioural approach to sport psychology, but far from being a niche school of psychotherapy, REBT offers a broad and flexible approach to working with clients that holds within it a rich vein of theoretical and applied views that can aid practice.

In the last decade, the reported application and study of REBT has grown considerably. The work published on REBT in sport includes cross-sectional studies (e.g., Chadha et al., 2019), experimental laboratory and field studies (e.g., Wood et al., 2017), applied studies (e.g., Turner & Barker, 2013), explanatory case studies (Turner & Bennett, 2018), professional practice pieces (e.g., Turner, 2019), measurement development (e.g., Turner & Allen, 2018), resource development (e.g., Smarter Thinking App; Turner, 2022), and a systematic review (Jordana et al., 2020). As a result of this research activity, many lessons have been learned, and from these lessons, we can formulate research and practice guidance and recommendations for REBT in sport.

In this symposium, speakers guide delegates through the fundamental tenets of REBT, the theoretical significance of REBT for understanding performance under pressure, the status of the global research pertaining to REBT in sport, the specific application of REBT to performance under pressure, and the future path of REBT research and practice. Speakers bring their research and applied learnings to the audience around themes that reflect advances in REBT for study and use within sport. Delegates will receive a contemporary portrayal of REBT, and speakers look towards the future of REBT, just over the horizon, where REBT is recognised as a flexible, theoretically-consistent but eclectic and pluralistic approach to practice.

### Problems with irrationality in sport: Why rational emotive behaviour therapy (REBT) is overlooked as a solution for performance under pressure.

Stuart C. Carrington

*School of Sport, Exercise and Applied Science, St Mary's University*

Introduction: Rational-Emotive Behaviour Therapy (REBT) has experienced heightened contemporary interest in the field of sport psychology (Turner, 2023). This

increased attention is due not only to its economic use of time, but also the use of irrational beliefs as a marker for numerous key indicators for performance and well-being. Irrational beliefs, for example, have been associated with increased threat appraisal (Chadha et al., 2023), increased burnout (Turner & Moore, 2016), lower levels of self-determined motivation (Turner et al., 2022), greater levels of anxiety and depression (Turner et al., 2019), and increased performance (Nejati et al., 2022) in athletes.

Theoretical framework: Rational emotive behaviour therapy (REBT).

Problem statement: REBT is often overlooked as a potential intervention to promote adaptive emotional and behavioural outcomes under pressure. This error of omission can be attributed to two challenges. The first is the misunderstanding of the central tenets of REBT, such as the practitioner/client relationship being one of equals rather than one of teacher and student, and the misconception that not holding rigid demands about winning is the equivalent of not caring about success. Second, accurate measurement of individual beliefs is challenging for numerous reasons. For example, the negative bias resulting in the measurement of irrational beliefs and, due to the role of socialisation in belief formation, inventories that are not relevant to specific populations.

Methodology: This talk not only identifies the problem of irrational beliefs in sport and why we should aim to promote rational alternatives, but also how we can develop valid and reliable measures, using the Irrational Beliefs Scale for Sports Officials (IBSSO) as an example.

Summary and implications: Future recommendations include measures that compare the strength of rational and irrational beliefs and the value of longitudinal measurements of irrational beliefs following REBT intervention.

### Unravelling the landscape of rational emotive behaviour therapy (REBT) in sport through a systematic mapping review.

Anna Jordana

*Departament de Psicologia Bàsica, Evolutiva i de l'Educació, Universitat Autònoma de Barcelona, Bellaterra*

Introduction: This study presents a systematic mapping review (Jordana et al., 2023) as a comprehensive tool for analyzing the scientific literature on the application of Rational Emotive Behavior Therapy (REBT) in the sports context. This review contributes to the advancement of knowledge by disseminating practical advancements, generating a renewed perspective through the classification of existing evidence, and identifying preferences and research gaps.

Theoretical framework: Rational emotive behavior therapy (REBT).

Problem statement: The field of REBT interventions in sports is identified as emerg-



ing and growing (Turner, 2023), with robust research predominantly originating from Europe, particularly the United Kingdom, evidenced by an increased publication of peer-reviewed articles in the last decade. The field requires a detailed analysis of key categories in the development of REBT interventions with athletes reveals crucial areas such as target variables, design, measures, participants, and interventions.

**Methodology:** The synthesized usage trends offered in this study enable the identification of knowledge gaps, providing practical considerations to guide future designs of REBT applications in the sports context towards novel, challenging, and updated knowledge advancements. Pending research areas are highlighted, including the study of underrepresented populations in the literature (e.g., female athletes, elite former athletes, LGBTQ+ population, athletes in cultural transition), as well as understanding the role of beliefs in “off-field” situations (e.g., career transitions) with the aim of exploring a more holistic perspective and reflecting a more comprehensive experience of athletes and stakeholders in the sports context.

**Summary and implications:** The findings suggest that the primary body of evidence originates from European researchers, predominantly in journal articles and book chapters, focusing on adult male elite football (soccer) players as the target population. This review provides a valuable guide for sports professionals to base decision-making in future empirical work and the development of policies and recommendations in their professional practice on these evidence-based characteristics.

**Evidence for the application of rational emotive behaviour therapy (REBT) to performance under pressure.**

Nanaki J. Chadha

*Private consultant, India*

**Introduction:** Numerous studies demonstrate the effectiveness of rational emotive behavior therapy (REBT) in athletes (Chadha & Turner, 2023). Some sport climates promote the notion of “win at all costs” and set the foundations from which irrational philosophies can develop amongst athletes (Cockerill, 2002). This kind of extreme thinking is dangerous as it can precipitate dysfunctional emotions and maladaptive behaviours among athletes and in turn influences their sporting performances and wellbeing (e.g., King et al., 2022). Therefore, it is essential to develop and implement interventions such as REBT that can alter irrational thinking among athletes in order to aid their sporting performances.

**Theoretical framework:** Rational emotive behavior therapy (REBT).

**Problem statement:** The main aim is to provide an overview of the evidence concerning the application of REBT to aid athletic performance under pressure.

**Methodology:** The findings of a recent systematic mapping review (Jordana et al., 2020) disclosed that the most common design adopted in research was the single-case design. Complimentary to the single-case design, some studies (i.e., Chrysidis et al., 2020; Davis & Turner, 2019; Turner et al., 2020) have also adopted an idiographic single-case design to facilitate a deeper and multimodal form of data

collection. More contemporary research has utilized methods of higher levels of scientific evidence such as randomized control trials (RCT’s) to further test the efficacy of REBT as an intervention protocol for performance under pressure (e.g., Nejati et al., 2022).

**Summary and implications:** Research sheds light on the effectiveness of REBT as an intervention in improving athletic performance under pressure. The positive outcomes include enhanced decreased irrational beliefs, lessened performance-related anxiety, and improved performance and well-being. The findings have implications for psychologists, coaches, and athletes, providing valuable insights into incorporating cognitive-behavioral approaches into the field, benefiting athletes and those involved in sports performance.

**The Rational Practitioner: New (and old) frontiers of rational emotive behaviour therapy (REBT) in sport.**

Martin Turner

*Department of Psychology, Manchester Metropolitan University*

**Introduction:** In the last decade, the reported application and study of rational emotive behaviour therapy (REBT) has grown considerably. Many lessons have been learned, from which one can formulate practice recommendations for REBT in sport. Researchers and practitioners have started to push the envelope with regards to the use of REBT (e.g., King et al., 2022; Munnick & Turner, 2023), postulating new ways in which REBT can be applied within sport settings.

**Theoretical framework:** Rational emotive behaviour therapy (REBT).

**Problem statement:** Because of the proliferation of REBT, there are things that we ‘know’ about the use of REBT in sport. For example, one-to-one REBT applied with athletes appears to confer the most benefits. But there are things that we do not ‘know’, that require future research, that reflects the future direction of this sub-field. For example, what sport climates are best for developing rational thinking in athletes? How do we best measure irrational thinking in athletes? How do we move beyond the scale and resource-heavy limitations one-to-one REBT work?

**Methodology:** The presenter takes a reflective, and prospective, approach to the presentation, bringing the research and applied learnings to the audience around themes that reflect advances in REBT; growth areas into which attention and effort should be funnelled for the benefit of future recipients of REBT in sport.

**Summary and implications:** The talk looks towards the future of REBT, just over the horizon, where REBT is recognised as a flexible, theoretically-consistent but eclectic, and pluralistic approach to practice. Far from being a niche school of psychotherapy, REBT offers a broad and flexible approach to working with clients that holds within it a rich vein of theoretical and applied views that can aid practice.

## Beyond the whistle: Using coaches and athlete leaders to provide collaborative leadership to their teams

**Todd Loughead<sup>1</sup>**

<sup>1</sup>University Of Windsor, WINDSOR, Canada

Symposium 26: Leadership,  
Hall Aalborg, Juli 16, 2024, 16:10 - 17:10

### Do leaders really influence performance? An integrated systematic review and series of meta-analyses

Charlotte Clare<sup>1</sup>, James Hardy<sup>1</sup>, Ross Roberts<sup>1</sup>, David Tod<sup>2</sup>, Alex Benson<sup>3</sup>

<sup>1</sup>Bangor University, <sup>2</sup>Lancaster University, <sup>3</sup>Western University

**Objectives:** The precise nature of the leadership-sport performance relationship remains unclear. Furthermore, understanding of how the effects of leadership might differ across coach and athlete leaders or across team and individual performance is poor. We developed a logic model to delineate this complex set of associations and conducted a systematic and meta-analytical review of the leadership-sport performance literature, to quantify differences between coach and athlete leaders.

**Methods:** We adopted a novel, integrated approach by amalgamating qualitative and quantitative methods. Narrative findings provided an additional layer of detail for the meta-analytical results. Data sources included both published journal articles and unpublished doctoral theses indexed in six electronic databases (e.g., PsycINFO, ScienceDirect). We included full text English language papers (30 studies, 6141 athletes) that captured coach and/or athlete leadership in relation to performance.

**Results:** Results revealed a significant modest positive relationship between global leadership and performance ( $r = .13$ ). The global leadership construct includes transformational leadership, the multidimensional model of leadership, and perceived motivational climates. This relationship was robust irrespective of coach or athlete leadership. However, significantly stronger relationships emerged for team ( $r = .20$ ) as opposed to individual performance ( $r = .08$ ). Moreover, significantly larger effect sizes were yielded for transformational leadership ( $r = .24$ ) compared to the multidimensional model of leadership ( $r = .07$ ).

**Conclusion:** The current findings lend support to the notion that both coach and athlete leaders contribute to sport performance and appear to have a greater influence on team rather than individual level performance. It is important that both types of leaders understand how to modify their behaviour to benefit their team. As such, leadership programmes that afford practice opportunities to develop behaviours grounded in transformational and social identity theory are of key importance.

### A Social Network Analysis comparing coach rated and athlete rated leadership networks

Ashley Flemington, Todd M. Loughead

University of Windsor

**Objectives:** The purpose of the present study was to utilize social network analysis techniques to compare the accuracy of coach and athletes' perceptions regarding the athlete leadership networks occurring on their team.

**Methods:** Participants included members of a competitive soccer team and their head coach. A roster-based survey was utilized whereby participants were asked to rate each of their team members regarding the extent to which they provided various types of leadership (i.e., task-, social-, external-, and motivational leadership). Social Network Analysis (SNA) was utilized to assess this roster-based data allowing for the assessment of relationships between members of this team. As such, the data collected was used to generate four social networks regarding the types of athlete leadership. In particular, the true athlete leadership network, based on the athlete's survey responses, was compared to the coach perception of the network, based on the coach's survey responses, using correlations.

**Results:** Significant correlations were found between leadership roles based on the athlete's ratings (i.e. athlete rated task leadership correlated with athlete rated external leadership). Significant correlations were also found between leadership roles based on the coach's ratings (i.e., coach rated task leadership correlated with coach rated external leadership). However, the athlete rated networks and the coach rated networks were not correlated for any of the leadership roles (e.g., athlete rated task leadership was not correlated with coach rated task leadership).

**Conclusions:** Coaches may not have an accurate perception of the athlete leadership relationships that occur on their teams. Thus, this could be a point of intervention, as a better understanding of these relationships could aid in better leadership development and a more effective use of leadership resources on a team.

### A triangulated leadership perspective from successful leadership triads: Coaches, assistant coaches, and athlete leader perspectives on leader effectiveness.

Kyle F. Paradis, Steafan Deery, Lee Ann Sharp, Noel Brick

Ulster University

**Objectives:** The purpose of the study was to garner perspectives of successful leadership triads on effectiveness and development of championship winning teams. Both 'leadership' and 'coaching' are two terms intertwined together in sport. Thus, coaching is a 'form of sports leadership' (Lyle, 2020). With the coach viewed as a performer in their own right (Rynne et al., 2016), researchers want to further explore the psychology of leaders and those around them (Lara-Bercial & Mallet, 2016; Vallée & Bloom, 2016). Effective leader behaviours have a profound and lasting impact on ath-

lete and team development outcomes (Arthur & Bastardoz, 2020), and can positively influence athletes' performance, behaviour, and well-being (Horn, 2002). Effective leaders help group members perform at their best (Cook et al., 2021), increase motivation (Hodge et al., 2014), build team cohesion (Baird et al., 2020), protect mental health and wellbeing (Vella & Liddle, 2020), develop life skills, and encourage lifelong participation in sport (Nichol et al., 2019).

Methods: Semi-structured interviews were conducted with participants which included six triads (n = 18) of a coach, assistant coach, and athlete leader from six different inter-county All-Ireland Championship winning teams in Hurling and Gaelic Football. The coaches interviewed had won 24 All-Ireland Championships and 77 trophies between them.

Results: Four main themes were identified through thematic analysis. Successful leaders excel at: a) building holistic relationships with athletes and the backroom team; b) developing team cultures, values, vision, standards, and gaining buy-in; c) sharing narrative identities, personality traits, and psychosocial skills; and d) successfully coordinating the team through athlete leaders, role clarity, and motivational climate.

Conclusions: Findings lend to the advancement of the understanding of effective leadership behaviours within winning teams and highlights how group dynamics leadership development can facilitate success. Future research in other sport settings is needed to understand different contexts.

### **Using the head coach and team leaders in a season long team building intervention**

Todd M. Loughead<sup>1</sup>, Megan E. Kalbfleisch<sup>1</sup>, Mason Sheppard<sup>1</sup>, Krista J. Munroe-Chandler<sup>1</sup>, Gordon A. Bloom<sup>2</sup>

<sup>1</sup>University of Windsor, <sup>2</sup>McGill University

Objectives: There is a strong relationship between leadership and team building. Effective leadership is critical for building and maintaining successful teams. This relationship is illustrated by providing a coherent vision and setting goals that inspire and motivate team members. As well, team leaders (coaches and athlete leaders) who foster trust create a team environment where team members feel psychological safe in sharing ideas and collaborating with others. Therefore, the purpose of this study was to implement a multimodal season long team building intervention designed by the research team in conjunction with an elite level men's ice hockey team leadership group.

Methods: Using an action research approach, the research team and the team's leadership group collaborated in implementing several team building interventions throughout the season. At the end of the season, semi-structured interviews with the athlete leaders (n = 4) and head coach (n = 1) were conducted to gain insight into how the team building intervention impacted them as team leaders and the team as a whole.

Results: A reflexive thematic analysis (Braun & Clarke 2019) was conducted to assess the participants' experiences of the team building interventions offered during the season. The findings indicated two overarching themes. The first theme related to the benefits experienced of the team building intervention, such as the facilitation of athlete leadership and the development of team cohesion. The second theme related to the nature of the team building interventions used and how these could be improved.

Conclusions: The findings from this study underscore the central connection between leadership and team building. Through a season long intervention with an elite men's ice hockey team, findings revealed positive impacts, including enhanced athlete leadership and team cohesion. The study highlights the importance of continuous improvement in refining team building interventions to create better team environments.

### **Assessing the content validity of a measure of athlete leader fairness**

Katherine E. Hirsch<sup>1,2</sup>, Todd M. Loughead<sup>2</sup>

<sup>1</sup>New Mexico State University, <sup>2</sup>University of Windsor

Objectives: Athlete leader fairness is defined as an individualized perception of an athlete leader's behavior as being appropriate according to the team's objectives team standards for using leadership power, and situation in which the statement or action occurred (Hirsch & Loughead, 2024). At present, there are no sport-specific measures of fairness in sport which limits our understanding of how team members' perceptions of athlete leaders can impact the sport experience. Therefore, the purpose of the present study was to develop an inventory to assess athlete leader fairness and examine content validity.

Methods: An item pool was developed from interview responses from intercollegiate athletes and coaches sharing their conceptualizations of athlete leader fairness (Hirsch & Loughead, 2024). These items were then evaluated by six varsity intercollegiate athletes using think aloud protocol guidelines (French et al., 2007; Hoffmann & Loughead, 2019). The data was deductively coded using McCorry et al.'s (2013) framework for categorizing participants' perceptions of the items. The revised pool of items was then analyzed by an expert panel of six sport psychology researchers and practitioners. Aiken's (1985) Validity coefficients were calculated, and qualitative data was gathered to inform the retention and revision of items.

Results: The final iteration of the inventory contained 71 items assessing behaviors related to upholding team rules and goals, being inclusive, not exploiting power or being authoritative, being impartial, representing and advocating for teammates, and being consistent. Specific quantitative (e.g., Aiken's Validity coefficients) and qualitative data (e.g., think aloud responses) that informed the revision of the inventory at each phase will be discussed.

Conclusions: The findings provide support for a new inventory that assesses athlete leader fairness. Researchers and practitioners can use this tool to explore correlates of fairness as well as to evaluate leadership development interventions.

## Mutual Influences and Co-operation in Sport Psychology - A Historical Perspective

Erwin Apitzsch<sup>2</sup>, **Roland Seiler**<sup>1</sup>, Sidonio Serpa<sup>3</sup>, Alberto Cei<sup>4</sup>, Jörn Munzert<sup>5</sup>, Natalia Stambulova<sup>6</sup>

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Symposium 27: Other topics,  
Hall Strassburg Nord, Juli 17, 2024, 11:00 - 12:30

### Challenges of the Managing Council in Connecting East and West European Countries in the Work of FEPSAC

Erwin Apitzsch

Lund University, Lund, Sweden

The fall of the Berlin Wall in 1989, symbolizing the fall of the Eastern Bloc, started a tidal wave of change that spread across Europe. In 1991 the Soviet Union dissolved and was replaced by 15 independent states. How these political changes were dealt with in FEPSAC is the topic of this presentation.

In October 1989 the Managing Council of FEPSAC consisted of 11 persons, six from Eastern Europe and five from Western Europe. Both the President and the Vice President were from Eastern Europe. The democratisation of Eastern Europe caused Miroslav Vanek, President of the International Society of Sport Psychology (ISSP) 1973-1985, to write an article in the FEPSAC BULLETIN 1/1991, where he claimed that the foundation of FEPSAC above all had political and antidemocratic roots connected with the invasion of the five states of the Warsaw Treaty into Czechoslovakia in 1968. Due to political reasons sport psychologists from the Soviet Union, Bulgaria, the German Democratic Republic, Hungary and Poland decided to boycott the ISSP Congress in Washington later that year. As a result sport psychologists from these countries convened a counter-conference for sport psychologists in Varna, which resulted in the foundation of FEPSAC as a marx-leninist opposition to ISSP.

At the FEPSAC Congress in September 1991 the composition of the Managing Council changed remarkably. To the nine positions of board members, eight persons from Western Europe were elected. Of the five candidates, who were not elected, four were from Eastern Europe. Thus, it can be stated that the political aspects were removed from the work of FEPSAC. In the following years efforts were made by the Managing Council to welcome Eastern European countries as members of FEPSAC. Estonia and Latvia were the first countries to respond favourably.

### Co-operation in the Early Years of FEPSAC: Ideological and Organisational Constraints and Barriers

Roland Seiler

University of Bern, Bern, Switzerland

The development of European sport psychology has mainly been documented in official annual or presidential reports. However, this narrative often negotiates the difficulties and obstacles that the protagonists faced and had to overcome in the daily business. The aim of this presentation is to highlight ideological, political, and organisational problems in the period of the separated European continent that is, the first 20 years of FEPSAC from its foundation in 1969 to the fall of the Berlin Wall in 1989. Selected documents from personal archives of two long time members of the FEPSAC Managing Council, namely Paul Kunath, German Democratic Republic (GDR), and Erwin Hahn, Federal Republic of Germany (FRG) are used to analyse exemplary situations. Ideological differences and mutual mistrust hindered the development of scientific exchange right after the invasion of Czechoslovakia (CSSR) by the states of the Warsaw treaty. Nationalist attitudes, based mainly on an aversion to U.S. claims to linguistic hegemony, were particularly evident in France. Political restrictions, mainly in the Eastern countries, influenced the possibilities to collaborate, for example, for participation in the second World Congress of the International Society of Sport Psychology in Washington DC in 1968, which ultimately led to the foundation of FEPSAC. On an organisational level, it was extremely challenging to organise, for example, visits of sport psychologists from the German Democratic Republic in Western countries, and meetings and visits of FEPSAC representatives in the GDR. Detailed and well-founded applications had to be submitted to the relevant bodies, and detailed reports on the achievement of objectives were due at the end of a visit. Considering that FEPSAC, despite all these constraints, kept on working in this difficult period, it has to be discussed what can be learned for the present situation.

### The Relations ISSP-FEPSAC: History of a Friendly Enmity

Sidonio Serpa<sup>1</sup>, Alberto Cei<sup>2</sup>

<sup>1</sup>CIDEFES, Lusofona University, Lisbon, Portugal <sup>2</sup>San Raffaele University, Rome, Italy

The inception of the International Society of Sport Psychology (ISSP) in 1965, during the Cold War, responded to the need of establishing an international platform for scientific, professional, and personal relationships in order to exchange experiences on the worldwide situation of the field. The apparently wished unity among professionals and scholars didn't resist to the political tension between the Eastern Socialist and Western Capitalist blocs. Therefore, the European Federation of Sport Psychology (FEPSAC) was established in 1969 in reaction against ISSP and became closer to the socialist bloc, while ISSP was perceived as western oriented. Moreover, some conceptual differences separated the two organizations. However, despite the general idea of some enmity opposing the two major SP international associations some

facts seem to deny this perception. For example, the decision to create FEPSAC was unanimously taken in Varna, in 1968, in a meeting with the participation of key ISSP persons and one of them became member of the organizing committee of the new association. On the other hand, six ISSP and FEPSAC important MC members circulated among the two organizations in the total of 43 mandates along the History. Additionally, the bi-annual ISSP Newsletter published from 1990 to 2005 have 31 references to aspects or activities related to FEPSAC and only one of them may be perceived as a criticism. The first issue of the ISSP journal (IJSP, 1970) had complete reports on FEPSAC, and many Eastern professionals contributed to the journal's structure. The initial opposition among these associations due to political, conceptual, language and personal issues seem to have paradoxically started in a mutual acceptance base, despite being associated with a certain enmity that evolved into rivalry and finally to cooperation that respected the differentiated characters and missions. This was possible due to the key-role of bridging main members.

### **Language, Inner Speech, and Self-Instruction: Reception of the Cultural-Historical School in Western Europe and the US**

Jörn Munzert

*Justus Liebig University Giessen, Giessen, Germany*

A central topic of the cultural-historical school founded by Lev Vygotsky (1896-1934) is based on his studies on the relationship between thought and language. He shows that mental functions arise as a means of social intercourse. Alexander Luria (1902-1977) expanded this approach and went on to examine the function of inner speech for action regulation. In doing so, he integrated Pavlov's concept of the second signaling system in his concept of self-instruction. Important functions of inner speech rely on the generalization of perceptual signals, the formulation of the motor task, the mobilization of movement patterns and the inhibition of disturbing perceptual signals.

Luria's developmental psychological studies on the internalization of language were particularly important for the reception of the cultural-historical school in the English-speaking world. There are already existing overview studies on this topic from the early 1970s (Wozniak, 1972). A very important link leads from these studies to the use of self-instructions in a clinical context by Donald Meichenbaum. This important aspect cannot be traced to any extent in the more recent literature.

At this point, I cannot trace the reception of Vygotsky and Luria in the Eastern European states. However, with regard to the reception in the two German states, it is interesting to note that many of the works of the cultural-historical school were published in the Federal Republic of Germany and not in the German Democratic Republic. One exception is Luria's research on neuropsychological topics. An influence on practical applications came about more indirectly through the reception of American work on the internalization of language. It provided a basis for the development of self-instruction tools. Theoretical concepts on the theory of action were also indirectly influenced by the cultural-historical school.

### **Role of FEPSAC and the European Commission in Developing Dual Career Discourse in Europe**

Natalia Stambulova

*Halmstad University, Halmstad, Sweden*

This presentation outlines an evolution of the European dual career (DC) discourse emphasizing roles of FEPSAC and the European Commission (EC). Such evolution might conventionally be divided into three stages. The first latent stage lasted since FEPSAC was created (1969) and up to mid of the 1990s. Pioneer studies revealed that having sport combined with education and/or vocational experience (i.e., DC) facilitate athletes' post-sport adaptation. The second – awareness stage lasted between the 9th FEPSAC Congress (1995) when the CT-SIG was formed, and "White Paper on Sport" issued by the EC (2007) with the term "DC" introduced. The CT-SIG cooperated with the FEPSAC on two Position Statements and one monograph on career topics followed by Psychology of Sport and Exercise Special Issue (SI) on career transitions. These publications promoted the holistic view of athletes' development and paved the way for DC research and practice. The EC promoted 2004 as a Year of Sport and Education in Europe, supported the European Athlete as Student network and pilot DC projects. The third – development stage (2007-today) is characterised by development of the European DC discourse as "a historically constructed and shared body of DC knowledge...providing DC stakeholders in Europe with common grounds to understand each other, communicate, and cooperate on different levels" (Stambulova & Wylleman, 2019, p. 74). The EC delivered the European Guidelines on DCs of Athletes (2012) followed by a decade of funding DC projects within Erasmus +Sport program (e.g., Gold in Education and Elite Sport). FEPSAC supported the Psychology of Sport and Exercise SI "DC Development and Transitions" (Stambulova & Wylleman, 2015) and an invited review of the European DC research (Stambulova & Wylleman, 2019) published on the 50th anniversary of FEPSAC – all followed by the recent Position Statement on athletes' DCs in the European context (Stambulova et al., 2024).



## Parenting an elite sport athlete: The interconnectedness of experiences throughout career stages

**Valeria Eckardt**<sup>1,2</sup>, James Newman<sup>3</sup>, Philipp Koch<sup>4</sup>, Noémie Lienhart<sup>5</sup>, Nadja Ackeret<sup>6,7</sup>

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Symposium 28: Other topics,  
Hall Strassburg Süd, Juli 17, 2024, 11:00 - 12:00

### Parental support in professional youth soccer academies – a cross-cultural understanding of children’s perceptions and expectations

Newman, James<sup>1</sup>, Bechtloff, Anton<sup>2</sup>, Hassan, Rawa<sup>3</sup>, Wragg, Connie<sup>1</sup>, Dorsch, Travis E.<sup>4</sup>, Eckardt, Valeria C.<sup>2</sup>

<sup>1</sup>Academy of Sport and Physical Activity, Sheffield Hallam University <sup>2</sup> Department of Performance Psychology, German Sport University Cologne <sup>3</sup>Westfälische-Wilhelms Universität Münster <sup>4</sup>Department of Human Development and Family Studies, Utah State University

**Objectives:** The present study aimed to capture children’s perceptions of parental support as they transition into a professional youth soccer academy. Moreover, given the increasing importance placed on the need for cross-cultural research in sport (Stambulova & Alfermann, 2009), this study compared parent support in Germany, England, and the United States to explore whether there were similarities or differences in parent practices during this transition.

**Methods:** A total of 33 semi-structured interviews were conducted with male soccer players aged 7 to 11 years who attended soccer academies at three professional clubs in these countries. The data were first analyzed for each country via thematic analysis and then merged.

**Results:** Overall, the findings present a detailed description and interpretation of the parent–athlete relationship and how these relationships were situated within the unique elite pathways within each country. General dimensions illustrated cross-cultural themes connected to parents’ presence, parents’ coaching, and how parents could best provide support. Although some of the results suggested that the parent-athlete relationship can influence an athlete’s goal orientations, competence, and emotional responses, some children had little awareness of their parent’s behavior and placed less value on their parents’ involvement. Therefore, the findings are theorized both in terms of motivational and developmental psychology literature.

**Conclusions:** From an applied perspective, the findings provide important recommendations for athletes, parents, and coaches regarding the importance of man-

aging the transition into elite football and the potential role that parents might play. Furthermore, the study reinforces the need for young athletes to be able to discuss their expectations with their parents in sport.

### Profiles of success – The role of parents and coaches in the development of professional soccer players

Koch, Philipp<sup>1</sup>, Zuber, Claudia<sup>1</sup>, Charbonnet, Bryan<sup>1</sup>, Conzelmann, Achim<sup>1</sup>

<sup>1</sup>Institute of Sport Science, University of Bern, Switzerland

**Objectives:** The theoretical landscape of talent development in soccer is acknowledged as a multidisciplinary problem (Williams et al., 2020). Despite this consensus, sociological factors commonly identified in several developmental models (Bronfenbrenner, 1979; Côté et al., 2020) like parental and coaching influence remain underexplored in current research, warranting increased attention. Methodologically, existing studies predominantly employ a variable-oriented lens, linking parental or coaching behavior (e.g., pressure, support) to various talent developmental variables (e.g., success, performance; Coutinho et al., 2021; Murray et al., 2021; Sieghartsleitner et al., 2019). However, this approach neglects individual heterogeneity and fails to capture the complex interactions (and compensation) within a person (Lienhart et al., 2020; Zuber et al., 2015). An alternative, person-oriented approach is required for understanding how “types of persons”, with distinct combinations of parental and coach support, evolve uniquely over time, potentially influencing their likelihood of future success.

**Methods:** This longitudinal study examines the development of 108 elite youth soccer players, born in 1999 and 2000 at two measurement points in 2011 (U13) and 2012 (U14). By utilizing the person-oriented approach (Bergman et al., 2003), the study aims to create profiles (i.e., types of persons) of perceived leadership behavior (Leadership scale for sports; Chelladurai & Saleh, 1980) and perceived parental influence (Parental involvement in sport questionnaire; Lee & McLean, 1997), analyzing their impact on soccer performance levels at adulthood in 2023.

**Results:** In the preliminary findings, two distinct profiles emerged as potential indicators for achieving elite adult soccer performance: well-supported athletes with moderately involved parents and average-supported athletes with highly involved parents. The profiles suggest a relative stability in parental involvement, whereas coach behavior exhibits considerable variability.

**Conclusion:** This highlights the importance of coaches and parents in talent development and how they balance pressure and support and the possibility of compensatory mechanisms between coaches and parents.

**Communication between coaches and parents: Which strategies to implement best?**

Lienhart, Noémie<sup>1</sup>, Teillet, Matthieu<sup>2</sup>

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**Objectives:** Coaches and parents are key stakeholders in the ecosystem of adolescent elite athletes (e.g., Wolfenden et al., 2005). However, they consider their interactions as a stressor, particularly as they perceive a lack of communication and mutual understanding (e.g., Knight & Harwood, 2009; Lienhart et al., 2019). The purpose of the present study was twofold: (a) to explore parent-coach communication in training centres for elite adolescent athletes, and (b) to identify communication strategies that these two stakeholders can implement to meet their expectations.

**Methods:** Twenty-two semi-structured interviews and 4 focus groups were realised with 17 parents (nmother = 8, nfather = 9; Mage = 49, SDage = 6.18) and 5 coaches (nmales = 5; Mage = 33.5; SDage = 5.32) of 16 adolescent elite athletes (nmales = 8, nfemales = 8; Mage = 16.56, SDage = 1.15). Data were analysed using thematic analysis (Braun & Clarke, 2006).

**Results:** Coaches and parents communicated formally and informally using various tools. They shared information about the organization proposed by training centres, the training centres' expectations of the athletes and their parents, their dual career (i.e., sport and education), and their medical follow-up. Coaches and parents were more or less satisfied with their current communication. Several shared expectations in terms of communication emerged from the data: (a) to develop a communication dynamic by establishing regular communication and prioritizing face-to-face exchanges, and (b) to use clarity and transparency in the information shared. Finally, focus groups identified strategies that training centres could implement to meet the communication expectations of coaches and parents.

**Conclusion:** This work suggests an inventory of current communication tools between coaches and parents of adolescent elite athletes. Data highlighted solutions identified by the stakeholders to optimize their communication and thus reduce their perception of stressors.

**„Talk to me! Examining parents' and coaches' satisfaction with communication in youth soccer“**

Eckardt, Valeria C.<sup>1,2</sup>, Dorsch, Travis E.<sup>3</sup>

<sup>1</sup>Witten/Herdecke University, Witten, Germany <sup>2</sup>German Sport University Cologne, Germany <sup>3</sup>Utah State University, Logan, Utah, USA \*Symposium chair

Regular and honest communication can enhance trust and facilitate cooperation between parents and coaches in youth sport. Given the significance of positive parent-coach interactions for athletes' development and sport-related outcomes, par-

ents' and coaches' use of communication in day-to-day activities warrants increased scientific attention. This study sought to assess the frequency, perceived utility, and perceived satisfaction of digital and non-digital communication modes between parents and coaches in youth soccer. To meet that objective, a quantitative online survey was administered to parents (N = 1,024) and coaches (N= 340) in amateur and elite youth soccer to understand bidirectional perceptions. Results showed that parents perceived communication frequency to be significantly lower across modes (i.e., regular conversations after practice/competitions, phone calls) compared to coaches. Further, WhatsApp groups were the most frequently implemented but not the most effective mode of communication for both parents and coaches on a weekly basis. In general, the majority of parents indicated to be satisfied with contemporary parent-coach communication which significantly contributed to a positive perception of overall parent-coach cooperation. Findings will be discussed within the light of potential implications for the use of communication strategies in coaching, coach education, as well as organisational decision making in youth sport.

**Navigating the junior-to-senior transition: Parental challenges, support strategies, and wishes**

Ackeret, Nadja<sup>1,2</sup>, Röthlin, Philipp<sup>1,3</sup>, Horvath, Stephan<sup>1</sup>, Ronkainen, Noora<sup>1,3</sup>, Berger Thomas<sup>1,2</sup>

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**Objectives:** The junior-to-senior transition (JST) in sports represents a critical phase characterized by a blend of opportunities and challenges for athletes (Franck et al., 2018; Stambulova et al., 2009; Vanden Auweele et al., 2004). Within this transition, the social environment has emerged as a crucial determinant, capable of either facilitating or hindering athletes' positive experiences (Ackeret et al., 2023; Morris et al., 2017; Pehrson et al., 2017; Sanders & Winter, 2016). Notably, parents play a pivotal role within this social context. Studies have shown that parents often feel unprepared or insecure to adequately support their children during the JST, emphasizing the necessity for a deeper understanding of parental experiences (Hardwood & Knight, 2009b; 2015). Consequently, this study aims to explore the perceived difficulties, helpful strategies, and needs of parents accompanying their children through the JST. The knowledge could be utilized to tailor effective support for parents and inform the development of future interventions aimed at enhancing parental involvement during the JST.

**Methods:** Focus group interviews (current n = 8) with parents of transitioning athletes are conducted to address parents' view of the following themes: perceived difficulties, helpful strategies, and needs of parents during the JST of their child-athletes. Reflexive thematic analysis (Braun & Clarke, 2019) will be used to analyze the data.

Results: Data collection is ongoing and will be finished by the end of March 2024. Preliminary results will be presented.

Conclusion: The results will be discussed with an emphasis on how parents can be supported in the JST process, applied implications of this study will be suggested to enhance the athletic support environment.

## Bio- and Neurofeedback in Action: Bridging the Mind-Body Gap in Sports and Beyond

**Réka Zsanett Bondár**<sup>1</sup>, Andrew Cook<sup>2,3</sup>

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Symposium 29: Psychophysiology, Hall Maximilian, Juli 17, 2024, 11:00 - 12:00

### Self-Regulation: Bio- and Neurofeedback Research and Applied Work in Sport with High Performance Athletes

Penny Werthner, PhD

*Faculty of Kinesiology, University of Calgary, Canada*

**Objective.** The ability to manage one's level of stress and one's emotions, in the high-pressure situation of a world championships and an Olympic Games, are key skills athletes need to develop to perform at an optimal level on a consistent basis. As a result, much of the research in the field of sport psychology has been driven by an interest in exploring the gap between an athlete's potential and his or her actual performance (Bortoli et al., 2012; Jones et al., 2007). One major factor that has been shown to effectively influence performance under pressure is an athlete's ability to manage both psychologically and physiologically or, in other words, the ability to self-regulate (Babiloni et al., 2011; Davis et al., 2007; Lagos et al., 2008). The purpose of this presentation is to present recent research on the utilization of bio- and neurofeedback in high performance sport settings and discuss practical applications with an elite sport population.

**Method.** In recent years, innovations in technology, in particular a variety of self-regulation strategies including well-established bio-and neurofeedback training techniques, have allowed us to better study performance in all its complexity.

**Results.** Bio-and neurofeedback training allow an athlete to develop the ability to effectively focus, become more deeply self-aware, recover, effectively manage emotions, and self-regulate the autonomic and central nervous systems (Blumenstein & Hung, 2016; Di Fronso et al., 2020; Schwartz & Andrasik, 2017).

**Conclusion.** Using the technology of bio- and neurofeedback helps improve human performance in elite sport by ensuring a holistic approach that includes an understanding of the body-mind interaction and the relationship with the environment (Bertollo et al., 2019).

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### **A Single Session of Sensorimotor Rhythm Neurofeedback Training Enhances the Long Game Performance of Professional Golfers**

Jia-Hao Wu<sup>1</sup>, Yi-Chin Tu<sup>1</sup>, Rodolphe J. Gentili<sup>2,3</sup>, Bradley D. Hatfield<sup>2,3</sup>, Tsung-Min Hung<sup>1,4</sup>

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**Objectives.** Enhanced Sensorimotor Rhythm (SMR) activity has been linked to increased automation in motor execution. While existing research has demonstrated the positive effects of SMR neurofeedback training (NFT) on improving golf putting performance, its influence on golf long game performance remains unexplored. This study sought to address this gap by involving seventeen female professional golfers in a crossover-designed experiment incorporating both NFT and a no-training control condition.

**Methods.** During the study, participants executed 40 150-yard swings while receiving continuous SMR neurofeedback. Pre- and post-tests utilized visual analog scales to assess psychological processes associated with SMR activities, including attention engagement, conscious motor control, and physical relaxation levels.

**Results.** The results revealed that a single session of NFT effectively heightened SMR power, leading to improved swing accuracy compared to the control conditions, particularly in "To Pin" (the absolute distance to the hole after the ball comes to a stop).

Subjective assessments further indicated reduced attention engagement and conscious motor control reported by participants during the swing task. This suggests that SMR NFT contributed to a sense of ease and tranquility in mental states during the motor preparation for the golf swing.

**Conclusion.** These findings offer valuable insights into the potential mechanisms underlying the impact of SMR NFT on long-game performance and advocate for the practical integration of SMR NFT into psychological skill training programs for skilled golfers.

### **Neurofeedback Training and Athletes' Neural Regulation: What Changes Can be Expected**

Arash Mirifar<sup>1</sup>, Andreas Keil<sup>1</sup>, Felix Ehrlenspiel<sup>2</sup>

<sup>1</sup>Center for the Study of Emotion & Attention, University of Florida, Gainesville, Florida, United States of America <sup>2</sup>Department of Sport and Health Sciences, Chair of Sport Psychology, Technische Universität München, Munich, Bavaria, Germany

**Objective.** The study of Neurofeedback (NF) began in the 1960s, which showed that humans and animals could acquire the ability to alter their electroencephalographic (EEG) signals in real time, when given appropriate instructions and suitable feedback. Today, the available empirical evidence suggests that NF training (NFT) is the most widely used technique for inducing changes in brain activity through self-regulation. Mounting evidence also supports that NFT prompts measurable clinical and performance benefits. However, the lack of understanding NFT's mechanisms on a model and neural level has negatively impacted comprehension of the NFT process and the expectations about outcomes. For example, an on-going discussion among researchers in the field is whether one should expect steady changes in resting or baseline brain activity across sessions of an NFT intervention (Mirifar et al. 2022).

**Methods.** This study is a comprehensive perspective-based review of the literature to gain insights into evolving trends in the field of NFT, shedding new light on the current state and potential future directions.

**Results.** Historically, the term "self-regulation" has been used to describe volitional control of one's own thoughts, feelings, and behaviors to reach certain goals. Thus, it is assumed that the alterations in the brain oscillatory activity induced by NFT should be under the control of participants after termination of training. In the field of NFT, however, little to no evidence shows that participants were, after termination of NFT, able to voluntarily increase/decrease the incidence of the trained frequency. Furthermore, when NFT is employed to optimize performance, the aim is to change the brain's oscillatory activity only during NFT sessions while a specific task is being executed, but not outside these conditions.

**Conclusion.** After learning to modify their brain activity, athletes and artists should be able to up- and down-regulate the trained frequency more freely based on demand.

Mirifar, A., Keil, A., & Ehrlenspiel, F. (2022). Neurofeedback and neural self-regulation: a new perspective based on allostasis. *Reviews in the Neurosciences*, 33(6), 607-629.

### Beyond the Mind`s Eye: Pupil-based Biofeedback as a Potential Training for Arousal Modulation in Athletes

Réka Zsanett Bondár<sup>1</sup>, Marieke Lieve Weijts<sup>2</sup>, Andrea Dettling<sup>1</sup>, Sarah Nadine Meissner<sup>2</sup>, Marc Bächinger<sup>2</sup>, Nicole Wenderoth<sup>2,3,4</sup>, Daniel Birrer<sup>1</sup>

<sup>1</sup>Department of Elite Sport, Swiss Federal Institute of Sport Magglingen, Magglingen, Switzerland <sup>2</sup>Neural Control of Movement Laboratory, Department of Health Sciences and Technology, ETH Zurich, Zurich, Switzerland <sup>3</sup>Neuroscience Center Zurich, University and ETH Zurich, Zurich, Switzerland. <sup>4</sup>Future Health Technologies, Singapore-ETH Centre, Campus for Research Excellence and Technological Enterprise (CREATE), Singapore, Singapore.

**Objectives.** The ability to self-regulate is essential for the performance and well-being of athletes. Biofeedback can facilitate arousal self-regulation, allowing athletes to gain control over psychophysiological responses. Meissner and colleagues (2023) have shown that the brain`s arousal system can be made accessible to volitional control using a novel pupil-based biofeedback (pupil-BF) approach in the general population. Pupil self-regulation was accompanied by changes in the activity of the locus coeruleus the principal source of noradrenaline in the brain and one of the main regulators of the brain`s arousal state together with changes in autonomic arousal measures (e.g., heart rate). Based on these laboratory findings, we are investigating whether athletes can learn to regulate pupil size via pupil-BF training. To increase usability in the field and to detect non-luminance dependent changes in pupil size the training will be delivered in a virtual reality (VR) headset with eye-tracking capabilities.

**Methods.** Competitive athletes are recruited to complete a 12-session pupil-BF training over four weeks. Prior to the sessions, participants receive psychoeducation to develop individual mental strategies for arousal modulation. During the training, athletes receive real-time visual feedback and can use their mental activation and relaxation strategies to increase and decrease pupil size. The VR headset will be used to measure self-regulation of pupil size pre-, intermediate- and post-intervention. Perceived emotional and physical states and levels of arousal and fatigue are assessed before and after each up- and down-regulation session. Usability will be evaluated with the System Usability Scale (Brooke, 1996) at the end of the training.

**Conclusion.** We expect to find volitional control in the modulation of pupil size, which would indicate successful application of mental strategies. Preliminary tests have shown pupil size changes in the expected direction. Future studies will investigate the effects of this new biofeedback approach on athletes` performance and well-being.

Brooke, J. (1996). SUS-A quick and dirty usability scale. *Usability Evaluation in Industry*, 189(194), 4-7. <https://doi.org/https://doi.org/10.1201/9781498710411-35>

Meissner, S. N., Bächinger, M., Kikkert, S., Imhof, J., Missura, S., Carro Dominguez, M., & Wenderoth, N. (2023). Self-regulating arousal via pupil-based biofeedback. *Nature Human Behaviour*, 1-20.

### Putts to Parkinson's: Applying Sport Neurofeedback to Clinical Care

Andrew Cooke<sup>1,2</sup>, John Hindle<sup>3,4</sup>, Catherine Lawrence<sup>5,6</sup>, Eduardo Bellomo<sup>1</sup>, Aaron W. Pritchard<sup>4</sup>, Catherine A. MacLeod<sup>6</sup>, Pam Martin-Forbes<sup>2,7</sup>, Sally Jones<sup>7</sup>, Martyn Bracewell<sup>2,8,9</sup>, David E. J. Linden<sup>10,11,12,13</sup>, David M. A. Mehler<sup>11,12,13,14,15</sup>

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**Objectives.** Neurofeedback interventions designed to optimize movements in sport typically focus on helping relatively young and healthy athletes to achieve their performance goals. However, their implications could be far greater. In this experiment we applied learnings from neurofeedback research in sport to create a neurofeedback intervention designed to facilitate the movements of people with Parkinson's disease. Parkinson's is a neurodegenerative condition with common symptoms including slowness and impairment of voluntary movement (Hindle, 2010). Effective neurofeedback protocols could offer valuable non-pharmacological treatment options to help manage the motor symptoms of the disease (Esmail & Linden, 2014). This experiment reports the first study of home-based electroencephalographic (EEG) neurofeedback training in people with Parkinson's disease.

**Methods.** Sixteen people with Parkinson's (M age = 67.31, SD = 9.77 years; M years since diagnosis = 5.06) received six home visits. In visits 1, 2 and 6, they completed symptomology self-reports, a standardised motor assessment, and a precision handgrip force production task while EEG was recorded. In each of visits 3 to 5 they received 1-hour of EEG neurofeedback training to reduce EEG high-alpha power before initiating handgrip movements.

**Results.** Participants successfully learned to self-regulate movement-related alpha rhythms, and this appeared to expedite the initiation of precision movements. There was no evidence of wider symptomology reduction. Interviews indicated that the intervention was well-received.

**Conclusion.** Home-based neurofeedback for people with Parkinson's is feasible. Our decrease high-alpha power neurofeedback protocol may selectively benefit the initiation of movements. Larger-scale investigations of a range of neurofeedback protocols in people with Parkinson's are warranted. We encourage more sport-based scientists to consider applications of their research for non-sport populations and domains.

Esmail, S., & Linden, D. E. (2014). Neural networks and neurofeedback in Parkinson's disease. *Neuroregulation*, 1(3-4), 240-240. <https://doi.org/10.15540/nr.1.3-4.240>

Hindle, J. V. (2010). Ageing, neurodegeneration and Parkinson's disease. *Age and Ageing*, 39(2), 156-161. <https://doi.org/10.1093/ageing/afp223>



## Dual careers at the lower secondary education -a pathway to success or too much too early?

Milla Saarinen<sup>1</sup>

<sup>1</sup>Norwegian School Of Sport Sciences, Oslo, Norway

Symposium 30: Transitions in and out of sport/dual career,  
Hall New Orleans, Juli 17, 2024, 11:00 - 12:00

### Seeking Dual Career Balance: Unravelling the concept of Well-being among Student Athletes in Finnish Lower Secondary Sports Schools

Joni Kuokkanen

<sup>1</sup>Åbo Akademi, Finland

Combining sport and studies in a dual career (DC) provides student athletes opportunities for accumulating rich experiences, skills and strategies that are vital for short- and long-term success in life. However, navigating A DC is also undeniably challenging, with varying degrees of conflict and compatibility when incorporating school or work with sport pursuits. While not extensively studied, this challenge becomes particularly evident during the developmental stage in sports, typically between the ages of 13 and 15, where a concerning trend of dropout from sports and potential burnout emerges due to increasing DC demands.

Recognizing the need to develop standardized support structures, the Finnish Olympic Committee initiated a three-year pilot project in 19 public lower secondary sports schools (ages 13-15 years) between 2017 and 2020. These schools committed to providing practical and structural assistance to facilitate a successful DC for adolescent athletes. Alongside the pilot project, a comprehensive longitudinal mixed-methods research project was launched to evaluate and enhance support functions within these DC environments. We synthesize findings from studies conducted within the project, drawing on data collected through observations, interviews with student athletes and school staff, as well as longitudinal questionnaire data. Delving into concepts such as school- and sport-related engagement, burnout, social support, and DC experiences, the presentation provides a holistic understanding of the complex relationship between these factors in shaping the well-being of adolescent DC athletes throughout their lower secondary school journey and during transition to upper secondary education. Adopting a pragmatic approach, we conclude by offering thorough insights into culturally and contextually suitable interventions designed to enhance support services and foster the successful integration of school and sport during the initial phase of the DC, addressing the needs of student athletes across different subgroups.

## Taking “the right choices” as a young dual career athlete: self-surveillance, ambiguities, and acts of resistance

Marie Loka Øydna, Jens Christian Nielsen, Christian Thue Bjørndal

Norwegian School of Sport Sciences, Norway

When student-athletes embark on their dual career journey, they face increased expectations to make informed and rational day-to-day decisions to cope with the competing demands of the dual career lifestyle (López-Flores et al., 2021). In this study, we aim to conduct a critical examination of the ways in which youth student-athletes engage with the moral obligations inherent in the pursuit of dual careers – balancing both academic and athletic commitments. This involves an analysis of how they are subjected by authoritative body of knowledge, that is, norms and guidelines related to daily-life management strategies, and how they actively subject themselves to these through practices of submission or resistance. Approximately 30 student-athletes (aged 15-16), representing three different 10th grade classes at one Norwegian lower secondary sports school, will participate in focus group interviews. The interviews are semi-structured, and we present scenarios (i.e., whether to prioritize sleep or schoolwork) and statements (i.e., about “proper” nutrition for athletes) to facilitate discussions between the participants. The interviews will be completed in February. Preliminary results indicates that student-athletes experience expectations to be a “24-hour athlete” – feeling obligated to prioritize training and to stay conscious of quality in their restitution – while simultaneously perform well in school. Most of them search for control and productivity throughout their day but are forced to negotiate between obligations due to fatigue. Interestingly, conflicts and struggles with restitution seem to be constructed as an individual rather than a structural problem. Consequently, a discussion about alternative strategies that can reduce experiences of obligations is crucial for this age-group.

### Examining the coach-created motivational climate in lower secondary sports schools and its relationship to student-athletes’ motivation and performance outcomes

Siv Gjesdal, Milla Saarinen, Christian Thue Bjørndal

Norwegian School of Sport Sciences, Norway

Objectives. Drawing on Achievement Goal Theory (AGT; Nicholls, 1984, 1989), this longitudinal study examined the impact of coach-created motivational climates on student-athletes’ motivational orientation in sport in lower secondary sport schools in Norway. Additionally, it explored the extent to which student-athletes’ motivational orientation in sport predicted their performance over the three school years. By focusing on the coaches’ role in the development of student-athletes in lower secondary sport schools, this study contributes significantly to the current dual career literature, often conducted among student-athletes in upper secondary education.

Methods. A total of 247 student-athletes (Mage = 12.93, SD = 0.26, 83 girls) responded

to questionnaires at three different time points, with around 6 months in between. The questionnaires included items on coach-created motivational climate, motivational orientation, and various outcomes such as perceived performance and vitality. The data were analyzed using structural equation modeling.

Results. The preliminary results suggest that student-athletes generally perceived the coach-created motivational climates in lower secondary sport schools as mastery-oriented. Furthermore, the perceived coach-created motivational climate was found to predict student-athletes' motivational orientation in sport and perceived sport performance.

Conclusions: The results demonstrate that coaches play a crucial role in supporting the dual career development of student-athletes in lower secondary sport schools in Norway.

**Predicting Sport and School Burnout in Lower Secondary School Student-Athletes: A Person Oriented Approach**

Milla Saarinen, Daniel John Phipps, Gro Jordalen, Christian Thue Bjørndal

*Norwegian School of Sport Sciences, Norway*

The aim of the present study was to examine the various burnout profiles of adolescent student-athletes (ages 12-14) based on their sport and school burnout symptoms. We investigated whether student-athletes' athletic identities, student identities, stress, and self-esteem predicted the likelihood of the student-athletes having certain profiles after considering the effects of age, gender, and type of sport. The study involved 642 student-athletes in Grades 8-10 across 8 lower secondary sport schools in Norway. The participants completed questionnaires that asked about burnout, identity, psychological distress, and self-esteem at the beginning of the school year. We used latent profile analysis to analyze the data. We identified five burnout profiles: mild sport and school burnout (46%), high burnout (22.5%), good functioning (17.9%), predominantly school burnout (8.6%), and predominantly sport burnout (5%). Female student-athletes and athletes in Grades 9-10 seemed to be more at risk of developing burnout symptoms. Student-athletes' low self-esteem and high levels of psychological distress seemed to increase the likelihood to show any of the burnout profiles. In addition, a strong student identity seemed to protect against burnout in the school domain. The results suggest that it is important for lower secondary sport schools to take steps to prevent burnout, especially among student-athletes at high risk.

**A demanding education, with flexibility and support for ambitious athletes  
Building a dual career program on theory and knowledge**

Daði Rafnsson

*University of Reykjavik, Iceland*

Traditionally organized sports in Iceland have been operated by multi-sports clubs with little or no connection with the school system. In the last two decades, elite sports pathways have emerged at upper-secondary schools. They have become popular with student-athletes, although most sports clubs have yet to embrace them as part of their talent development. Loosely based on dual career programs from the other Nordic countries, they are unregulated by the Ministry of Education and Sports Federation. In 2019, three of Iceland's largest sports clubs initiated the founding of a dual career program at their local upper secondary school, Menntaskólinn í Kópavogi (MK). Five years later it has profoundly changed the school and its image. Young athletes from all over Iceland compete to get into the program. The program director from the start, recounts how the strong emergence of the athlete-centered program can partially be explained by how it was based on knowledge and theory from dual career and talent development research.

## Transferring humanistic psychology concepts into sport: Implication for enhanced wellbeing and performance success

**Rebecca Zakrajsek**<sup>1</sup>, Svenja Wachsmuth<sup>2</sup>

<sup>1</sup>University Of Tennessee, Knoxville, United States, <sup>2</sup>Eberhard Karls University Tübingen, Tübingen, Germany

Symposium 31: Human factors,  
Hall Aalborg, Juli 17, 2024, 11:00 - 12:00

### Transferring humanistic psychology concepts into sport: Implication for enhanced wellbeing and performance success.

Rebecca A. Zakrajsek<sup>1</sup>, Svenja Wachsmuth<sup>2</sup>

<sup>1</sup>University of Tennessee; <sup>2</sup>Eberhard Karls University Tübingen

Humanistic psychology emerged as a movement to grasp the fullness of human potential (McHenry & Zakrajsek, 2023). Given the right environmental conditions, humanistic scholars assume that people have an innate tendency to self-actualize, meaning to strive for one's continual expansion of development and performance. Within the sport psychology literature, self-actualization has been likened to thriving defined as the joint experience of holistic wellbeing, personal development, and athletic success (Brown et al., 2024). Scholars within sport psychology have turned to humanistic frameworks and thriving as an antidote to the "win at all costs" culture that has been rampant within sport where (mental) health is at the expense of performance (McHenry & Zakrajsek, 2023). Using various methodological approaches, this symposium aims to explore early understandings of humanistic constructs such as psychological safety and unconditional positive regard within sport performance environments. Moreover, we seek to understand how these humanistic concepts may promote desirable outcomes such as individual thriving.

In presentation one, a qualitative study will be presented examining whether and how psychological safety is perceived as a precondition to individual thriving within football youth academies. Subsequently, the second and third presentations take a person-centered approach by investigating unconditional positive regard (UPR) within the coach-athlete relationship. Based on the development and validation of a coachUPR scale in sport, empirical results will be discussed that demonstrate the positive links between coachUPR and self-regard, thriving and resilience. Next, an intensive longitudinal study will be presented examining the training session-to-training session change processes in swimmers' experiences of thriving, and the impact of training load in those sessions on subsequent experiences of thriving. Finally, the utility of these humanistic concepts for future research avenues in sport psychology will be discussed.

### Study 1: Psychological safety in sport: (How) Does the concept apply to football youth academies?

Svenja Wachsmuth<sup>1</sup>, Fee C. Gierens<sup>1</sup>, Svenja A. Wolf<sup>2</sup>, Hans-Dieter Hermann<sup>1</sup>, Oliver Höner<sup>1</sup>

<sup>1</sup>Eberhard Karls University Tübingen; <sup>2</sup>Florida State University

**Objective:** The phenomenon of psychological safety has gained momentum within sport psychology research and practice, yet, it remains a contested concept in terms of its definition and conceptualization as well as in terms of its applicability to performance sports (Taylor et al., 2022; Vella et al., 2022). Using the example of football youth academies (YAs) as performance-oriented talent development settings in sport, this study aims to investigate how (if at all) different stakeholders experience psychological safety within their social environment, which determinants seem to shape these perceptions and how they may link to perceptions of individual thriving. **Method:** Employing qualitative methodology, eight focus group interviews with players of several age groups (n = 40) and semi-structured interviews with 25 coaches as well as 20 members of the management and support staff were conducted across a total of ten YAs. The interview transcripts are currently analyzed using an abductive content analysis based upon common conceptualizations of psychological safety and its correlates in sport (Vella et al., 2022).

**Results:** Participants' accounts speak to the (latent) concept of psychological safety as perceived through multiple defining attributes (i.e., personal risk-taking behaviors, observed interactions) and to various degrees (i.e., absence to high safety perceptions). Those perceptions seem to be shaped by immediate social interactions (e.g., between team members), broader organizational dynamics (e.g., hierarchical structures) as well as rules of the sport system (e.g., performance demands), and are furthermore linked to individuals' perceived ability to thrive or need to survive.

**Discussion:** While psychological safety seems to be a concept relevant for many different learning and performance environments, the current findings highlight some contextual particularities specific to performance-oriented sport environments and thus support the call for caution with regards to trustingly transferring theoretical concepts borrowed from other disciplines to sport psychology research and practice.

### Study 2: Development of an Unconditional Positive Regard Scale: A Critical Step Toward Advancing Applications of Person-Centered Theory to Coach-Athlete Relationships

Shelby Miller<sup>1</sup>, Rebecca A. Zakrajsek<sup>1</sup>, Lauren McHenry<sup>2</sup>

<sup>1</sup>University of Tennessee; <sup>2</sup>McHenry Mental Performance, LLC

**Objectives:** Within Rogers (1959) person-centered theory, unconditional positive regard (UPR) is a construct that has been thoroughly investigated with parent-child, counselor-client, and teacher-student relationships (see, e.g., Assor & Tal, 2012; Co-

chran & Cochran, 2015). More recently, scholars have extended this construct to coach-athlete relationships with a qualitative study investigating retired figure skaters' perceptions of UPR from former coaches. These findings offered empirical and theoretical depth to the understanding of UPR in athletic contexts—such that athletes felt accepted, respected, believed in, engaged with, and challenged by their coach(es)—in failures and successes (McHenry et al., 2022). Because of their perception of UPR from coach(es), athletes reported outcomes that reflected processes of thriving (i.e., secure attachment with their coach, challenge appraisal, enhanced confidence, and motivation) during the highest levels of pressure in their sport career (McHenry et al., 2022). Scholars found that the most widely accepted instrument used to measure perceptions of UPR, the Barrett-Lennard Relationship Inventory (Barrett-Lennard, 2015) did not uphold in athletic contexts (McHenry & Zakrajsek, 2020). Therefore, a critical next step and the purpose of this study was to create a valid and reliable coachUPR scale.

Methods: Collegiate student-athletes (N = 372) from various athletic associations in the United States (e.g., NCAA, NAIA, NJCAA) completed a new 25-item coachUPR scale, as well as other measures (e.g., thriving, resilience) for validity.

Results: Results from an exploratory factor analysis produced a 19-item, one factor solution, accounting for 69.43% of the cumulative variance with high internal reliability ( $\alpha = .975$ ).

Conclusion: Until now, all investigations evidencing the utility of UPR to support athlete thriving under pressure have been qualitative. Exploring this construct quantitatively is vital to further understand UPR in athletic contexts. Further developments of the coachUPR scale and implications for its use in future research will be discussed.

### **Study 3: Athlete's Perceptions of Coach Unconditional Positive Regard, Self-Regard, Thriving, and Resilience: Implications for Performance Under Pressure**

Rebecca A. Zakrajsek<sup>1</sup>, Shelby Miller<sup>1</sup>, Lauren McHenry<sup>2</sup>

<sup>1</sup>University of Tennessee; <sup>2</sup>McHenry Mental Performance, LLC

Objectives: Person-Centered Theory (Rogers, 1959) offers a viable framework to understand how coaches can cultivate thriving through the provision of unconditional positive regard (UPR)—which occurs when athletes perceive acceptance, respect, engagement, belief, and challenge from coaches through success and failure (McHenry et al., 2022). Qualitative findings suggest that effective communication of UPR from coach(es) contributes to athletes' unconditional positive self-regard (UPSR), thriving (e.g., enhanced performance and well-being), and resilience (e.g., persisting through challenges; McHenry et al., 2022). Therefore, the purpose is to quantitatively examine the relationships between these constructs.

Methods: Collegiate student-athletes (N = 283) from athletic associations across the United States (e.g., NCAA, NAIA) completed measures capturing coach UPR (via a newly validated coachUPR scale; Miller et al., 2024), UPSR (UPSR scale; Patterson & Joseph, 2006), thriving (vitality, subjective well-being, and subjective performance;

Brown et al., 2022), and resilience (Conner-Davidson Resilience Scale, Cambell-Sills & Stein, 2007), in addition to two open ended questions regarding coachUPR.

Results: Linear regressions indicated that level of coach UPR explained 12.5% of the variance in athletes' self-regard [F (1, 296) = 43.26,  $p < .001$ ,  $R^2 = .125$ ], 9.2% of unconditionality of self-regard [F (1,296) = 30.92,  $p < .001$ ,  $R^2 = .092$ ], 27% of thriving-vitality [F (1,287) = 107.64,  $p < .001$ ,  $R^2 = .270$ ], 34% of thriving-positive affect [F (1,285) = 148.057,  $p < .001$ ,  $R^2 = .340$ ], 13.2% of thriving-subjective performance [F (1,292) = 45.39,  $p < .001$ ,  $R^2 = .132$ ], and 16.2% of resilience [F (1, 282) = 55.85,  $p < .001$ ,  $R^2 = .162$ ]. Thematic analysis of coachUPR responses reaffirmed findings from McHenry et al. (2021; 2022).

Conclusion: Results offer initial empirical support for the role of coach UPR in cultivating athletes' UPSR, thriving, and resilience. Implications for future research and considerations for UPR in supporting athletes' performance under pressure will be discussed.

### **Study 4: Examining Longitudinal Experiences of Thriving in National Swimmers**

Daniel J. Brown<sup>1</sup>, Ross Hill<sup>2</sup>, Emily Beach<sup>1</sup>, David Fletcher<sup>2</sup>

<sup>1</sup>University of Portsmouth, United Kingdom; <sup>2</sup>Loughborough University, United Kingdom

Objectives: Thriving in sport performers is represented through their concurrent experience of high levels of performance and well-being (see, Brown et al., 2018). Our aim for the present study was to further our understanding of the change processes in thriving by examining the micro level training session-to-training session dynamics in the construct. Moreover, we wanted to understand the impact of training load within those sessions on subsequent experiences of thriving. Our research questions were: (i) Do within-person carry-over effects exist in training session thriving? (ii) Do higher within-person training load levels predict lower within-person thriving in subsequent training sessions?

Methods and Analysis: An intensive longitudinal design was used to address our research questions with 21 measurements collected over 12 days. Data were collected with 23 swimmers (13 male, 10 female) with a mean age of 21.39 years (SD = 2.43) as they were training ahead of the national trials. All but one of the swimmers had previously raced at the trials, with the highest level of competition being a major international championship medallist. At the end of each training session the swimmers reported the training load (i.e., distance swam) and their experience of thriving within the session (as indexed by subjective performance, subjective vitality, and positive affect; see, Brown et al., 2017). Data is being analysed using the multilevel vector autoregressive Lag-1 model (Hamaker et al., 2023; McNeish & Hamaker, 2020) within the dynamic structural equation modelling framework.

Discussion: The findings from this study will provide clarity on whether thriving shows temporal dependence, informing our conceptualisation of thriving and guiding the selection of an appropriate temporal lens when examining the construct in future research. In addition, understanding the impact of prior thriving and training load on subsequent thriving experiences will hold value for promoting thriving in practice.

## Helping police personnel better cope with work-related stress and perform under pressure: Novel methods, technologies, and interventions

**Rachel Arnold<sup>1</sup>**, Lee Moore<sup>2</sup>

<sup>1</sup>University Of Bath, Bath, United Kingdom

Symposium 32: Military, police and tactical populations,  
Hall Freiburg, Juli 17, 2024, 11:00 - 12:00

### 'I don't have time to cuddle a dog!'

#### A mixed-methods occupational stress-audit in the UK police force

Rachel Arnold<sup>1</sup>, Holly Bainbridge<sup>1</sup>, Sam Vine<sup>2</sup>, Rob Honey<sup>3</sup>, Peter Turnbull<sup>4</sup>, Lee J Moore<sup>1</sup>

<sup>1</sup>Department for Health, University of Bath, <sup>2</sup>Department of Sport and Health Sciences, University of Exeter <sup>3</sup>School of Management, University of Bristol <sup>4</sup>School of Psychology, Cardiff University

**Introduction and Problem Statement:** A renewed emphasis on improving the health and well-being of UK police officers is essential due to rising work stress, absenteeism, and turnover. The purpose of this study was to conduct a mixed-methods stress audit which examines the impact of stressors encountered in the police, why this impact occurs, and who is "at risk".

**Theoretical Framework:** Transactional Model of Stress and Coping (Lazarus & Folkman, 1984).

**Methodology:** 405 police personnel (Mage = 41 years) participated in this mixed-methods stress audit. Officers completed questionnaires assessing stressors, appraisals, coping, mental rest, psychological safety, resilience, and outcomes (e.g., burnout, physical health, thriving). Additionally, 20 police personnel (Mage = 43 years) participated in interviews.

**Results:** Quantitative results suggested that experiencing particular stressors frequently (e.g., poor manager support), appraising demands as a threat, more passive coping, less mental rest, and lower psychological safety and resilience were associated with deleterious outcomes (e.g., lower thriving, poorer health, higher burnout, greater intention to leave). The quantitative data also revealed 'at-risk' groups (e.g., older, female, supervisors, control room staff). Thematic analysis of the qualitative data generated six themes including: Going above and beyond; people can make (or break) the place; keeping leadership attached and congruent; personally dealing with it; moving beyond an organizational tick box; and from struggling to thriving. Areas of convergence, divergence, or explanation were identified between datasets.

**Implications:** Overall, this audit furthers understanding of the key stress-related predictors of police personnel's health and wellbeing, as well as explanations for these relationships. The presentation will discuss the implications of the findings for sup-

porting police personnel and creating an environment that enables thriving. This will include in progress impact dissemination activities (e.g., a decompression virtual reality tool for control room staff; conversational prompt sheet for managers to use in their 1:1 meetings with employees).

### The development of a physical activity intervention in Welsh police control rooms – A longitudinal co-production approach

Helen Oliver<sup>1</sup>, Owen Thomas<sup>1</sup>, Richard Neil<sup>1</sup>, Robert J Copeland<sup>2</sup>, Tjerk Moll<sup>1</sup>

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**Introduction:** Police control rooms are a sedentary environment which can negatively impact the health, wellbeing and performance of the emergency call handlers who work in such contexts (Galbraith et al., 2021). Oliver et al. (2022) found physical activity behaviour was associated with reduced perceptions of stress and improved wellbeing in police employees.

**Problem statement:** To support health and wellbeing in police control rooms, this study aimed to develop a physical activity intervention with control-room workers in two Welsh police forces.

**Theoretical framework:** The research used a co-production approach, guided by the Double Diamond framework (DD; Design Council, 2020) and Behaviour Change Wheel (BCW; Michie et al., 2014).

**Methodology:** Multiple stakeholders participated in four phases of research over seven years. In Phase 1, a literature review, focus groups (N=20) and interviews (N=10) were conducted to discover the relationship between physical activity and wellbeing in the police. In Phase 2, a steering group consolidated Phase 1 findings to define a specific behaviour and context for intervention. Phases 3 and 4 developed the intervention across six workshops with control-room workers and six steering group workshops.

**Results:** The co-production process identified contextual sedentary behaviour as the target behaviour, driven by behavioural regulation, social influence, and social norms. The physical activity intervention targeted these drivers and aimed to engage control-room workers in short bursts of physical activity throughout their shifts. Key intervention features targeted support for and involvement of staff in decision-making and embedding physical activity into work practices. Based on the BCW, four intervention functions, two policy categories and 17 Behaviour Change Techniques were included in the intervention protocol.

**Implications:** The DD and BCW can be combined to co-produce an evidence-based and participant-informed intervention suitable for addressing police control-room workers' wellbeing needs.

### Do you see what I see? A feasibility study investigating the use of eye-tracking



**technology within an operationalised police setting.**

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**Introduction and Problem Statement:** Evidence-Based Policing (EBP) serves as a critical framework guiding pragmatic solutions to policing challenges. In the UK, there's a growing emphasis on EBP, highlighted by the College of Policing's integration of EBP into the Policing Education Qualifications Framework. This attention stems from national concerns regarding policing practices and the imperative for reforms, as evidenced by the Casey Review (2023). Amidst this backdrop, researchers and police forces seek innovative, evidence-based approaches to address pertinent issues and drive improvements within the service.

Performance under pressure is a crucial aspect in policing contexts, where officers must make split-second decisions that can have significant consequences. Therefore, understanding how new technologies, such as eye-tracking, can support officers in maintaining performance under pressure is essential. This project investigates the potential application of eye-tracking technology within policing, aiming to identify its benefits and address practical considerations and barriers in operational settings.

**Methodology:** Serving police officers across various roles were invited to participate in technology trials. Researchers provided insights into the technology's functionality, its current applications, and its potential relevance to policing. Officers were then asked to share their feedback, evaluating the perceived benefits and barriers to adopting this technology in their day-to-day operations.

**Results and Implications:** Feedback from participants revealed key themes, including willingness to adopt new technology, ethical considerations, concerns regarding conflicts and control, and underlying suspicion or lack of confidence in the technology and research process. Despite these challenges, there was a notable interest in the potential utility of eye-tracking studies within policing contexts. The ability to maintain performance under pressure emerged as an aspect influencing officers' perceptions of the technology. While the feedback indicated an understanding of the technology's applicability, challenges relating to practicality, ethics, and trust must be addressed to ensure the viability of future studies.

**The Role of Cognition in Development and Performance in Sports and Physical Activity**

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Symposium 34: Cognition,  
Hall Aalborg, Juli 17, 2024, 13:30 - 14:30

**Move to Improve!**

**Empowering Working Memory and Inhibition in Preschoolers and Schoolchildren Thanks to an Enriched Motor Program**

Elisa Bisagno<sup>1</sup>, Alessia Cadamuro<sup>1</sup>, Ambra Gentile<sup>2</sup>, Marianna Alesi<sup>2</sup>

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**Objectives.** In developmental age, sports activities deliver both physical and cognitive benefits (e.g., Diamond, 2015). The Enriched Motor Program (Programma Motorio Arricchito: PMA) is specifically developed to enhance Executive Functions in younger children (Alesi et al., 2016), and has shown its effectiveness in improving motor and cognitive abilities in preschoolers (Alesi et al., 2016) as well as in individuals with intellectual disabilities (Alesi et al., 2014). However, no study has yet explored PMA's impact on working memory capacity and different types of inhibition while comparing age groups. Our study aims to do so by comparing preschoolers and schoolchildren (4-5, vs. 6-7 years of age).

**Methods.** In our preliminary data collection, 165 preschoolers and primary schoolchildren were tested on working memory capacity via the Backward Word Span and Mr Cucumber tasks, and on cognitive and behavioural inhibition with the Day/night Stroop and the Circle Drawing Task (CDT), respectively. For both age groups, an experimental group and a control group were compared following a 12-day PMA intervention. More data are currently being collected.

**Results.** Based on our preliminary analyses, in the preschooler group, a significant pre-post difference in favour of the experimental group emerged in the CDT,  $F(1,100)=5.16, p<.05$ , as well as a quasi-significant difference in the Stroop,  $F(1,100)=2.55, p<.10$ . In the schoolchildren group, children in the experimental group were more proficient in the Stroop at the post-test,  $F(1,61)=4.66, p<.05$ . No differences were detected for the measures of working memory capacity. The analyses will be replicated on the expanded sample.

**Conclusion.** Aligning with previous literature (e.g., Alesi et al., 2014; 2016), our preliminary results underline the usefulness of motor activity in strengthening executive functioning starting from preschool years. Plus, by showing the empowerment of different inhibition types in different age groups, they invite interesting reflections on the trajectories of executive development.

## Can climbing boost embodied planning?

### Age-specific effects of two training interventions

Lisa Musculus<sup>1</sup>, Azzurra Ruggeri<sup>2,3,4</sup>, Laura Juppen<sup>1</sup>, Max Pallares<sup>1</sup>, Markus Raab<sup>1</sup>

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**Objective.** Physical activity programs that challenge both the motor and cognitive systems show significant benefits for children's cognitive performance (Benzing & Schmidt, 2018). A sport with high motor and cognitive planning demands (i.e., embodied planning) is climbing (Domellöf et al., 2020; Musculus et al., 2021). In two intervention studies guided by developmental-embodied-cognition principles, we targeted motor, cognitive, or combined motor-cognitive demands. Our objective was to assess intervention effectiveness, particularly in children, and compared to adults. We hypothesized that motor-oriented training (MO, MC) would enhance climbing-specific embodied planning more than cognitive training (CO). Additionally, we predicted greater benefits for children from motor and motor-cognitive training compared to cognitive training

**Methods.** In the eight-week randomized-controlled intervention study (8 sessions, 30min) N=177 participants and in one-week randomized intervention study (5 sessions, 30min) N=63 children were distributed to the age groups of children (6-8, 9-12-y.o.) and adults (8-week-intervention only) as well as to the training groups (8-week-intervention: MO (n=43), MC (n=48), CO (n=43), waiting-control-group (n=43); 1-week-intervention: MO (n=22), MC1 (n=21), MC2 (n=20). Both intervention studies were conducted in a pre-post design, where climbing-specific embodied planning was assessed using an interactive climbing-wall system capturing the number of holds used, response times (and movement kinematics).

**Results.** Multilevel modeling (R, „lmerTest“, Bates et al., 2015) revealed that in both studies the training intervention was effective, with MC and MO training, compared to CO and control groups, resulting in more effective embodied planning at the post-test in the 8-week-intervention. Notably, 9-12-year-olds exhibited significant benefits from the (MC and MO) training.

**Conclusion.** These findings emphasize the significant influence of the motor system on embodied planning and underscore the particular benefits of structured motor training programs, especially for children. These results are consistent with predictions from developmental embodied cognition, further emphasizing the importance of such programs in cognitive development.

## The Effects of Social Interaction in Acute Physical Activity on Executive Functions

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**Keywords:** Cognition, exercise, interpersonal interaction, cooperation, sports

**Objectives:** Scientific evidence has shown that an acute bout of physical activity can transiently improve executive functions (Pontifex et al., 2019). Previous research has speculated on the role of social interaction in enhancing executive functions through acute physical activity (e.g., Best, 2010; Pesce, 2012). The positive effect of social interaction on executive functions is attributed to the high cognitive demands inherent in social interaction that may stimulate executive functions (e.g., Stine Morrow et al., 2022). However, the contribution of social interaction in acute physical activity to the promotion of EFs is still unclear. Therefore, the study systematically investigated the interplay between social interaction and physical activity on executive functions.

**Methods:** In a 2x2 within-subject design, a total of 48 sports students underwent four conditions that varied in social interaction (no social interaction vs. social interaction) and physical activity (no physical activity vs. physical activity). They engaged in a 15-minute (70% HRmax) virtual indoor cycling training on “Zwift”. Participants completed a questionnaire assessing their perceived physical exertion (Borg, 1982) and cognitive demands (Benzing et al., 2016) before (t1), during (t2), and after (t3) each condition. The Erikson Flanker task (Erikson & Erikson, 1974) was completed directly after each condition.

**Results:** Data collection is ongoing. Results will be presented at the conference.

**Conclusion:** This study systematically investigated the single and combined effects of social interaction and acute physical activity on executive functions, providing valuable information for interventions and future research. Therefore, the study represented a new area of research within the field of exercise and cognition research, shifting the focus to an under-researched topic, namely social interaction.

## Basketball players inhibition skills in peripheral vision

Christian Vater

University of Bern, Institute of Sport Science

**Objective.** Using peripheral vision and process information from the corner of the eye can be difficult, especially if a lot of information must be monitored at the same time (Vater et al., 2020). In this study the cutting action of a basketball player towards the basket was manipulated. Participants were asked to only react to an opponent's cut to the basket and not initiate a response if a defender initiates a cut (inhibition skills).

**Methods:** Sixteen basketball players (eight high and eight low skilled players) viewed

360°-videos filmed from the center position in a cave-like laboratory projection. Four attackers and defenders were presented in a total of 105 trials. In 22 inhibition trials (21 % of all trials), the defender of the attacker farthest from the ball (i.e., largest viewing angle) cut to the basket. The task was to respond to the cut of an attacker and avoid responses to a cutting defender. The head orientation and foot movements were captured with an Optitrack system.

Results. For inhibition trials, where defenders cut to the basket, high-skilled players successfully inhibited a response more often than low skilled (MRA = 88.58 %, SDRA = 15.89 % vs. MRA = 74.99 %, SDRA = 16.40 %). In trials where participants did react to a cutting defender, high-skilled players responded faster than low-skilled players (MRT = 285 ms, SDRT = 146 ms vs. MRT = 495 ms, SDRT = 200 ms).

Conclusions. The results indicate that high-skilled players can better distinguish a cut of an attacker from a defender, even at large viewing eccentricities and show better inhibition skills than low-skilled players (Simonet et al., 2023). One potential explanation is that higher expertise is associated with better use of peripheral vision and lower impairments through visual crowding (Vater et al., 2020).

## Performance Psychology in the Military: reflections on, and lessons learnt working with military populations.

**Stewart Cotterill**<sup>1</sup>, Richard Keegan<sup>3</sup>, Miss Sophie Bruce<sup>2</sup>, Kathryn Longshore<sup>4</sup>

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Symposium 35: Military, police and tactical populations,  
Hall Freiburg, Juli 17, 2024, 13:30 - 14:30

### Hard Yakka: Reflections and Insights from Seven Years of Conducting Human Performance Psychology Research in Australian Military Settings

Richard Keegan

University of Canberra

Performance psychology continues to offer rich insights, and potential for meaningful operational advantages, for military personnel. Nevertheless, research teams wishing to pursue these possibilities, and the excellent opportunities associated with such work, need to understand the context, culture, and constraints of engaging with military partners, to first secure then deliver the research opportunities. The presenter has worked as a principal investigator with Australian military partners since 2016, spanning four consecutive performance science projects, and one sustained engagement in the health arena. Having become an adviser to new teams engaging in human performance research in Australian military, and as a co-author of the 2019 expert panel on the subject (Temby et al., 2020), the presenter will share individual reflections and insights based on this seven-year provision of research services. The importance of delivering impact cannot be underestimated with highly focussed military partners, requiring direct 'line-of-sight' – in the eyes of recipients – from research activity to improving capabilities, performance, processes, technology and/or environmental conditions. Achieving impact typically required working with end-users to understand their research needs, contextual constraints, and what they would consider 'impact'. Key challenges to delivering research impact include gaining access to defence personnel for research; methodological constraints; developing contextual intelligence in the military context; time constraints/organisational pacing; organisational policies and practices (e.g., posting cycles, information security); gaining 'buy-in' from partners; and important differences between research and military cultures.

Working as a Sport Psychologist with ARMY athletes: how can we tailor our ap-

**proach to maximize impact?**

Sophie Bruce

*Latitude Performance*

As psychologists, it's important that we tailor our approach to the individuals we're working with. Using our knowledge & expertise, theoretical underpinning and professional philosophy, we're able to adapt and communicate in a way that resonates with our athletes, coaches and wider support staff. But what does this really look like in practice? How does working in a military environment push the boundaries of our ability to adapt our approach? How can we measure the success of our ability to adapt and build meaningful relationships with our athletes? What responsibilities do we have as practitioners? Are there patterns that we can start to build from working within military populations that will shape and inform our work going forward? This presentation will reflect upon practitioner experiences relating to the above questions. Specifically, seeking to answer these questions and provide a real-life view of working with ARMY athletes in the UK. Through outlining the nature and content of individual, group, psychologist, and MDT sessions, we can start to build a picture of psychological programmes within military contexts. In doing so, we can start looking for common themes and challenges and understand how these factors are positioned against civilian populations. Through candid review, this presentation will look to inform future work and research within the military space and provide attendees with key considerations to take forward; specifically, around how to treat athletes as people for optimum performance.

**Experiences Working with Cadets at the United States Military Academy**

Kat Longshore

*United States Military Academy, West Point*

The Performance Psychology Program (PPP) in the Center for Enhanced Performance (CEP) at the United States Military Academy, West Point was first established in 1989, a revolutionary center at that time. Its mission is to "educate, train, and inspire cadets and those who support them in the psychology of human performance to foster their mental readiness and development as leaders of character and commissioned officers in the U.S. Army." Followed by the tagline, "Perform your best when it matters most." The PPP follows an educational model and a wellness orientation with performance improvement as the major thrust of all education and training provided. The PPP is robust, headed by a director and three full-time PP instructors, with a state-of-the-art Mental Training Lab, and integration throughout the academy's four performance pillars, academic, physical, military, and character.

This presentation will discuss 1) the opportunities and challenges of working with the next generation of army officers in an academy setting, 2) how the PPP operates and its major programming efforts, and 3) program assessment data and usage statistics. Opportunities include teaching skills to future leaders in the Army, ease

of access for cadets, holistic approach and integration into all facets of performance across spectrum from high-low performers, and development of cadets over four years. Challenges, which mirror those seen in other performance environments, include continuing to create buy-in and reduce stigma of seeking PPP services, integrating into areas of resistance, time, and working within military and government systems. One of the major programs and assessment areas comes from the 10-lesson Mental Skills for Cadet Success class. Over the last 4 years, results have consistently shown a statistically significant increase in cadets' Athletic Coping Skills Inventory (ACSI) scores from Lesson 1 to 10, further supported by qualitative responses.

**Practitioner experiences of delivering performance psychology services with specialist military populations.**

Stewart T. Cotterill

*AECC University College*

In recent years there has been an expansion of practitioners providing performance psychology services with a range of military populations including both regular and special force operators. However, there is not one clear discipline of psychology that fulfils this role, often resulting in sport psychologists providing these services. While there are similarities with other performance domains the requirements and needs of military populations and employers are distinct and different. There is currently very little literature focused on the provision of performance psychology in these domains. As a result, this presentation focuses on a recent study that aimed to understand participant experiences delivering performance psychology services with specialist military populations. Participants were 6 professionals delivering performance psychology services with a relevant military population (serving military personnel) who were recruited globally and interviewed via Microsoft Teams. The data were analyzed using Interpretative Phenomenological Analysis (IPA) resulting in the emergence of seven superordinate themes: personal challenges, environmental challenges, lessons learnt, recommendations for peers, context, confidentiality and security, transfer of knowledge. A number of interesting insights emerged from the current study that included the risks of applying the sport-specific or soldier-athlete narratives in specific military domains. Understanding the needs of the population in terms of performance, deployment, and operations is crucial to create sustained and measurable impact. Also understanding where the practitioner fits in the wider psychological support context is also important. Future research needs to seek to better understand the roles requirements and challenges for practitioners and how future practitioners can be better prepared for the demands of military-specific roles.

## Safeguarding II: Approaches to enhancing athlete safety

Jeannine Ohlert<sup>1</sup>

<sup>1</sup>German Sport University Cologne, Cologne, Germany

Symposium 36: Sexual violence, sexual harassment and sexual abuse,  
Hall Strassburg Süd, Juli 17, 2024, 14:40 - 15:40

Within the last years, the body of scientific literature on safeguarding athletes (especially children and adolescents) in sport has considerably grown. Within these years, the focus of research was often on measuring the magnitude of harassment, abuse and violence towards (young) athletes) using self-report prevalence studies, and identifying associated risk factors. The first aspect was necessary to convince stakeholders that interpersonal violence in sport is a relevant problem and not just isolated cases; the second was needed in order to assess which groups of athletes might be most vulnerable and thus needed the most protection. One important further step in research is now to explore which aspects are important when sport organizations want to engage effectively in safeguarding their athletes. This symposium thus aims to talk about approaches that can help to enhance athlete safety in sport organizations. The first presentation by Emma Kavanagh will report an overview of different approaches of safeguarding in various countries and discuss recommendations for future safe sport education programs. Second, Erin Willson will talk about an idea on how to reduce pressure for performance results as a risk factor for interpersonal violence via alternative definitions of success in sport. The third presentation will be held by Philip Hurst and Dikaia Chatziefstathiou, and focusses on the factor psychological safety as possible facilitator of athlete wellbeing within sport organizations. Melanie Lang will add a fourth presentation on the importance of including children's voices when developing safeguarding strategies in sport organizations. The symposium is concluded by a discussion with discussant Tine Vertommen on all the research presented in this symposium, but also about presentations from the symposium Safeguarding I and on other current developments of safeguarding policies, procedures and practices in international Olympic sports.

### Critical reflections on developing and delivering safe sport training.

Emma Kavanagh<sup>1</sup>, Ashley Stirling<sup>2</sup>

<sup>1</sup> Bournemouth University; <sup>2</sup> University of Toronto

Objectives: Global patterns of abuse have been identified in academic research (e.g., Parent & Fortier, 2017; Vertommen et al., 2022), highlighting the occurrence and prevalence of abuse across sporting contexts. Critical in protecting athletes from harm is the development and delivery of safe sport education. A narrative review of literature surrounding advancements in education on athlete safeguarding in sport will be presented, alongside personal reflections on working with various sport organizations globally to develop and deliver safe sport education. This presentation ad-

resses the research question, what should sport leaders consider when designing and delivering safe sport education?

Methods: This presentation will offer a case-based reflection on the development and delivery of five safe sport education programs. Across the programs explored, learners include sport psychologists, coaches and sport administrators, safe sport officers, the sport community, and counsellors working for a national athlete helpline. The educational programs were developed across unique geographical and cultural contexts including the US, UK, Canada, Singapore and internationally targeted education. Across the case studies examined, a variety of pedagogical approaches were used including in-person workshop format, consultation, arts-based installation, research presentation, and online module development.

Results: Several themes were generated regarding quality considerations for the design and delivery of safe sport education, including, quality of pedagogy, research-informed and evaluated education, community engagement and reciprocity in the process of education design and delivery, considerations for equity, diversity, inclusion and access, approaching the creation of education programming as an iterative and dynamic process, learning to practice self-care as an educator, researcher and advocate advancing safe sport through a trauma informed lens.

Conclusion: This presentation will conclude with a summary of recommendations for developing and delivering future safe sport education programs and recommendations will be posed for future research and evaluation.

### Re-Defining Success in Sport

Erin Willson

University of Toronto

Psychological violence is often reported as the most frequently experienced form of violence in sport (Hartill et al., 2021; Ohlert et al., 2021). An identified risk factor of psychological violence is the pressure for performance results which can lead to a win-at-all-cost mentality. Despite observations that a performance-focused approach to sport can perpetuate unethical behaviours including violence (Coakley, 2004), this approach is reinforced through funding structures that primarily reward performance or medal attainment (e.g., Canada's Own the Podium). Currently, there is a gap between researchers' warnings of the negative sequelae associated with a narrow definition of success and how it is operationalized in practice, thus raising the question: how should success be defined in sport? Therefore, the purpose of this study was to explore how success is defined by coaches and athletes who have attained 'objective' success, in this case, winning a medal at an international sport event including the Olympics, Paralympics, or World Championships. Adopting a constructivist approach, semi-structured interviews were conducted with 13 Olympic and Paralympic athletes and 11 Olympic and Paralympic coaches to elicit their perspectives on what constitutes a successful sport experience. Results were interpreted through a reflexive thematic analysis (Braun & Clarke, 2019). Notably, partici-



pants emphasized that medal attainment was not a prominent component of participants' definition of success. Instead, five attributes of success were pronounced: personal performance attainment, 'building better humans', enjoyment of sport, a healthy sport experience, and a desire to stay engaged in sport. As the participants achieved the highest level of performance results in sport and had safe, healthy, and enjoyable experiences, this study challenges the common assumption that sport for performance and sport for personal development and enjoyment are mutually exclusive (e.g., Holt et al., 2016). Implications for research and practice will be discussed in relation to psychological violence.

**The role of psychological safety underlying experiences of interpersonal violence in sport**

Philip Hurst, Dikaia Chatziefstathiou

*Canterbury Christ Church University*

In the last decade a body of research has examined the prevalence of maltreatment (i.e., physical, psychological, sexual and neglect) in sport. While this research has highlighted the severe impact this can have on athlete well-being, there is a paucity of research examining the psychological factors that may cause and protect an athlete from it. This is important, as such information can be used to help international and national organisations develop more effective safeguarding strategies and identify athletes at risk of maltreatment. One factor that has recently been linked to promoting well-being in sport is psychological safety, which relates to a person's belief of how safe they are from risk or harm. Athletes within psychologically safe environments are more likely to speak up about maltreatment concerns, are aware and understand their own well-being and believe they will be supported when seeking help. To provide greater knowledge and understanding of what may influence an athlete's well-being, and in turn help organisations develop effective strategies to prevent maltreatment in sport, in this session authors will explain the importance of psychological safety in sport. Psychological safety will be first introduced, before a brief review of evidence examining the relationship between psychological safety and several markers of maltreatment (e.g., burnout, stress, and eating disorders). Afterwards, using empirical data, authors will highlight that athletes' experiencing maltreatment, report a lower psychological safety, and in turn, a lower sense of well-being. The session will conclude with a description of the strategies that sport organisations and stakeholders can implement in order to create psychologically safe environments and prevent and intervene in cases of maltreatment.

**Listening to children to advance 'safe(r) sport'**

Melanie Lang

*Edge Hill University*

It is now beyond question that sport is a locus for violence, abuse, and exploitation of athletes of all ages. Embedding human rights into sport offers a potential solution to these concerns. Integrating children's right to have a say and be heard – their participation rights, sometimes also known as the right to a 'voice' – is central to democratising sport and realising safe sporting environments. When done well, children's participation can enhance child safeguarding and protection from abuse by breaking down power imbalances, encouraging disclosures and a listening culture, and creating innovative, more athlete-centred sporting spaces. However, sport globally has been slow involve athletes in decision-making and there remains much misunderstanding among sport stakeholders about what child participation looks like in practice or how it can be achieved. As such, incorporating children's voices can be said to be the missing link in most current strategies to safeguard children and promote their rights in sport. This presentation will identify some of the barriers to child participation in sport and present a framework for best practice in implementing meaningful child participation to help sport stakeholders better safeguard children and realise their rights.

Discussant: Tine Vertommen

*Thomas More University of Applied Sciences*

## (Not) The Last Lecture on Self-Compassion in Sport Research

**Amber Mosewich**<sup>1</sup>, Tara-Leigh McHugh<sup>1</sup>, Kent Kowalski<sup>2</sup>, Philipp Röthlin<sup>3,4</sup>, Göran Kenttä<sup>5</sup>

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Symposium 39: Mental skills training,  
Hall Innsbruck, Juli 17, 2024, 14:40 - 15:40

### What is the current state of self-compassion in sport research?

Tara-Leigh McHugh<sup>1</sup>, Danielle Cormier<sup>1</sup>, Amber Mosewich<sup>1</sup>, Leah Ferguson<sup>2</sup>, Kent Kowalski<sup>2</sup>

<sup>1</sup>University of Alberta, Edmonton, Canada <sup>2</sup>University of Saskatchewan, Saskatoon, Canada

Self-compassion describes a kind, caring, and supportive attitude towards oneself that is comprised of three components: self-kindness (as opposed to self-judgment), common humanity (as opposed to isolation), and mindfulness (as opposed to overidentification; Neff, 2003a). Self-compassion was introduced to the general psychology literature just over 2 decades ago (see Neff, 2003a, 2003b), with the construct garnering substantial attention in sport psychology research over the last five years (see Cormier et al., 2023 for a review). The evidence supporting the potential of self-compassion to enhance sport experiences continues to grow as illustrated by a recent scoping review by Cormier and colleagues (2023). The purpose of this presentation is to provide an overview of the current state of self-compassion in sport research. Specifically, we will: (a) define self-compassion and overview how it has been conceptualized in sport psychology research, and (b) provide a general summary of the findings from the self-compassion in sport literature to date. We will highlight how self-compassion relates to cognitions, emotions, and behaviours related to well-being, sport performance, and the sport experience more broadly. Findings related to coping, gender, and self-compassion development will also be overviewed. Furthermore, we will describe how a combination of qualitative, quantitative, and mixed methods research approaches have contributed key findings that deepen our understanding of self-compassion. By providing a snapshot of what has been done and what is currently understood in the self-compassion in sport area, we position our audience to engage in the critique and innovation presented in subsequent presentations in this symposium. Specifically, this presentation will serve as the foundation to explore gaps in self-compassion research and application, and to work collaboratively towards harnessing the full potential of self-compassion in sport in the future.

### What are the biggest critiques of self-compassion in sport research?

Kent Kowalski<sup>1</sup>, Margo Adam<sup>2</sup>, Laura Ceccarelli<sup>3</sup>, Danielle Cormier<sup>2</sup>, Shaelyn Strachan<sup>3</sup>

<sup>1</sup>University of Saskatchewan, Saskatoon, Canada <sup>2</sup>University of Alberta, Edmonton, Canada <sup>3</sup>University of Manitoba, Winnipeg, Canada

In this presentation we address the question “What are the biggest critiques of self-compassion in sport research?”. The body of research on self-compassion in sport has grown enormously, as reflected in the recent Cormier et al. (2023) scoping review of self-compassion in sport featuring 69 publications. Although, there is convincing evidence of the relevance and potential for self-compassion to play an important role in sporting experiences, as with any emerging field taking a critical lens to the current literature has the potential to facilitate further growth in new, exciting, and fruitful ways. To this end, we offer five areas of critique from five different lenses. First, there is a need for clarity on how self-compassion is being positioned within self-compassion and sport theory and research (e.g., is it being positioned as a worldview, emotion, coping strategy, other?). Second, there is a need for more thoughtful consideration of participants’ starting point for self-compassion intervention (i.e., whether there needs to be room for growth on self-compassion, or whether a “self-compassionate person” can still benefit from learning now to apply self-compassion in sport). Third, we need to more diligently consider the impact of fear of self-compassion in sport, including who might be absent in self-compassion in sport research, particularly in the context of intervention. Fourth, the emphasis on total mean scores, the use of the short form measures, and using only on the “positive” components might diminish the complexity of how we describe self-compassion in sport. Fifth, our understanding of the, clearly complex, link between self-compassion and performance has been limited by insufficient consideration as to how self-compassion might be related to various metrics of sport performance.

### How can self-compassion in sport research be advanced?

Philipp Röthlin<sup>1,2</sup>, Stephan Horvath<sup>1</sup>

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This symposium contribution explores the question, “How can self-compassion in sport research be advanced?” Generally, this involves addressing key critiques of self-compassion in sport research (as outlined in contribution 2), and generating insights that facilitate the integration of self-compassion into practical sports applications (highlighted in contribution 4). Drawing from Cormier et al.’s (2023) scoping review, this contribution will present specific steps to advance sport-related self-compassion research. A key recommendation is for future studies to base their assumptions about the mechanisms of self-compassion within established or newly developed theoretical frameworks. To make more definitive statements about causality, there is a need for longitudinal and experimental/interventional research designs.

It is suggested that intervention studies not only validate the intervention through manipulation checks but also examine its impact on specific outcomes, such as athlete well-being or objective athletic performance. A major challenge in conducting intervention studies in competitive sports is the recruitment and retention of study participants. A potential solution is the use of participative research designs, wherein interventions are co-developed with athletes, ensuring their appeal and ease of integration into daily routines. Incorporating athletes' opinions on factors such as the duration and format of interventions (online, face-to-face, group, or individual) can be beneficial. Furthermore, the employment of mixed methods designs, encompassing both qualitative and quantitative approaches, is crucial. This approach will allow researchers to produce detailed, qualitative insights as well as generalizable findings, achieving a triangulation of results. Finally, this symposium contribution will include expert opinions to steer the future of self-compassion research in sport, aiming for a trajectory that is scientifically sound and practically applicable.

**What are the key considerations for embedding self-compassion in applied sport practice?**

Göran Kenttä

*The Swedish School of Sport and Health Sciences, Stockholm, Sweden*

Self-compassion is positively related to a variety of adaptive psychological factors, and can offer protection against maladaptive psychological experiences in sport. Research suggests that self-compassion can be strengthened and can assist athletes, and others involved in sport, to reach their potential (see Cormier et al., 2023 for review). The purpose of this presentation is to describe considerations for embedding self-compassion in applied sport practice. Critically evaluating past promotion and intervention efforts can help to formulate systematic takeaways. Within this presentation we will describe how the successful application of self-compassion into the sport context requires an individualized approach, tailoring strategies based on the needs of the athlete and the sport, and integration into both training and competition processes. Relevant examples of systematic interventions and more organic promotion efforts will be overviewed, alongside notable facilitators, challenges, and learnings that stand to inform future practice. Recommendations on how to involve the athlete in ongoing reflection and refinement of process will be discussed. We will also address how the use of self-compassion need not be limited to athletes, as the benefits stand to support all members of the entourage involved in sport. More specifically, considerations related to fostering self-compassion in coaches, officials, and other support staff, as well as implications connected to widespread adoption of the approach to support promotion efforts will be addressed. Embedding self-compassion into various roles in sport is important beyond the potential benefit to individual well-being and performance, as it will create a psychological safe culture based on self-compassion. We will explore how to promote self-compassion within various professional settings and in different sport roles, carefully considering the role of the wider support team in creating a self-compassionate environment.

**Evaluating Policy and Informing Practice Relevant to Anti-Doping Education**

Ian Boardley<sup>1</sup>, Nikos Ntoumanis<sup>2</sup>, Vassilis Barkoukis<sup>3</sup>, Shuge Zhang<sup>4,10</sup>, Daniela Lux<sup>5</sup>, Jules Wolff<sup>6</sup>, Jingdong Liu<sup>7</sup>, Shushu Chen<sup>1</sup>, Andrew Heyes<sup>1</sup>, Martin Chandler<sup>1</sup>, Lambros Lazaras<sup>8</sup>, Monica Stansecu<sup>9</sup>, Mr Michael Petrou<sup>10</sup>, Julie Rivold<sup>2</sup>, Anne-Marie Pensgaard<sup>11</sup>, Andreas Ivarsson<sup>12</sup>, Andrea Petroczi<sup>13</sup>, Cornelia Blank<sup>5</sup>

<sup>1</sup>University of Birmingham, Birmingham, United Kingdom, <sup>2</sup>University of Southern Denmark, Odense, Denmark, <sup>3</sup>Aristotle University of Thessaloniki, Thessaloniki, Greece, <sup>4</sup>Hunan University of Technology, Hunan, China, <sup>5</sup>UMIT Tirol - University for Health Sciences and Health Technology, Hall in Tirol, Austria, <sup>6</sup>University of Illinois at Urbana-Champaign, Urbana, United States of America, <sup>7</sup>Sun Yat-sen University, Guangzhou, China, <sup>8</sup>University of Lincoln, Lincoln, United Kingdom, <sup>9</sup>National University of Physical Education and Sport, Bucharest, Romania, <sup>10</sup>Hunan Research Center for Excellence in Fitness, Hunan, China, <sup>10</sup>Cyprus Anti-Doping Authority, Nicosia, Cyprus, <sup>11</sup>Norwegian School of Sport Sciences, Oslo, Norway, <sup>12</sup>Halmstad university, Halmstad, Sweden, <sup>13</sup>Kingston University, Kingston, United Kingdom

Symposium 40: Performance enhancement (e.g. doping, neuro-enhancement etc.), Hall Aalborg, Juli 17, 2024, 14:40 - 15:40

**Evaluating Policy and Informing Practice Relevant to Anti-Doping Education**

**Abstract 1: Evaluating the Implementation of the WADA International Standard for Education in Six Anti-Doping Organizations**

Ian Boardley<sup>1</sup>

*<sup>1</sup>University of Birmingham, Birmingham, United Kingdom*

**Objectives:** In 2021, the World Anti-Doping Agency (WADA) introduced their first International Standard for Education (ISE). The ISE sets out the educational requirements for Anti-Doping Organisations (ADOs), requiring them to plan, implement, monitor, and evaluate education programmes. To help understand how ADOs implemented the ISE, we conducted process evaluations with ADOs.

**Methods:** Semi-structured interviews were conducted with 33 ADO staff, including members of education teams and other key staff (e.g., CEOs). These staff were recruited from six ADOs, with two situated in Europe, one in Africa, one in Asia, and two in the Americas. The interview schedule was designed to generate understanding on initial reactions to the ISE, how educational practices changed as a result of it, and how application of the ISE is evolving.

**Results:** Inductive content analysis identified six overarching themes. Benefits of the ISE reflected feelings the ISE had brought common structure and consistent language to education delivery, that education was taken more seriously as a result of it, and funding for education had increased because of it. Implementation Approaches referred to the varying ways in which ADOs approached ISE implementation, with some organisations redesigning education programmes from the ground up and others fitted their existing programmes to the ISE structure and then looked to address gaps. Translation and Cultural Considerations was concerned with difficulties

experienced when staff did not speak one of the core WADA languages, and cultural expression within the confines of the ISE. Compliance Mindset reflected how several organisations appeared to focus more on ISE compliance and less on education effectiveness. Organisational Resources and Capabilities represented a need to account for differing resource, legislative, and political environments that ADOs work within. Finally, Knowledge Exchange and Development identified how ADOs engaged in various knowledge sharing strategies to facilitate ISE implementation.

Conclusion: Our findings identified several ways in which the ISE was perceived as beneficial for education delivery, but also ways in which it could be updated to make it even more advantageous in the future.

### **Abstract 2: Development of Brief Assessment Packages of Psychosocial Constructs Related to Doping**

Nikos Ntoumanis<sup>1</sup>

<sup>1</sup>University of Southern Denmark, Odense, Denmark

Objectives: The aim of the project was to develop a set of assessment tools that can be used by anti-doping organizations (ADOs) to monitor and evaluate the effectiveness of their education programs with regard to their effects on psychosocial variables related to doping. To this end, we developed and validated two brief questionnaires, designed for adult athletes and athlete support personnel (ASP).

Methods: In phase 1, we reviewed the literature and selected psychosocial constructs potentially amenable to anti-doping education. In phase 2, a survey with the selected constructs was sent to anti-doping experts, consisting of researchers and representatives of ADOs, who were asked to rate the importance of and rank-order these constructs. The results of this abbreviated Delphi poll informed the constructs chosen for phase 3. In phase 3, the questionnaires were distributed (in English) to 307 athletes and 296 ASP in Denmark, Sweden, and Norway. In phase 4, final measurement tools were created by selecting the best items for each construct, primarily using the OASIS package in R which provides indices of internal reliability and convergent validity.

Results: Two questionnaires with 24 (for athletes) and 28 (for ASP) items, respectively, were formed. The questionnaires tap 11 and 13 different constructs, respectively, and capture diverse aspects such as morality, motivation, emotions, and beliefs.

Conclusion: The questionnaires provide ideas for constructs that could be included and measured in anti-doping education programs, beyond the “usual suspects” of morality and perceived benefits and deterrents of doping.

### **Abstract 3: A Multi-Country Examination of Narcissism, Compassion, and Related Psychological Risk Factors Underpinning Intentional Doping**

Shuge Zhang<sup>1</sup>

<sup>1</sup>College of Physical Education, Hunan University of Technology; Hunan Research Centre for Excellence in Fitness, Health & Performance, China

Objectives: The aims of the project were to: 1) examine how narcissistic personalities and compassionate minds interactively predict doping risks; 2) test potential psycho-behavioural factors underlying narcissism-related risk and compassion-associated protection in doping; and 3) evaluate the consistency and variations of any observed effects in the UK, China, and US.

Methods: 499 high-performing athletes (Mage = 21.89 years; 54.5% male; 58.4% team sports; 80% competing at national level or above) from the three study countries completed psychometric measures assessing person-level characteristics (i.e., narcissism, self-compassion, fears of compassion), psycho-behavioural factors (i.e., deflated reality, resilient coping, fear of failure), and risk factors for doping (i.e., doping moral disengagement, doping willingness). We performed a series of multi-group (i.e., UK, China, US) multi-variant (i.e., two doping risk factors) cluster-controlled (i.e., adjusting for athletes' coach/team membership) path models for hypothesis testing.

Results: Consistent across study countries, narcissistic vulnerability associated with greater doping risks when grandiosity was low compared to high. The protection of a compassionate mind (i.e., high self-compassion, low fears of compassion) in resisting doping appeared greater when narcissistic grandiosity co-existed in athletes. Mediation analysis provided strong (invariant across countries), moderate (consistent in two study countries), and contrasting evidence that resilient coping, deflated reality, and fear of failure, respectively, explained the interplay between narcissism and compassion in doping.

Conclusion: The findings offer implications for future anti-doping education and interventions, calling for the consideration of resilience/coping, fears of compassion, and sense of deflated reality within their development and delivery.

### **Abstract 4: Testing the Effectiveness of the Safeyou Program**

Vassilis Barkoukis<sup>1</sup>

<sup>1</sup>Aristotle University of Thessaloniki, Thessaloniki, Greece

Objectives: Evidence-informed educational interventions are needed to target the beliefs and motivation of athletes to use doping substances. In this study, we evaluated SafeYou, an evidence-based intervention, with competitive athletes to improve anti-doping action.

Methods: The study included 285 athletes from Cyprus, Greece, Romania, and the UK. Participants were randomly assigned to intervention and control groups. Control group athletes watched films related to anti-doping, and athletes in the interven-

tion group attended the SafeYou intervention. Both groups completed measures of doping-related knowledge, attitudes, willingness, and moral disengagement, self-efficacy to resist temptations, intentions to support clean sport, and also self-reported doping use. The measures were completed at three different time points: before (baseline), immediately after the intervention (post-intervention), and two months post-intervention (follow-up).

Results: The study found no significant impact of the intervention on athletes' beliefs regarding doping across all countries. Significant differences emerged only in Romanian athletes, with intervention group participants reporting higher scores in doping-related health concerns, self-efficacy to resist doping temptation, and clean sport goals, as compared to control group participants. COVID-19-related constraints influenced the delivery and effectiveness of the intervention, which was originally planned to be delivered face-to-face. Additionally, floor and ceiling effects in the measures used may explain the non-significant differences between the different time points.

Conclusion: Future anti-doping interventions and their evaluation can benefit by controlling participants' prior anti-doping knowledge and exposure to anti-doping education.

**Abstract 5: Deny, deflect, or own it and apologise? How athletes try to repair their image after an anti-doping rule violation**

Daniela Lux<sup>1</sup>

<sup>1</sup>UMIT Tirol - University for Health Sciences and Health Technology, Hall in Tirol, Austria

Objectives: Athletes convicted for doping in sports often face enduring stigmatization as 'doping sinners' (Georgiadis & Papazoglou, 2014). One way to overcome stigma and improve public perception after reputational damage is through crisis response strategies (Coombs, 2007). In sport contexts, Situational Crisis Communication Theory, as proposed by Coombs, is receiving more and more attention (e.g., Pöppel et al., 2021). To date, there's limited exploration in crisis response strategies used in doping cases. Based on these few studies, no generalised recommendations can currently be made on how athletes should deal publicly with an accusation or conviction for anti-doping rule violations (ADRV). This research seeks to provide insight into crisis response practices employed by athletes after their positive test results or sanctions were made public. Building on this, the aim of this study is to identify possible advantageous and disadvantageous strategies.

Methods: A qualitative research design with case study approach was chosen to explore athletes' crisis response strategies to repair their image after a doping incident, a) in journalistic statements and b) on their social media channels. We anticipate a sample of five elite athletes from various sports and countries, sanctioned for ADRV, intentional or unintentional. Following transcription, data are analysed using thematic analysis (Braun & Clarke, 2013). Text passages are coded and categorised using Coombs' response strategies, while allowing for new themes to be identified. Cases

are then compared based on gender, sport, country, and intentionality.

Results: Our study will add to the sparse literature on crisis response strategies used by athletes after an ADRV. Data collection and evaluation are currently ongoing, but we expect to find patterns of which strategies athletes use in different situations. In the end, we will identify beneficial strategies and potential pitfalls.

Conclusion: In the future, our study's results shall enter athletes' anti-doping education, offering recommendations for handling reputational crises publicly.



## The EUROMENTAL Project– Evidence based educational content for Europe

Franziska Lautenbach<sup>1</sup>, **Henrik Gustafsson**<sup>2,3</sup>, Marika Berchicci<sup>4</sup>

<sup>1</sup>Humboldt-Universität zu Berlin, Berlin, Germany, <sup>2</sup>Karlstad University, Karlstad, Sweden, <sup>3</sup>Norwegian School of Sport Science, Oslo, Norway, <sup>4</sup>Università degli studi Gabriele d'Annunzio di Chieti-Pescara, Chieti, Italy

Symposium 41: Mental skills training,  
Hall Innsbruck, Juli 17, 2024, 16:10 - 17:10

### Burnout: What can be done for athletes?

Guillaume Martinent<sup>1</sup>, Emma Guillet-Descas<sup>1</sup>, Virginie Nicaise<sup>1</sup>, Henrik Gustafsson<sup>2</sup>

<sup>1</sup>University of Claude Bernard Lyon <sup>1</sup>, Laboratory on Vulnerabilities and Innovation in Sport, France <sup>2</sup> Karlstad University, Sweden & Norwegian School of Sport Sciences, Norway

Sport burnout is recognised as a severe condition among athletes. Perceptions of high burnout affect between 1% and 17% of athletes (Gustafsson et al., 2007; Isoard-Gautheur et al., 2013). Burnout was initially designed as a long-lasting and continuous psychological syndrome composed of three dimensions: (a) emotional and/or mental and physical exhaustion (emotional and physical fatigue from the training and competition demands), (b) a feeling of reduced sense of achievement (feeling of inefficiency and negative evaluation of oneself), and (c) sport devaluation (negative and detached attitude towards practice) (Raedeke & Smith, 2001). This definition has been slightly revised, encompassing the 3 dimensions of physical exhaustion, reduced sense of accomplishment and negative feelings toward sport (Isoard-Gautheur et al., 2018). In order to prevent athlete burnout, several strategies can be proposed such as stress management strategies (managing time and personal life) that can enable athletes to better manage the demands of being an athlete (Gustafsson et al., 2018) or recovery activities that can help them achieve a balanced lifestyle and develop their personality outside sport. Another preventing strategy refers to encourage athletes not to focus only on performance goals, but also to focus on mastery of the activity. This strategy encourages athletes to internalise their motivation (self-determined) in order to limit the risk of burnout (Isoard-Gautheur et al., 2013). Finally, it has been shown that coaches who support autonomy and create a task-oriented climate are more effective in preventing the burn-out (Isoard-Gautheur et al., 2012). In this sense, it also seems relevant to train coaches to establish a task-oriented climate (limit competition between teammates, insist on progress made...) in order to help athletes adopt a task-oriented achievement motivation, and consequently reduce the risk of burnout.

### Teamwork execution and team resilience: A multi-study examination of reciprocal and longitudinal relationships

Miguel Ángel López-Gajardo<sup>1</sup>, Juan J. Pulido<sup>1</sup>, Tomás García-Calvo<sup>1</sup>, Francisco M. Leo<sup>1</sup>.

<sup>1</sup>Universidad De Extremadura, Spain

The purpose of this research was to examine relationships between variables within an input-mediator-outcome (IMO) framework of team effectiveness in sport over the course of a competitive season across two studies. Method and Results. In Study 1, 1,566 athletes (Mage = 22.1 years, SD = 5.2) from 104 teams completed measures of teamwork execution (McEwan et al., 2018) and team resilience (López-Gajardo et al., 2021) at two timepoints during a season. Multilevel structural equation modeling (MSEM; Muthén & Muthén, 1998–2019) revealed significant, reciprocal, and positive relationships between teamwork execution and characteristics of resilience, as well as significant, reciprocal, and negative relationships between teamwork execution and vulnerability under pressure, from Time 1 (T1) to Time 2 (T2) at both the individual and team level (McEwan & Beauchamp, 2014). Study 2 built on these findings by testing propositions from the IMO model of team effectiveness. Measures of perceived athlete leadership quality (input; T1; Fransen, Coffee, et al., 2014), teamwork execution (McEwan et al., 2018) and team resilience (mediators; T2; López-Gajardo et al., 2021), and team performance (outcome; Time 3 [T3]; Fransen et al., 2017) were completed by 1,117 athletes (Mage = 24.8, SD = 5.6) within 92 teams over eight months. MSEM showed perceived athlete leadership quality had significant positive association with teamwork execution and characteristics of resilience at player and team levels, and significant negative relationship with player-level vulnerability under pressure (Fransen, McEwan, et al., 2020; López-Gajardo et al., 2022). Of the mediators assessed at T2, only teamwork execution had a significant and positive relationship with perceived team performance at T3, specifically at the player level. In conclusion, our findings highlight the reciprocal relationship between teamwork execution and team resilience, the importance of athlete leadership in fostering these mediators, and the associations of those variables on perceptions of team performance.

### Imagery in action – The linkage between Heart Rate and individual differences depending on the type of script imagined, instructional imagery modality, and imagery experience in athletes.

Dagmara Budnik-Przybylska<sup>1</sup>, Paweł Syty<sup>2</sup>, Jan Maciąg<sup>2</sup>, Łukasz Doliński<sup>2</sup>, Marta Łabuda<sup>2</sup>, Adrian Kastrau<sup>2</sup>, Patryk Jasik<sup>2</sup>, Maria Kaźmierczak<sup>1</sup>, Jacek Przybylski<sup>1</sup>, Selenia Di Fronso<sup>3</sup>, Maurizio Bertollo<sup>3</sup>

<sup>1</sup> University of Gdańsk, <sup>2</sup> Gdańsk University of Technology, <sup>3</sup> University "G. d'Annunzio" of Chieti-Pescara

Imagery is one of the most popular and powerful techniques used in mental training to enhance performance. It is linked to physiological responses and personal characteristics. The main aim of our study was to investigate the linkage among physiological responses, individual differences depending on the type of script imagined (competitive and training), instructional imagery modality (i.e., guided vs. self-produced), and imagery experience in athletes/people with different sport experience. Thirty participants aged between 14-42 years took part in the study. They listened to each previously recorded script and then were asked to imagine the scene for a minute. During the task, heart rate (HR) was monitored using the Biofeedback Ex-

pert 2000 System. We used the following questionnaires: The Imagination in Sport Questionnaire (ISQ), Mental Toughness (MTSQ) and Personality (BFIS), and The Sport Anxiety Scale (SAS). The average pulse rate was lower for athletes who did not mentally exercise in both instructional imagery. When analyzing the pulse signal for the competitive scenarios and self-produced imagery, we found significant moderate negative correlations for "general tendency to use imagery ( $r=-.4$ ,  $p<.05$ )" while significant positive for variables such as "somatic anxiety, ( $r=0,45$ ,  $p<.05$ )" "negative pre-start feelings ( $r= .49$ ,  $p<.05$ )" "worry ( $r=0.49$   $p<.05$ )," and "neuroticism ( $r=.4$ ,  $p<.05$ )." Analyzing the values for the training scenarios, the correlations were weaker compared to the competitive scenarios. In this case, and "training difficulty scale ( $r=0,37$ ,  $p<.05$ )" "relationship with the coach ( $r=0,34$ ,  $p<.1$ )" and "negative pre-start feelings ( $r=0,33$ ,  $p<0.1$ )" correlated positively (significantly or marginally significantly). We discovered associations directly related to the imagined scenarios. When the guided imagery was taken into account we did not find any significant correlations among psychological variables and pulse in competitive scenarios and training. Our study revealed that guided or self-produced imagery may cause different body responses depending on personal indices.

### **Sport Mental Training in Europe - Evaluation and Learnings from a Blended Intensive Program**

Pia Zajonz<sup>1</sup>, Gantima Demirsöz<sup>1</sup>

<sup>1</sup>Humboldt-Universität zu Berlin, Germany

This contribution aims to present the content of the Blended Intensive Program (BIP) "Sport mental training in Europe", its evaluation, and conclusions. Based on the content of the Erasmus + Program "Euromental" (co-construction of mental skill training in Europe), the BIP focused the four topics: Engagement processes, psychological skills training, psychophysiological states of optimal and non-optimal performance, and team dynamics. Twenty-five students (18 female) from five different universities in France ( $n = 3$ ), Germany ( $n = 3$ ), Italy ( $n = 5$ ), Poland ( $n = 12$ ), and Sweden ( $n = 2$ ) participated in the program. The first lesson was run online in July 2023. Afterward, the students met for classes in presence from September, 4th to 8th at the University Chieti-Pescara in Italy, where 14 expert sport psychologists of the participating countries presented their research covering the four main topics mentioned above. Theoretical background with a focus on practical conclusions was provided. To deepen their knowledge students had to complete a project (research or applied) on one of the four topics, which they presented online at the end of September. To evaluate the BIP a follow-up questionnaire will be sent out in February 2024, five months after the BIP. The purpose of this questionnaire is to assess the application of the learned content in research and practice, and the perceived values of the BIP, such as its contribution to students' careers in sport psychology. Its data collection will end in March 2024. Data will be analyzed descriptively and qualitatively. The results of the questionnaire will be extended by the personal experience of one participant and summarized in a discussion concerning the contribution of the BIP to education and career development in sport psychology. Recommendations will be drawn for future BIPs as part of the Euromental project or other European education programs.

### **A symposium on affective processes in sport and exercise**

**Julian Fritsch**<sup>1</sup>, Philip Furley<sup>2</sup>

<sup>1</sup>Karlsruhe Institute of Technology, Karlsruhe, Germany, <sup>2</sup>German Sport University Cologne, Cologne, Germany

Symposium 42: Emotion,  
Hall Strassburg Nord, Juli 18, 2024, 11:00 - 12:00

### **Do personality traits moderate the relationship between psychological needs and enjoyment of physical activity?**

Eliane S. Engels<sup>1</sup>, Anne K. Reimers<sup>2</sup>, Muriel Pickel<sup>2</sup>, Philipp A. Freund<sup>3</sup>

<sup>1</sup>Medical School Hamburg, <sup>2</sup>Friedrich-Alexander-University Erlangen-Nürnberg, <sup>3</sup>Leuphana University Lüneburg

One of the most important factors of maintaining regular and long-term physical activity is the enjoyment an individual experiences from engaging in the activity. If basic psychological needs are fulfilled, the likelihood that someone enjoys being physically active increases. However, it is unclear whether the impact of psychological needs is influenced by personality. Therefore, the aim of this study was to investigate if personality traits (BIG 5) moderate the relationships between basic psychological needs and enjoyment of physical activity.

We conducted an online survey with  $N = 399$  participants ( $M = 35.82$  years, range from 11 to 82 years, 68% female). Physical activity enjoyment, basic psychological needs (autonomy, perceived competence, social relatedness), and the BIG 5 were assessed. Analyses show that personality moderates the relationships between psychological needs and enjoyment of physical activity: Extraversion moderates the relationship between social relatedness and enjoyment, conscientiousness and neuroticism moderate the relationship between perceived competence and enjoyment, and agreeableness, but not openness, moderates the relationship between autonomy and enjoyment.

Our findings suggest that the BIG 5 play an important role regarding the experience of physical activity enjoyment. Therefore, personality should be considered to design interventions more tailored to individual needs in order to promote enjoyment of physical activity effectively.

### **They're Out, but We're Still In: Examining the Emotions and Group Dynamics Impacts of Athlete Injury on Teammates**

Tyler Greene<sup>1</sup>, Svenja Wolf<sup>1</sup>, Ashis Mohanty<sup>1</sup>, Taylor Wilhelmy<sup>1</sup>

<sup>1</sup>Florida State University, Tallahassee, Florida

Injuries are inevitable in sport, therefore, much research has focused on the impact

of injury on injured athletes (e.g., Wiese-Bjornstal et al., 1998). Little research has considered the impact on their teammates who are expected to continue competing in the injured athlete's absence (e.g., Van Woezik et al., 2020). Because injuries are generally emotional events and have downstream consequences for the rest of the team, two areas that are likely impacted by a teammate's injury include emotional responses and team dynamics. This two-part study intends to gain insight into these two areas. In the media analysis (part one) we reviewed 701 injured athlete cases from professional sports including American football and men's and women's basketball and ice hockey; of these cases, 96 discussed impacts to teammates of the injured athlete. The results indicate that there are (1) emotional impacts that can be engaging (e.g., compassion and motivation) or disengaging (e.g., fear and anger) and (2) impacts to team dynamics that occur within (e.g., opportunities for stepping up and filling the hole) or outside (e.g., support and character and leadership) of the playing space. For part two, we are currently conducting five focus groups with NCAA athletes from the same sports to ask them about their experiences of witnessing a teammate's injury by exploring the unique experiences of participants as well as to what extent the findings from study one resonated with them. Findings to this point indicate the effects of an athlete's injury go beyond the injured athlete to also impact their teammates emotionally and as a group. Thus, emotion regulation and team building strategies might be useful for teams who have lost an athlete to injury.

**Tennis players' non-verbal behaviour: is there a negativity bias and is its decoding accuracy related to the response time?**

Julian Fritsch<sup>1</sup>, Milana D'Agostino<sup>1</sup>, Philip Furley<sup>2</sup>

<sup>1</sup>Karlsruhe Institute of Technology, <sup>2</sup>German Sport University Cologne

Objectives: Athletes' non-verbal behaviour is a central component of emotions and thus may indicate their affective state (Jekauc et al., 2021). Based on the bio-cultural framework of non-verbal behaviour (Furley, 2021), studies have focused either on the encoding processes by athletes' showing the non-verbal behaviour and/or the decoding processes of the individuals observing the non-verbal behaviour. The purpose of the present study was to test (a) whether negative affective states were easier to be recognized than positive affective states and (b) whether the response time would be faster for accurately decoded non-verbal behaviour.

Methods: 145 individuals (Mage = 32.18; 66 female) were presented 80 videos including the first three sec-onds of amateur tennis players' non-verbal behaviour directly after the rally in a randomized order through the software OpenSesame. After every video, the participants were asked to estimate whether the previous point was won or lost.

Results: The overall recognition rate was 69.72% (SD = 6.87). With regards to the first research question, the results showed that recognition rate was higher for lost points (M = 73.81%) than for won points (M = 65.64%; t (144) = 5.03, p < .01, d = 0.45). Concerning the second research question, the results showed that the response time was

about half a second faster for correct (M = 3052.78 milliseconds) than for incorrect (M = 3567.77 milliseconds) responses (t (144) = 11.66, p < .01, d = 0.96).

Conclusion: The results are in line with previous studies indicating a negativity bias in players' non-verbal behaviour (Fritsch et al., 2022, 2023). Moreover, the results support the idea that the decoding of affective non-verbal behaviour is primarily based on automatic affective processes (Ambady, 2010).

**Nonverbal Affective Expressions and Their Relation to Performance in Sports**

Philip Furley<sup>1</sup>

<sup>1</sup>German Sport University Cologne

According to evolutionary accounts of nonverbal expressions, humans have evolved to be well-equipped for communicating important internal states like emotions nonverbally. In this presentation I will outline contemporary empirical research using the thin-slices paradigm to capture affective nonverbal behavior in televised sport competition. As the context of sport is replete with affective nonverbal behavior, this approach is well-suited to investigate emotions in a real-world setting. Within the thin-slices paradigm (Ambady et al., 2000) a criterion (e.g., sport performance) is compared with an averaged judgment (e.g., estimated performance). In the present research, we selected the context of professional track-and-field competitions (100m sprint and long jump) and asked participants to guess sprint times and long jump distances either based on athletes' preperformance or post performance NVB. The present series of studies shows that observers can make accurate inferences based on the nonverbal behavior of track and field athletes—e.g. predict long jump distance based on the preparatory nonverbal behavior. I argue that these correlations are partly accounted for by a phenomenon that has been labeled as “the wisdom of the crowd” (Surowiecki, 2004) which shows that individual judgments of humans in a variety of contexts are often less accurate—even of experts in a given field—than the average judgment of a diverse crowd of people. In conclusion, the present research indicates that averaged judgments in the thin-slices paradigm exploit the wisdom of the crowd effect and can therefore be considered a useful way of measuring naturally occurring nonverbal behavior as an alternative to time- and resource consuming coding procedures (Furley, 2023).

**The effects of static/dynamic mindfulness-based strategies on perceived stress, emotional states and mindfulness levels in athletes and recreationally active people**

<sup>1</sup>Selenia di Fronso

<sup>1</sup>Behavioral Imaging, Neural Dynamics (BIND) Center; Faculty of Psychology, e-Campus University, Novedrate (CO), Italy

Objectives: The mindfulness-based stress reduction programme is gaining increasing attention in sport and physical activity domains (Birrer et al., 2012; Meyer et al.,

2018). This programme comprises three meditation practices: mindful yoga, body scan, and sitting meditation. In this study, we aimed to examine the effects of a dynamic (mindful yoga) strategy and a static (a combination of body scan/sitting meditation) strategy on participants' psychobiosocial states (PBS), i.e., functional/dysfunctional emotional states (Robazza et al., 2016), perceived stress (PS) and mindfulness levels in athletes and recreationally active (RA) people.

Methods: Thirty-four participants (athletes = 18; RA participants = 16) were assigned to a dynamic intervention strategy, and other 34 (athletes = 19; RA participants = 15) were assigned to the static intervention strategy. Before the intervention, after the intervention and three weeks later, the Italian versions of the PBS scale, the PS scale and the Mindful Attention Awareness scale were administered.

Results: Repeated measure (multivariate) analyses of variances revealed that intervention strategies improved functional PBS, reduced PS and enhanced mindfulness levels in both athletes and RA participants after the intervention ( $p < 0.001$ ,  $\eta^2 = 0.605$ ). However, improved functional PBS after the intervention ( $p < 0.001$ ;  $d = 0.62$ ) and stable PS levels at follow-up ( $p = 1$ ) were observed mainly in athletes.

Conclusion: Findings reinforce the view of the importance of the body as a means to improve emotional and health processes, and support the use of mindfulness strategies in sport to enhance individuals' well-being. Also, mindfulness may promote psychological pathways that reduce the negative impact of emotions on performance outcomes.

## Transitions in Coaching and Gaps in the Knowledge and Practice of Sport Psychology

**Stiliani "Ani" Chroni<sup>1</sup>**, Kristen Dieffenbach, Aku Nikander, Richard Tahtinen, Stephen Mellalieu

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Symposium 43: Coaching,  
Hall Maximilian, Juli 18, 2024, 11:00 - 12:00

### Exiting pro-soccer and entering women's coaching: An uncharted multi-year journey

Stiliani "Ani" Chroni<sup>1</sup>, Vaggelis Tzachristos<sup>2</sup>, Kristen Dieffenbach<sup>3</sup>, Sigurd Pettersen<sup>1</sup>

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The elite athlete-to-coach transition recently started attracting the attention of sport sociology (e.g., Blackett et al. 2022) and psychology (e.g., Chroni et al., 2020, 2021, 2022) researchers. The transition has been explored as an event and an experience, yet we continue to lack knowledge around it as each person has a different story making the exit from sport and the entry to coaching unique. Retrospectively, the study looked into the intense uncertainties and series of negotiations experienced by a football coach upon exiting the life of a professional football player with two practices per day, rigid rest and nutrition regimes and playing games on all Sundays and entering the life of coaching women's football in his rural hometown. Two rounds of semi structured interviews focused on the end of his football playing life and the decision to coach as well as on his navigation into unknown territories. The analysis was informed by the 're-identification phase' identified in the Chroni et al. (2020) empirical model. We found that living behind the routines, the people, and the environment of pro football that he knew too well and walking into the unknown world of coaching women in a small town kept him up too many nights and challenged his decisions, confidence, and self-esteem for years. While he gradually gained coaching knowledge and competence via UEFA certifications (C, B, A), undergraduate and graduate degrees and eventually developed into one of the best women's coaches at the national level, it took him seven years to grasp what coaching is about and stand with confidence in his coaching shoes, regardless of player development and success in team results. The negotiations, transformations, and reconstructions of one's identities (beings and doings) is an intervention area for mental performance consultants (Chroni & Dieffenbach, 2022).

Keywords: non elite athlete, women's coach, transition, identity, negotiations, transformations, reconstructions



**Blackett, A.D.,** Evans, A.B., & Piggott, D. (2022). The next logical step: An examination of elite athletes' transitions into post-athletic high-performance coaching roles. In D. Agnew (Ed.), *Athlete Transitions in Sport: Experiences in Elite Sport* (pp.129-144). Routledge. [Doi:10.4324/9781003020189](https://doi.org/10.4324/9781003020189)

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Chroni, S. A., Pettersen, S., & Dieffenbach, K. (2019). Going from athlete-to-coach in Norwegian winter sports: Understanding the transition journey. *Sport in Society*.

### A transnational journey from playing to coaching and to developing coaches

Derek Read<sup>1</sup>, Kristen Dieffenbach<sup>1</sup>, Stilian "Ani" Chroni<sup>2</sup>

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Coaches go through multiple transitions during their careers and so far, their voice narrating these transitions experiences have not been heard. Coaches' transitions are characterized by demands, barriers, transformations and reconstructions as the person tries to adjust and adapt (Chroni & Dieffenbach, 2022). This study explored the journey of the first author who delved into a series of transitions stretching from the end of his athletic career all the way to working within coach development. He narrated his journey in writing which together with the two co-authors was explored and interpreted through existing literature. We employed relational ethics to ensure safety and wellbeing for all involved in this study (Ellis, 2007). His personal experiences and events began at ground zero, moving from athlete to coach within his home country and then navigated through three more transitions, going from empirical coaching to studying coaching, from coaching in one host country to coaching in another one, and from coaching in the second host country to becoming a coach and coach developer in his home country. We found that the shift to being an evidence-based practitioner (Schempp et al., 2006) and the leadership style evolution (Burton & Welty-Peachy, 2013) are two milestones in this professional journey, while his newly found care for work-life balance and cultural sensitivity and competence watermarked both his personal and professional life (Kenttä et al., 2023). The presentation will elaborate on the events and experiences of his and how these are intertwined with the literature around transitions in coaching to help attendees make meaning of the story considering also the notable gaps we identified between his story and the literature.

Keywords: coach, transitions, transnational mobility, athlete-to-coach, coach-to-coach developer, relational ethics

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### From a junior coach to the senior ranks: Relational transition from a collaborative autoethnographic perspective

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Coaches are key persons influencing athletes' careers and their development, especially when athletes approach the junior-to-senior transition (Keegan et al., 2014). Junior-to-senior mobility include transitioning into a new psychosocial environment, including changes in cultural narratives (e.g., performance narrative) and expectations for both an athlete and their coach (Ryba et al., 2016; Ronkainen et al., 2020). The purpose of this study was to contribute knowledge about a sports coach's career development and transitions by theorizing a relational co-construction of transitions from the junior level to the senior one. The cultural transition model (Ryba et al., 2016) was used as a conceptual framework to explore the temporality of the first author's relational transition. To co-produce coach's story, a collaborative autoethnographic (Chang, 2012) approach was utilized. A photo-elicitation method and cyclical interviewing were used to generate the data followed by a thematic narrative analysis. In the transition process, three subject positions were recognized: (a) junior coach, (b) senior coach, and (c) mentor. Furthermore, the results indicated that in the transition, both the coach and the athlete went through their individual processes, while they also created a shared reality that informed and motivated them throughout the process. In addition, self-reflexivity and meaning construction problematized cultural norms that had shaped the coach's behavior. The subjective repositioning of the dyad can impact the dynamics and outcomes of the transition process. Encouraging the dyad to develop critical awareness of their own subject position and reflect on their experiences can facilitate the transition to the new sociocultural context. To assist coach adaptations in the junior to senior level transition, future interventions with coaches should focus on becoming aware what sociocultural narratives make their views intelligible whether these are authentically aligned with their subjective meanings of a good career and a good coach-athlete relationship.

Keywords: relational transition, adaptation, power relation, collaborative autoethnography



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### **When opportunities become obstacles: An autoethnographic exploration of high-performance coach career development**

Richard Tahtinen

*University of Akureyri, Akureyri, Iceland*

Research indicates that many individuals face challenges in navigating the identity shift when transitioning from athlete to coach, especially when the athlete career termination emerges unexpectedly (Chroni et al., 2020). When career termination is more deliberate, however, the transition from athlete to coach can effectively bridge the novice coach's athletic identity with their evolving identity as a coach (Chroni & Dieffenbach, 2022; Leeder & Beaumont, 2023). This autoethnographic case (McMahon, 2016) explores my story as an ice hockey coach, illuminating the complexities of a career development within high-performance coaching. While initially viewing coaching as a source of purpose in my post-athlete life, soon I developed an aspiration for pursuing a professional high-performance coaching career. My narrative unfolded as I faced an unexpected career opportunity that challenged my preconceived ideals of high-performance coaching as a viable professional career path. To understand my journey, the story is positioned within existing empirical evidence in the field of coach career development. With the synthesis of my lived experiences and insights from the empirical literature, the narrative offers a holistic view of the evolving landscape of coaching careers. While certain models offer valuable frameworks for developing high-performance coaching careers, their utility is limited when attempting to understand how coaches navigate within and across various career stages (Christensen, 2013). Consequently, existing career development models provide little insight into the various elements that may shape unsuccessful or alternative career trajectories within high-performance coaching. To achieve a more nuanced understanding of coach career development, the complex interplay between personal attributes and contextual factors must therefore also be considered.

Keywords: coaching, career development, identity, transition, transnational migration

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### **A case study of the career termination of an elite female coach**

Stephen Mellalieu

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Although researchers have devoted considerable attention to the career development of elite athletes (cf. Stambulova, Ryba, & Henriksen, 2021), there has been less work focusing on elite sports coaches and their career transition experiences, despite the acknowledgment that these can be a significant and long-lasting event for professional coaching staff as well (Gordon & Lavalley, 2011). This talk will discuss a case study of an elite female coach and her career termination from a 20+ year career following a critical life incident. A novel autobiographical approach was adopted whereby the participant undertook expressive writing (Gortner, Rude, & Pennebaker, 2006.) to describe her experiences before, during, and following coaching an athlete at the 2012 Summer Olympic Games. Thematic analysis indicated seven phases related to the participant's experiences of the critical incident: Build up to the event, the event, the aftermath, recovery and reflection on the event, sampling of new avenues, enlightenment, and career rebirth. The findings reinforce the high demands placed upon elite coaches, the subsequent threats to physical and mental well-being, and the importance of having robust psychological skills and suitable social support to cope with these demands. Implications for preparing and supporting coaches for successful career transition are discussed including: the impact from the high demands of being an elite coach on critical incident experiences that may cause transition out of sport; understanding the lifecycle of the careers of coaches as well as those of their athletes; helping coaches derive meaning from their critical life incident experiences; and, working to support the retention of female coaches more generally within high performance sport.

Keywords: career termination, coaches, critical life incident, social support, expressive writing

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## Qualitative Insights into Mental Illness in Sport

**Anthony Papathomas**<sup>1</sup>, Erin Prior<sup>1</sup>, Cecilia Åkesdotter<sup>2</sup>, Ross Wadey<sup>3</sup>, Associate Katherine Tamminen<sup>4</sup>

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Symposium 44: Clinical sport psychology, clinical issues in sport and physical activity, Hall Aalborg, Juli 18, 2024, 11:00 - 12:00

### 'I'm Manic and it's Class': An Olympic Athlete's Experience of Bipolar Disorder

Erin Prior, Anthony Papathomas, Daniel Rhind

Loughborough University

**OBJECTIVE:** Despite increased research into athlete mental health, most studies adopt a simple survey-design whereby athletes self-report symptoms (e.g., Foskett & Longstaff, 2018). There are calls to complement this work with more qualitative studies into athlete mental illness that emphasise subjective accounts and personal meanings (see Pereira Vargas et al., 2021). Therefore, this study explores one athlete's experience of living with bipolar disorder while competing in elite sport. **METHODS:** A male Olympic athlete diagnosed with bipolar disorder participated in a series of prospective semi-structured interviews over the course of a year. Interviews lasted 90 minutes on average, with more than 10 hours of data collected and transcribed verbatim. The data were analysed using dialogical narrative analysis (Frank, 2012). **RESULTS:** The athlete reflected on his use of humour to avoid perceived negative emotions in difficult situations (e.g., receiving criticism from management or coaching staff). This included the use of self-deprecating, stigmatised language when discussing mental illness (e.g., 'loopy', 'crazy'), which he described as an attempt to avoid discussing distressing aspects of his experience, mitigate stigma, and avoid being pitied by others. The athlete also exuded bravado when discussing episodes of mania and often glamourised these experiences and his accompanying behaviours (e.g., excessive drinking and drug use). The athlete's avoidance of negative emotions and use of such coping mechanisms held consequences for help-seeking and support offered by staff. **CONCLUSION:** How athletes cope with mental illness may impact treatment and support. A better understanding of athlete experiences of bipolar disorder is needed to inform staff education.

## Poetic representations and clinical experiences of eating disorders in elite athletes

Cecilia Åkesdotter, Göran Kenttä, Emma Forsén Mantilla

The Swedish School of Sport, Health Sciences, Sweden

**OBJECTIVE:** Eating disorders represent a prevalent mental illness within athlete populations. In Sweden, 37% of female elite athletes seeking psychiatric treatment were diagnosed with an eating disorder (Åkesdotter et al 2023). Although much-studied from a biomedical perspective, qualitative insights into athlete experiences of eating disorders are relatively sparse. This study explored the lived experience of one female elite athlete's journey of developing, living with, and undergoing treatment for an eating disorder. **METHODS:** Through two semi-structured interviews with Lisa (pseudonym), a female elite athlete, we collected life story data about her experiences of living with an eating disorder. Based on this data, we created three poetic representations to show her temporal movement towards recovery. In poetic representations, data is transformed into poem-like compositions to present lived experiences in an economic and condensed form (Sparkes & Smith, 2014). **RESULTS:** We constructed three poems entitled; *All the little pointers (describes a group dynamic governed by negative body evaluation)*, *The voice inside my head (highlights the psychological assault on those affected)* and *Turning it around (a testament to the challenging recovery journey)*. **CONCLUSION:** Poetic representations of data can provide insights into athlete eating disorder experiences. Constructing data in this way may also act as a pedagogical resource to open dialogues regarding clinical experiences of eating disorders in sport, including the subtle signs of disordered eating and the use of dismissive narratives to downplay the severity of the illness.

### A Media Analysis of Kelly Smith's Career:

#### Sporting Injury, Mental Illness, and Professional Women's Football

Ross Wadey<sup>1</sup>, Isabel Woods<sup>2</sup>, Kerry McGannon<sup>2</sup>, Melissa Day<sup>3</sup>

<sup>1</sup>St Mary's University, UK, <sup>2</sup>Laurentian University, Canada <sup>3</sup>University of Chichester, UK

**OBJECTIVE:** Heeding calls for media research as a cultural site to understand injured athletes' experiences (McGannon & McMahan, 2020), and the need to shift the research landscape in sport injury psychology towards lifespan perspectives (Wiese-Bjornstal, 2009), this study explored sport media as a socialcultural context to make-sense of an elite athlete's experiences of injury and mental illness. **METHODS:** For its capacity to yield rich and complex insights (Stake, 1995), we used an intrinsic qualitative case study methodology. The dataset was the autobiography of Kelly Smith, a high profile former professional footballer, as well as 45 news media reports, to identify "big" and "small" stories throughout Kelly's career that involved experiences of injury (e.g., ACL injury, broken leg) and mental illness (e.g., depression, self-harm, alcoholism). Framed by and situated within narrative theory (Frank, 2013), the data was analysed using a thematic narrative analysis. **RESULTS:** Three

narrative themes were identified. The first, Accelerated Incline, depicted Kelly's rapid and upward trajectory through the ranks of women's professional football. However, smaller stories reflected the tensions within this narrative theme: "I was mentally unprepared", "I was homesick", "Alcohol helped". The second, Accelerated Decline, reflected a downward trajectory of physical, psychological, and social decline following a series of injuries. Three smaller stories helped to further shape nuanced meanings of Kelly's decline: "Spiralling out of all control", "I used vodka", and "My lowest point". The final theme, Restitution, described Kelly's recovery and restored mental health. Three smaller stories within this broader theme were: "Fighting back", "Moving forward", and "Meeting the Queen". CONCLUSION: This study has an important role in raising our social consciousness of the media stories and narratives that frame them and how they can act as cultural resources and entry points for understanding, reflections, and change.

### Using Athlete Mental Illness Stories for Coach Education: Perils and Opportunities

Anthony Papatthomas<sup>1</sup>, Maria Luisa Fernanda Periera Vargas<sup>1</sup>, Florence Kinnafick<sup>1</sup>, Paul Rhodes<sup>2</sup>

<sup>1</sup> Loughborough University, UK <sup>2</sup> University of Sydney, Australia

**OBJECTIVE:** Coaches are the likely recipients of athlete mental illness disclosures (Ferguson et al., 2019) and their response can impact whether the disclosure experience is a positive one. Despite the importance of effective responses to mental illness disclosures, coaches perceive low mental health literacy and do not feel confident dealing with such issues (Biggin et al., 2017). Drawing on recent trends deploying narratives as coach educational tools (McMahon, 2013), we asked the following research questions: a) What responses do athlete stories of disclosure elicit in coaches? and b) How do coaches perceive an athlete disclosure story influences their practices? **METHODOLOGY:** We provided 12 professional coaches (age M = 30.1 years, SD = 4.7; coaching experience M = 5 years, SD = 8) with an athlete's written first-person narrative account of disclosing mental illness. The account communicated what the athlete perceived to be a difficult disclosure experience with negative repercussions. After reading the disclosure story, coaches were interviewed about its emotional impact on them, and its utility as a coach education tool. Over 11 hours of data was transcribed verbatim and thematically analysed (Braun & Clarke, 2019). **RESULTS:** Coach responses were represented across the following themes: a) (Un)believable stories: issues of trust; b) Stories as self-reflection prompts and c) Story futility against dominant narratives. Although some coaches found the story moving and encouraging of reflective practice, others questioned its authenticity, were critical of its singular perspective, and resisted its central message. **CONCLUSION:** Stories can be powerful communicators of athlete mental illness experiences but there are risks in terms of how they might be received and acted upon. Future research must explore ways to guide story recipients towards the intended message.

### Stress, Emotions, and emotion regulation implications for performance and wellbeing

**V. Vanessa Wergin**<sup>1</sup>, Faye F. Didymus<sup>2</sup>, Svenja A. Wolf<sup>3</sup>, Katherine Tamminen<sup>4</sup>

<sup>1</sup>The University of Queensland, Brisbane, Australia, <sup>2</sup>Leeds Beckett University, Leeds, United Kingdom, <sup>3</sup>Florida State University, Tallahassee, United States, <sup>4</sup>University of Toronto, Toronto, Canada

Symposium 45: Emotion,  
Hall Strassburg Nord, Juli 18, 2024, 13:30 - 14:30

### Lifetime stressor exposure, health, and well-being in sport performers: Exploring the underlying properties of stressors

Ella McLoughlin<sup>1</sup>, Rachel Arnold<sup>2</sup>, Faye F. Didymus<sup>3</sup>, Lee J. Moore<sup>2</sup>

<sup>1</sup> School of Science and Technology, Nottingham Trent University, United Kingdom <sup>2</sup> Department for Health, University of Bath, United Kingdom <sup>3</sup> Carnegie School of Sport, Leeds Beckett University, United Kingdom

**Objectives:** Greater lifetime stressor exposure increases the risk for mental and physical health problems. As such, researchers have examined the potential mechanisms underlying the stressor-health relationship. Although important, this body of research only provides us with information relating to how lifetime stressor exposure influences health and well-being. Therefore, one unanswered research question relates to why stressor exposure over the lifespan can be particularly noxious for sport performers. Theory would suggest that this could be due to the underlying properties of stressors experienced. Although researchers have begun to examine the situational properties of stressors experienced by sport performers, the majority of this research has focused on their influence on appraising (vs. health and well-being). Therefore, this study will offer a novel exploration of the situational properties of lifetime stressors that are influential for sport performers' health and well-being.

**Methods:** Nine sport performers (7 female; Mage = 23.7; SD = 4.4) who were from a range of individual (e.g., swimming) and team (e.g., rugby) sports participated in this study. Participants were from a range of competitive levels, including national (n = 2), regional (n = 2), international (n = 3), and senior international (n = 2). Participants were asked to complete a timeline of their life story followed by a semi-structured interview (Mduration = 92.44 min; SD = 26.52).

**Results:** Data were analyzed using reflexive thematic analysis. We developed four themes, including: (1) timing in relation to the lifespan; (2) novelty of stressors; (3) ambiguity; and (4) duration of stressors.

**Conclusion:** It is concluded that situational properties of stressors play a pivotal role in the relationship between lifetime stressor exposure, health, and well-being. Therefore, practitioners should be mindful of novel, ambiguous, long-lasting, and poorly timed stressors, which may have a negative impact on sport performers' health and well-being.

**The influences of athletes' stress appraisals on health, well-being, and performance: A systematic review**

Zachary MacDonald<sup>1</sup>, Faye F. Didymus<sup>1</sup>, Lee J. Moore<sup>2</sup>

<sup>1</sup> Carnegie School of Sport, Leeds Beckett University, United Kingdom <sup>2</sup> Department for Health, University of Bath, United Kingdom

**Introduction:** Competitive sport is a highly pressurized environment in which athletes experience competitive, organizational, and personal stressors (Moore et al., 2019). Athletes' appraisals of stressors underpin emotional responses and coping efforts, influencing how they experience and respond in high-pressure environments (Lazarus, 1999).

**Problem Statement:** Despite some research linking appraisals with important outcomes (e.g., performance; Hase et al., 2019), a review of studies on primary and secondary appraisals and non-performance related outcomes (e.g., health, well-being) does not yet exist. Thus, this systematic review synthesized literature on athletes' appraisals of stressors (both primary and secondary) and their associations with health, well-being, and performance.

**Theoretical Framework:** This review was underpinned by Lazarus and Folkman's (1984) transactional stress theory and the biopsychosocial model of challenge and threat (Blascovich & Tomaka, 1996).

**Method:** Following PRISMA guidelines, systematic literature searches of CINAHL, PsycINFO, PSYCArticles, SPORTDiscus, and Web of Science were conducted. To be eligible for inclusion, studies had to: (1) be published in peer-reviewed journals and written in English or French, (2) use a quantitative, qualitative, or mixed-methods design, and (3) have measured primary and/or secondary appraisals among athletes and examined how these appraisals related to at least one outcome (i.e., health, well-being, or performance).

**Summary and Implications:** After 4088 initial hits, screening resulted in a final sample of 54 studies. The findings highlighted that research has predominately used quantitative methods and more commonly examined primary appraisals than secondary appraisals. The findings also revealed that certain appraisals (e.g., challenge) were associated with better health, well-being, and performance-related outcomes (e.g., less depression symptomology); implying that practitioners should encourage athletes to appraise stressors more adaptively. However, further research is needed to better understand the underlying mechanisms of how and why appraisals influence these outcomes, potentially using qualitative methodologies (e.g., event-focused interviews).

**Passing the emotional baton: The roles emotions play amongst gymnasts**

Ashlyn Fesperman<sup>1</sup>, Svenja A. Wolf<sup>1</sup>

<sup>1</sup>Florida State University, United States of America

**Objectives:** Athletes have emotional reactions to a variety of competitive characteristics, including opponents, teammates, coaches, and their performance. These emotions are commonly used as social tools to communicate information to others and their function varies based on social context, the people one is interacting with, and the group's interaction history (Crivelli & Fridlund, 2018). The Emotions as Social Information (EASI) model (Van Kleef, 2009) is one of the leading models in interpersonal emotion research and illustrates how the sender's emotional expression affects the receiver's emotions and behavior by jump-starting two possible paths: affective reactions and/or inferential processes. This study aimed to explore how the emotional expression of a gymnast post-performance impacts their teammate's pre-performance emotions and subsequent performance, using the EASI model and its paths as a basis.

**Methods:** Eleven American female club-team gymnasts aged 19 to 21 (Mage = 20; Myears competing = 11.9) participated in the study and had their performances and interactions with teammates during a competition video recorded. They then watched two recordings, one where they were the sender and one the receiver of emotional expressions, and answered semi-structured interview questions. We coded for insights that fall within the framework of the conceptual model: sender's performance and post-performance emotional expression and/or experience, receiver's pre-performance emotional expressions and/or experience and subsequent performance, and the former's impact on the latter.

**Results:** Overall, participants were in tune with their own emotions and able to easily recall their cognitions and emotions of rewatched moments, as both the sender and receiver. Interestingly, some stated remembering feeling one emotion, yet expressed another. For impact, participants generally endorsed emotional interdependence, both within themselves and amongst teammates.

**Conclusions:** Results highlight the existence of emotional impact between gymnasts' performances, yet have shown more blanks to fill, such as how social-relational factors may moderate the impact.

**"It's all about me!": Understanding the experience of providing interpersonal emotion regulation in competitive sport dyads**

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<sup>1</sup>Florida State University, United States of America <sup>2</sup>University of Toronto, Canada

**Objectives:** Effective interpersonal emotion regulation IER, may positively relate to athletes' motivation, sport commitment, enjoyment, and team performance out-

comes (Tamminen & Crocker, 2013; Tamminen et al., 2016). Despite knowledge of numerous IER strategies athletes employ (Campo et al., 2017; Tamminen et al., 2022), minimal research has explored the impact of IER on the regulator. Foti et al. (2022) suggest that while IER impacts the target teammate's emotions, the regulator's emotions may be more strongly affected. Understanding this net effect of providing IER is essential to ensure athletes are not assisting their teammates at the expense of their own emotions and performance. We examined how regulators and target teammates experience IER on affective, cognitive, and behavioral levels.

Methods: As emotions are subjective (Wagstaff & Tamminen, 2021) and contextual, we conducted multi-level descriptive phenomenological interviews from an interpretivist position with N = 8 adult athletes from four dyads (i.e., tennis, pickleball, beach volleyball).

Results: Through inductive coding and thematic analysis (Braun et al., 2016), we interpreted that athlete's IER decisions were based on the regulator's personal performance and comfort with their teammate. When IER was perceived to be effective both teammates felt pleasant emotions and higher coping potential, the target teammate felt more in control of their own performance, and the regulator felt more in control of the collective performance and matched the effort of their teammate. When IER was perceived to be ineffective, both teammates experienced unpleasant emotions, the target teammate perceived a need for more self-regulation, and the regulator felt cognitively depleted and perceived a loss of control over the collective performance.

Conclusion: While IER is intended to affect the target teammate, the more substantial impact appears to be on the regulator. Therefore, athletes may use IER as an extension of emotional self-regulation for personal benefit, rather than teammate benefit.

### **Hyping your team up or pulling it down? Impact of interpersonal emotion regulation on team performance in collective collapse situations.**

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<sup>1</sup>The University of Queensland, Australia

<sup>2</sup> Florida State University, United States of America

Objectives: The development and maintenance of a collective collapse of a sport team's performance has been associated with ineffective interpersonal emotion regulation (IER) in sports teams after encountering a critical event (e.g., error accumulation) (Wergin et al., 2024). In this study, we aimed to measure the impact of affect-improving and affect-worsening IER strategies on team performance in critical situations.

Methods: In our experimental study, N = 90 (Mage = 20.3 ± 2.3, 46 male, 44 female) team sport athletes performed a ball balancing team task in teams of five (Nteams = 18). An equal number of three teams participated per experimental manipulation condition (i.e., positive IER, negative IER, control) performing the task twice, once as

a baseline measure, and once with the experimental manipulation facing a critical event (i.e., errors made by team). We measured the time needed by teams to complete the task, the number of errors made, and perceptions of their emotions and regulation attempts.

Results: While we only found insignificant effects with teams in the positive IER condition dropping fewer balls and needing less time to master the task when encountering a critical event ( $F(4,30) = 2.25$ ;  $p < .087$ ;  $\eta^2 = .23$ ), participants in the negative IER condition experienced more negative and less positive emotions ( $F(16,160) = 2.77$ ;  $p < .001$ ;  $\eta^2 = .22$ ) between first and second set, used less helpful IER strategies ( $F(20,256) = 1.81$ ,  $p = .024$ ,  $\eta^2 = .19$ ), and experienced the critical event as more difficult, depleting, and effortful ( $F(8,164) = 3.26$ ,  $p = .002$ ,  $\eta^2 = .14$ ) than athletes of control or positive IER conditions.

Conclusion: Positive IER impacts athletes' emotions, their depletion, and to some degree their team performance and can serve as an intervention strategy for sports teams encountering critical events. Practical implications to foster positive and prevent negative IER in sports teams are discussed.

(299 words)



## Focus on the positive: Associations of positive emotions and performance in different sport settings

**Pia Zajonz**<sup>1</sup>, Sascha Leisterer<sup>1</sup>

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Symposium 46: Emotion,  
Hall Strassburg Nord, Juli 18, 2024, 14:40 - 15:40

### Longitudinal relationships between mental toughness, resilience, cognitive appraisals and perceived performance in competitive soccer goalkeepers

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<sup>1</sup>Claude Bernard Lyon<sup>1</sup>, Lyon, France <sup>2</sup>French Football Federation Research Centre, Clairefontaine, France

Soccer goalkeepers are special players who are frequently decisive in matches. They face multiple stressors (e.g., making a mistake leading to a goal) continuously evaluated, as postulated by the cognitive-motivational-relational theory of emotions (CMRT, Lazarus, 1999, 2000) through the concept of cognitive appraisal. This concept is at the origin of emotional experiences and can generate positive emotions. Goalkeepers therefore need to be resilient to cope with the stressors they face and evaluate situations positively rather than negatively in order to experience positive emotions and therefore perform optimally. Consequently, the purpose of this study was twofold: (1) to observe whether the mental toughness (MT) trait influences resilience, cognitive appraisals, and subjective performance states and (2) to explore dynamic relationships between these states among soccer goalkeepers. Thirty-six soccer goalkeepers from regional to professional levels first completed a questionnaire measuring their mental toughness. Subsequently, a single-item approach was used to assess resilience, cognitive appraisals (threat, loss, challenge, benefit), and subjective performance every two weeks for four months. Results of multilevel analyses showed that mental toughness significantly and positively predicted resilience ( $\beta = .83, p < 0.01$ ), which significantly and positively predicted benefit appraisal ( $\beta = .31, p < .05$ ) and negatively predicted threat appraisal ( $\beta = -.50, p < .001$ ). Moreover, subjective performance was significantly and positively predicted by benefit appraisal ( $\beta = .35, p < .001$ ). Our results also revealed the mediating role of resilience in the relationships between mental toughness and appraisals (threat [ $Z = -2.58, p < .01$ ] and benefit [ $Z = 2.08, p < .05$ ]) as well as the mediating role of benefit appraisal in the relationship between resilience and subjective performance ( $Z = 2.06, p = .04$ ). Practical applications are proposed to optimize the daily emotional experiences and therefore performance of goalkeepers, such as creating a supportive climate.

## The impact of positive emotions on executive functions in a soccer-specific setting

Franziska Lautenbach<sup>1</sup>, Marie-Luise Herrmann<sup>3</sup>, Christoph Jahn<sup>4</sup>, Simon Knöbel<sup>1,2</sup>

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Achieving peak performance in soccer is a multifaceted challenge, influenced by various factors (Sarmiento et al., 2018). Executive functions (EFs) are gaining prominence for their role in goal-directed actions (e.g., Diamond, 2013) and their possible insights into players' performance as well as their potential (e.g., Lautenbach et al., 2022). To draw conclusions about on-field performance, EFs must be assessed under near-competition conditions, considering additional performance-related factors such as emotions (Lautenbach et al., 2016). Acknowledging the psychological demands of soccer matches, which not only encompass stress from competitive pressure but also positive emotions such as joy from a sense of achievement, the present study utilized the SoccerBot360, a circular training device, to measure EFs, after up-regulating positive emotions. Based on contradicting theories (i.e., facilitator theory, cognitive load theory, broaden-and-build-theory) and insufficient empirical evidence (Lautenbach, 2024), no specific hypotheses are presented. A between-subject design involved 47 female professional soccer players (Mage = 15.32 years) from a 1st division soccer club. The intervention group (IG) received positive emotion manipulation through positive performance (Beedie et al., 2012) and social feedback (Siedlecka & Denson, 2019). Inhibition (i.e., Flanker task) and cognitive flexibility (number-letter-task) were assessed after positive emotions were induced. Additionally, psychophysiological measures (German Sport Emotion Questionnaire, cortisol, HRV) were collected several times during the experimental procedure. Results indicated no change in positive emotions in the IG but a decrease in the control group ( $p = .024$ ). No differences in cortisol and HRV (except higher HRV in IG after the social feedback) were observed. Cognitive performance did not differ between the groups (switch costs:  $p = .399$ ; Flanker effect:  $p = .264$ ). Despite the inefficiency of positive emotion up-regulation, the manipulation buffered a decrease in positive emotions in the IG, aligning with the undoing-hypothesis (Fredrickson & Levenson, 1998) and warranting further discussion.

### How the undoing effect of positive emotions improve motor performance in youth elite athletes

Pia Zajonz, Theodor Bens, Helena Opitz, Laura Schlesinger, Franziska Lautenbach

Humboldt-Universität zu Berlin, Germany

Due to extensive demands in school, sports, and peers, youth athletes experience various psychosocial and physiological stressors in a short time. It is important to recover after stressors to ensure subsequent performance (Pelka et al., 2017). In line with the undoing-hypothesis (Fredrickson & Levenson, 1998), empirical evidence

has shown that positive emotions (PEs) improve athletes' psychophysiological recovery after a psychosocial stressor (Lautenbach & Zajonc, 2023). In addition, PEs benefit motor performance crucial for athletic performance (Rathschlag & Memmert, 2013). However, the undoing effect of PEs on motor performance has not been considered which will be addressed in this study with youth athletes. We hypothesize that the induction of PEs improves psychophysiological recovery and subsequent force and velocity in comparison to a control condition. Thirty athletes (age: 12 to 18 years) from different sports participate in the within-between study. PEs are induced via two interventions: imagination of a happy moment or self-chosen happy music. Participants were randomized to one of the intervention groups (IG) or a control group (five minutes sitting). After a baseline and the performance pretest, they completed a combined psychosocial (Trier Social Stress Test; Kirschbaum et al., 1993) and physiological stressor (Wingate-Test, Bar-On, 1987), followed by the intervention or control condition, recovery, and the performance posttest. Psychophysiological reaction is measured with subjective (emotions; affect) and physiological variables (heart rate, blood pressure, heart rate variability, cortisol, testosterone). Peak and average force and velocity are measured by three trials of a hand grip and a jumping task. Data collection will end in March 2024. To test the undoing-hypothesis and subsequent performance effects mixed-measured MANOVAs on subjective and physiological variables, such as on handgrip and jumping performance will be calculated. Results will be embedded into the current research on PEs and performance. Implications for theory and practice will be discussed.

### **Positive Emotions and Sport Activity Behaviour: The Example of Authentic and Hubristic Pride**

Sascha Leisterer

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Positive emotions influence sports activity behavior, with pride playing a crucial role. Tracy and Robins (2007) distinguish in their process model of self-conscious emotions between authentic pride, linked to better sports activity parameters (Gilchrist et al., 2018a), and hubristic pride, associated with lower sports activity motivation (Gilchrist et al., 2018b). Referring to this theoretical framework, this study investigates the impact of athletes' implicit motives, causal attributions as well as athletes' perceived positive or negative affect and perceived authentic or hubristic pride on sport activity parameters (i.e., duration, time, intensity). Twenty-one triathletes and runners (mean age  $\pm$  standard deviation: 35.85  $\pm$  12.89 years; 6 female, 12 male, 3 diverse) reported their perception of positive and negative affect, authentic and hubristic pride, and sport activity parameters (distance in kilometres, duration in minutes, intensity in rate of perceived exertion [RPE]) on six consecutive running sessions. Additionally, athletes' implicit motives were detected (via Picture Story Exercise; Winter, 1996) and athletes' causal attribution styles were assessed with self-report measures. Using Linear Mixed Model (athletes as random effects) regression analysis, results present a negative association of instable causal attribution styles with RPE ( $\beta = -0.884$ ,  $p =$

.042,  $R^2 = .16$ ) but positive associations of positive affect with RPE ( $\beta = 1.59$ ,  $p < .001$ ,  $R^2 = .15$ ) and sport activity duration ( $\beta = 30.15$ ,  $p = .035$ ,  $R^2 = .09$ ). Also, this study shows an association of authentic pride with sport activity duration ( $\beta = 29.53$ ,  $p = .010$ ,  $R^2 = .10$ ). These results underscore the association of positive valenced perception on sport activity behaviour. For practical implications, positive affect and authentic pride can be recommended as psychological determinants for sport activity duration and intensity. Additionally, the results suggest to promote variable attribution styles for managing activity intensity. However, future methodological improvements will be discussed.

### **Rival or role model? Perceived pride displays predict emotional responses and behavioral consequences in athletic performance**

Jordan C. Smith<sup>1</sup>, Svenja A. Wolf<sup>1</sup>, Jens Lange<sup>2</sup>, Jon Maner<sup>1</sup>, Robert Eklund<sup>1</sup>, Jeannine Turner<sup>1</sup>

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Drawing on the Emotions as Social Information (EASI) model and previous research, we hypothesize different perceptions of athletes' pride displays (authentic and hubristic) following victories will elicit different emotional responses (benign and malicious envy and admiration; Dickens & Robins, 2020; Lange & Crusius, 2015). These emotions in turn are likely to trigger motivational tendencies (personal effort, compassion towards teammates, antisocial behaviors, and affiliation with teammates) that can either benefit or harm athletic performance (Lange & Crusius, 2015; van de Ven et al., 2011). During the spring 2023 season, 32 collegiate athletes (identified gender: 54.5% male and 44.5% female) rated three randomly selected teammates on their interpretation of their teammates' pride, and their own emotional response with corresponding behaviors for at least four competitions, resulting in 413 data points. Perceptions of both authentic and hubristic pride significantly predicted greater benign envy ( $b = 0.18$ ,  $p < .001$ ;  $b = 0.40$ ,  $p < .001$ ) and admiration ( $b = 0.34$ ,  $p < .001$ ;  $b = 0.39$ ,  $p < .001$ ), with no relationship to malicious envy. In addition, feelings of greater benign envy and admiration predicted greater affiliation with their teammate ( $b = 0.21$ ,  $p = .003$ ) and greater personal effort ( $b = 0.39$ ,  $p < .001$ ). Greater affiliation with their teammate and personal effort related to decreased team athletic performance ( $b = 0.21$ ,  $p = .003$ ;  $b = 0.13$ ,  $p < .03$ ), with no effects on individual performance. The findings suggest that seeing a teammate express pride leads the perceiver to feel better, but the impact from these perceptions on performance is yet to be determined.

## Social influence in sports - insights from observational and archival analyses

Edda van Meurs<sup>1</sup>, Bernd Strauss<sup>1</sup>

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Symposium 47: Social psychology,  
Hall Maximilian, Juli 18, 2024, 14:40 - 15:40

### Home advantage and referee bias – what about national teams matches?

#### Insights from UEFA Nations League

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The home advantage and the referee bias regularly occur in professional sports, particularly in association football. The matches played behind closed doors in spring and summer 2020 highlighted that the crowd support is one of the main factors contributing to both phenomena in domestic leagues. The aim of the present study was to investigate whether the same applies to national teams matches, given the different impact of the other factors determining the home advantage in such matches. To this purpose, the 2018-19 and the 2020-21 editions of the UEFA Nations League – 133 matches each – were analysed, the former played in front of spectators while the latter with no or limited attendance. We examined a set of indicators of home advantage (match outcome, points, goals scored, ball possession, total shots, shots on goal, corner kicks) and of referee bias (fouls, yellow cards, red cards, penalty kicks, extra time), controlling for the FIFA World Ranking points and the number of time zones crossed. Comparing home and away teams on these parameters within each edition, we observed the occurrence of both phenomena in 2018-19, as well as their absence in 2020-21. Moreover, the comparison between the two editions revealed a significant reduction of both phenomena. The results indicate that spectators have a decisive role in contributing to both the home advantage and the referee bias in national teams' matches.

### Social Facilitation in Biathlon: Contrasting the Impact of Audience and Co-Acting Competitors on Performance

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Social facilitation as one of the oldest theories in social psychology describes cognitive or physical performance enhancements due to the presence of others (Allport, 1924). While early studies focused on the impact of co-competitors, later research also examined the effect of the presence of others, including observers in the audience (for a review and meta-analysis, see van Meurs et al., 2022). In addition, research showed that social facilitation effects depend on the type of task: for effort-based tasks, performance improvements are found when individuals are in the presence of others, whereas findings for coordination tasks are more equivocal (Strauss, 2002).

Here we present and discuss two studies in which we examined the impact of both the presence and absence of an audience as well as co-acting competitors on biathlon competition performance. Biathlon offers an ideal testbed for social facilitation as it comprises both task types: cross country skiing (effort-based task) and rifle shooting (coordination task).

The first study compared skiing and shooting performance in the absence of an audience due to COVID-19 restrictions with corresponding World Cup competitions where an audience was present (Heinrich et al., 2021). The second study examined the impact of co-acting competitors (opponents) on elite biathletes' shooting performance based on World Cup competition data from 2005 to 2020 (Heinrich et al., 2022).

Together, the studies support a relationship between the presence of others and biathlon performance. While co-acting competitors affect shooting performance, the presence vs. absence of an audience influences both skiing performance and shooting performance. The effects of the task varied depending on the type of task, the format of the competition and in some cases gender. These findings offer new perspectives on social facilitation research and the impact of audience vs. co-competitors on effort-based vs. coordination tasks that will be discussed in the talk.

### Spectators lead to performance reductions and to male over-estimation in a fine-motor coordination task

Sabine Schaefera, Christian Kaczmareka, Fabian Pelzera

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Objectives. Spectators can lead to social facilitation or social inhibition, depending on the difficulty of the task (Henchy & Glass, 1968; Zajonc, 1965). In the motor domain, coordination tasks are predicted to suffer in front of an audience (Strauss, 2002; van Meurs et al., 2022). Heinrich et al. (2021) indicate that spectator effects may be gender specific. The current study investigates whether a coordinative fine-motor task suffers in front of spectators, and whether males and females differ in this respect. In addition, participants are asked to predict their performances in upcoming trials ("selection margins", Schaefer et al., 2021; 2023), revealing over- or underestimations.

Method. Participants (156 males, 109 females) were invited into the lab in groups of 4 to 6 people. The motor task was to construct pyramids with little plastic cups as

quickly as possible (“cup stacking”). Four task conditions were assessed in a within-person design: co-acting or stacking individually in front of the other participants, and with or without performance prediction. In performance prediction trials, overestimations led to the loss of all points in the respective trial.

Results. Both males and females showed performance reductions when stacking in front of an audience. Concerning the deviation of the predicted and the actual performance (= selection margins), males showed a stronger tendency to overestimate their performances compared to females. Male overestimations became even stronger in front of an audience, while there were no differences in female over- or underestimations between the co-acting and the spectator condition.

Conclusion. In the current study, spectators influenced not only performance levels, but also strategic decisions and risk taking. Risk-taking tendencies were increased in males but not in females in front of an audience. Future studies should systematically include gender as a co-variate when assessing spectator effects on motor performance.

### **Performance Under Pressure – The Psychological Impact of Ghost Games in Football during the COVID-19 Pandemic**

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The COVID-19 pandemic has provided a unique global context for investigating the phenomenon of home advantage, specifically focusing on the effects of empty stadiums, or “ghost games”, on the performance and behaviour of sports teams and officials. In the wake of the pandemic, we conducted three original studies and a systematic literature review based on 26 primary studies, emphasizing the psychological aspects of decision-making under pressure and crowd-induced motivation in football.

Our findings reveal that ghost games significantly influence the traditionally observed home advantage. The absence of spectators led to a decrease in referee bias and emotional support from the stands, affecting the overall home performance in the top leagues of Europe. In-depth analysis further identified a reduction in social pressure on referees, resulting in more objective assessments of home teams’ play, evidenced by an increased number of yellow cards for fouls committed by home teams. This effect was independent of the game’s course, highlighting a shift in referee decision-making.

Additionally, one study explored the impact of ghost games on the nonverbal behaviour of football players, staff, and officials. Using our newly developed “Analysis System for Emotional Behavior in Football”, our research uncovered a 19.5% reduction in “emotional situations” in ghost games. Players, staff and officials exhibited more factual behaviour and fewer prolonged conflicts without the external factor of supporters.

Moreover, a multi-study approach delved into the subjective experience of football referees and professional players during the COVID-19 pandemic. Questionnaires and interviews revealed significant differences in intrinsic motivation, excitement, emotional intensity, focus, and overall experience between regular games and ghost games. The absence of spectators presents a complex interplay of emotions, arousal, motivation, self-confidence, behaviour, and performance on the pitch, highlighting the intricate relationship between external stimuli and sports professionals’ and other stakeholders’ psychological states during unprecedented circumstances.

### **Players or referees: Who is affected most by the home crowd?**

Edda van Meursa, Mara Kofotha, Bernd Straussa

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What drives home advantage (HA) in team sports? A key explanation by sport psychologists – the supportive behaviour of fans – only partially relates to improved performance (cf. Strauss et al., 2023). Meanwhile, the fans’ behaviours can be viewed as decision cues for referees, and bias them to favour the home team, which in turn increases HA (cf. Unkelbach & Memmert, 2010). The recent Home Advantage Mediated (HAM; Bilalić et al., 2021) model for soccer used team performances (TP) and referee decisions (RD) in a Bayesian hierarchical mediation model to show that in the absence of spectators during COVID-19, TP declined, and the referees’ bias decreased, which was related to a decrease in overall HA (N=4,356 games, 12 leagues, 1,131 games without spectators). We extend the HAM model to include the influence of the absolute number of spectators (rather than present/absent) on TP, RD, and match outcome in handball, while controlling for the general decline in HA since 2014.

We acquired data from the German male premier league (2014 – 2021, from www.liquimoly-hbl.de) to analyse whether the influence of spectators on TP and RD mediates the spectator-HA relationship using hierarchical structural equation models. 55% of the N=2,764 games in the German handball league were won by the home team. Composite scores for team and referee performances were derived from individual player statistics and referee decisions (fouls, penalties) using confirmatory factor analysis. Before COVID-19, more penalties were given to the away team by the referee ( $\beta=.08^*$ ), but this had a negligible, non-significant effect on HA ( $\beta=.05$ ). Both the indirect effect on the referee ( $\beta<.001^*$ ) and on the TP ( $\beta=.07^*$ ) were smaller than in Bilalić et al. (2021). Hence, the HAM model could not be confirmed for handball (in contrast to soccer), and a model specification and extension to Bilalić et al. (2021) is presented.

## Novel insights on the determinants of athletic persistence

Ian Taylor<sup>1</sup>, Chris Englert<sup>2</sup>, Nathalie Andre<sup>3</sup>, Miss Izzy Wellings<sup>1</sup>, Miss Johanna Staeler<sup>4</sup>

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Symposium 48: Motivation,  
Hall Igls, Juli 18, 2024, 14:40 - 15:40

The ability to persist and endure are essential ingredients in sport and many other areas of human performance, such as the military and emergency services. It is unsurprising, therefore, that persistence and related topics are popular areas of interest in sport and performance science. Building on this trend, this symposium will present novel insights on the determinants of athletic persistence. Each talk will focus on important persistence-related factors, such as self-control, motivation, and effort, and examine their role in athletic performance.

The symposium will begin with a presentation on the limitations of early theories of self-control, how contemporary research provides insight into optimizing athletic persistence, and what are the most important unanswered questions.

Recent meta-analyses have established that self-control use typically reduces in consecutive tasks, particularly if the second task requires physical persistence or effort. However, the second presentation presents new data demonstrating that athletes are resistant to these mental fatigue effects, compared to non-athletes. This finding may have significant implications for talent development and psychological interventions.

Presentations three and four examine predictors of the motivational conflict between the desire to reduce effort and performance goal during endurance tasks. Presentation three examines whether physiological responses to exercise are associated with this desire-goal conflict, and whether these are mediated by core affect. Presentation four explores whether athletic identity or autonomous motivation better predict this conflict and subsequent performance. Collectively, these presentations imply that interventions should differ according to which motivational component of self-control is the target.

Finally, self-regulation failure is often due to the costs and aversive nature of physical effort. Presentation five examines whether short periods of physical training can help individuals learn to like physical effort, which has important implications for performance and public health.

## Novel insights into self-control in sport and exercise psychology

Chris Englert<sup>1</sup>

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Self-control describes a process which enables us to inhibit dominant response tendencies to achieve desirable (long-term) goals (Baumeister et al., 1998). This process is especially important in sport and exercise contexts, where individuals often have to ignore immediate sensations of pain or fatigue and instead have to focus on the long-term benefits of their behaviors. Self-control is also highly important among individuals engaging in physical activity for recreational or health reasons. For instance, self-control is needed to resist the temptation to postpone a scheduled, potentially exhausting workout session. However, exerting self-control is effortful and failures are common. To explain lapses in self-control performance, several theoretical models have been developed over the years, with the strength model of self-control being one of the most cited but also most criticized models (e.g., Englert et al., 2021). The strength model assumes that individuals only have a limited self-control capacity which can become temporarily depleted after a previous self-control act and is not immediately replenished, leading to performance impairments (i.e., ego depletion effect). In a similar fashion, psychobiological models also assume that individuals tend to perform worse after an initial effortful task, but not because of a temporarily depleted self-control resource, but rather because of changes in cognitive, physiological as well as behavioral processes (i.e., mental fatigue; e.g., Van Cutsem et al., 2021). The current talk aims to present recent developments in the field of self-control research in sport and exercise psychology and to discuss potential future avenues to improve our understanding of how self-control operates.

### Endurance athletes show a higher resistance to mental fatigue in a subsequent physical task

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Background: A recent review of the literature suggested that willpower could be trained through aerobic training (Audiffren et al., 2022). The aim of this study was to show that endurance athletes would experience less fatigue after performing a long and effortful task in a subsequent endurance task than non-athletes.

Methods: Two groups of participants (50 athletes vs. 50 non-athletes) performed a 30-min modified computerized incongruent Stroop task (depleting task) and watched a 30-min documentary movie (control task) in two separate sessions planned in a counterbalanced order. After the depleting and the control tasks, they carried out a time-to-exhaustion handgrip task at 13% of their maximal voluntary contraction (dependent task). Pre-ejection period (PEP) was recorded on a continuous basis during



the whole experiment and was then analyzed as a function of time-on-task (TOT).

Results: Behavioral results showed that non-athletes were worse at performing the handgrip task after the Stroop task but not the endurance athletes. Athletes and non-athletes reported higher subjective fatigue after the Stroop task. The psychophysiological results showed that the PEP increased as a function of TOT during the Stroop task for both groups.

Conclusion: Endurance athletes are more resistant to mental fatigue.

**Affect mediates the relationship between physiological and motivational responses to exercise**

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Background: The human capability to sustain uncomfortable physical activity is an important evolutionally development and key to success in various performance domains, such as sport and the military. The present study employed the desire-goal conflict as a framework to examine human endurance and investigate the relationship between physiological responses to exercise and psychological antecedents of endurance performance. Specifically, the research examined whether within-person changes in blood lactate concentration, heart rate, core temperature, and oxygen uptake predict desire to reduce effort/performance goal value and whether these relationships mediated by affect?

Methods: Fifty physically active participants completed an incremental cycling step test to voluntary exhaustion with work rate increasing 25 watts every four minutes. During every four-minute stage, three psychological scales assessed the desire to reduce effort, performance goal value, and core affect. Physiological measurements included core temperature, volume of oxygen uptake, heart rate and blood lactate concentration. Study variables were analysed using multilevel modelling.

Results : Within-person variation in blood lactate concentration predicted desire to reduce effort and performance goal. Oxygen uptake and heart rate predicted desire to reduce effort, whereas core temperature predicted performance goal. Affect mediated the relationships involving blood lactate concentration and oxygen uptake, but not the relationships involving heart rate and core temperature.

Summary and Implications: Affect is an important mediating variable that needs to be considered in the application of desire-goal conflicts to endurance exercise. The four physiological responses to exercise have different motivational consequences, but all have significant motivational implications. However, blood lactate concentration has the most important motivational ramifications.

**Autonomous motivation and athletic identity as predictors of desire-goal conflict and endurance performance**

Ian M. Taylor<sup>1</sup>, Lara Drewes<sup>1</sup>, Dani Fort<sup>1</sup>, George Horne<sup>1</sup>, Steven Quercia-Smale<sup>1</sup>, Izzy Wellings<sup>1</sup>

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Background: The motivational conflict between the desire to reduce effort and the performance goal value has been shown to predict endurance performance and persistence. However, athletic identity and autonomous motivation have both been referred to as the central determinant of this process. The present study aimed to explore whether athletic identity and autonomous motivation could be experimentally manipulated using a novel performance profile intervention. In addition, whether autonomous motivation or athletic identity better predicted athletic performance via the desire-goal conflict was investigated.

Methods: Thirty-seven participants completed both experimental conditions in a within-person design. They completed a performance profile (experimental condition) or wrote about personal relationships (control condition) and then completed an incrementally effortful cycling task until voluntary exhaustion. The order of experimental condition was counterbalanced.

Results: The experimental manipulation successfully increased athletic identity prior to the endurance task, but not autonomous motivation. However, within-person changes in autonomous motivation predicted time to exhaustion (i.e., endurance performance) via the motivation value of participants' performance goal. No such relationships were observed for athletic identity.

Summary & Conclusion: Autonomous motivation, not athletic identity, predicts motivational dynamics which can influence endurance performance. In addition, a novel intervention to experimentally manipulate athletic identity was identified.

**How to learn to like physical effort? Regular physical training does neither increase the value of physical effort nor the willingness to exert effort**

Johanna Stähler<sup>1</sup>, Maik Bieleke<sup>1</sup>, Julia Schüller<sup>1</sup>

*<sup>1</sup>Department of Sport Science, University of Konstanz, Germany*

Background: While many people do not exercise due to the costliness of effort, others experience effort even as rewarding to some degree. In line with this, exercising regularly causes neural changes, indicating that effort becomes less costly. We investigate how regular physical exercise alters the perceived value of physical effort (VoPE), the neural activation during exercise, as well as the willingness to exert effort.

Methods: Sixty-six initially inactive participants were assigned to an eight-week high-intensity jump training (TG) or a control group (CG). Two bike ergometer tasks were conducted before and after the training period. The first task assessed how participants value effort during three pre-determined intensity levels. In the second

task, participants chose the intensity themselves, to assess their willingness to exert effort. During both tasks, participants' perceived exertion (RPE) and VoPE were assessed, along with neural activation in relevant brain areas using functional near-infrared spectroscopy (fNIRS).

Results: VoPE and willingness to exert effort were not predicted by group (TG/CG) or time (pre/post training period). The analysis of fNIRS data will be completed prior the conference.

Conclusion: Short training periods of two months do not influence the VoPE and the willingness to exert effort.

## Coaches as Leaders: International Perspectives on the „How?“, „What?“, and „Why?“ Across Diverse Contexts

Sebastian Brueckner<sup>1</sup>, Louise Kamuk Storm<sup>2</sup>, Radhika Butalia<sup>3</sup>, Chen Zhao<sup>4</sup>, Kristen Dieffenbach<sup>6</sup>, Maïke Tietjens<sup>7</sup>

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Symposium 49: Leadership,  
Hall New Orleans, Juli 18, 2024, 14:40 - 15:40

### The youth sport coach as a cultural leader

Louise Kamuk Storm<sup>1</sup>, Sofie Dideriksen<sup>1</sup>, Natalia Stambulova<sup>2</sup>, Kristoffer Henriksen<sup>1</sup>

<sup>1</sup>University of Southern Denmark, <sup>2</sup>Halmstad University, Sweden

Today there is a need to revitalize the discussion of the youth sport coaches' leadership role to better target the needs of modern society (e.g., handle young athletes' experiences of performance pressure; adapt the sports environments to the first generation that has grown up in a totally digital world). This presentation is aimed to (a) provide a working definition of cultural leadership in youth sport, (b) outline what competences (knowledge, skills, personal characteristics) coaches need to be competent cultural leaders, and (c) set an agenda for future research on cultural leadership in youth sport and coach education.

This presentation is informed by a literature review (Storm & Svendsen, 2022) and a Nordic Think Tank (Storm et al. 2023) on cultural leadership in youth sport and physical education as well as by an investigation of competent cultural leadership among Danish coach educators (Delphi study design; Dideriksen, 2024)

Cultural leadership is a meta-function with the overall purpose of facilitating development of athletes' skills and competences by creating a functional environment and culture. A cultural leader is thus the professional and social role of a person (e.g., a coach) who has legitimacy (i.e., is in the position) and responsibility to develop, maintain, and (if needed) attempt to change the culture of a group of learners (e.g., athletes), in the service of good, which means to help athletes thriving inside and outside sport; continuing to develop in a holistic way and reaching their potential. Competent cultural leadership requires knowledge about quality youth sport environments; skills to create an inclusive environment, and personal characteristics including engagement and presence. Future avenues for coach education are discussed (e.g., scenario-based learning; personal development).

**Coach Leadership in a Crisis Context: Investigating Effective Coach Behaviours During the COVID-19 Pandemic with a Process View**

Chen Zhao<sup>1, 2</sup>, Sophia Jowett<sup>2</sup>

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A brief introduction: Drawing from the crisis leadership conceptualization, this study aims to investigate coaches' opinion patterns on effective leadership behaviours during the COVID-19 pandemic. The study used a process view to explore how coaches as leaders act in pre, during, and post-crisis phases.

Problem statement: Recently, sport leaders have witnessed and experienced several crisis events. This study addresses the gap in sport leadership behaviours in a crisis time, concerning how sports leadership takes responsibility, makes difficult decisions, and seeks appropriate solutions to lessen the damage the crisis inflicts on individuals and organisations.

Brief description of methodology: Thirty-two fulltime professional coaches (28 males and 4 females) from individual and team sports who experienced the entire COVID-19 pandemic from January 2020 to July 2021 in the United Kingdom were invited to express their perceptions of effective leadership behaviours. The study used Q methodology to analyse coaches' perceptions and experiences.

Summary and implications of the result: The findings of this study further highlight (1) the importance of coach leadership in creating a safe environment as it provides a much better platform to prepare for a pre-crisis stage, (2) that coaches should employ more positive than negative behaviours while interacting with team members more frequently especially during the crisis period, reducing athletes' negative feelings such as anxiety and worry, and (3) that the online training-related activities and interactions during the crisis time can be expanded to noncrisis times, as a crisis event can have positive implications for the future if handled properly.

**Measuring Leadership in Sport: Development and Validation of the Identity Leadership Inventory – Youth (ILI-Y)**

Radhika Butalia<sup>1</sup>, Anthony Miller<sup>2</sup>, Niklas K. Steffens<sup>3</sup>, S. Alexander Haslam<sup>3</sup>, Mark W. Bruner<sup>4</sup>, Colin D. McLaren<sup>5</sup>, Filip Boen<sup>1</sup>, Matthew J. Slater<sup>6</sup>, Kyle Dunn<sup>6</sup>, Katrien Fransen<sup>1</sup>

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Objective: The social identity approach to leadership posits that leaders' effectiveness depends on their ability to represent, advance, create, and embed a shared sense of social identity among their followers. Although significant progress has been made in investigating the benefits of identity leadership in adult sports, research in youth sports is still in its infancy. One reason is the lack of a youth-centric inventory that

adequately measures identity leadership in this population. To bridge this gap, we developed and validated the Identity Leadership Inventory for Youth Sport (ILI-Y) through five studies conducted in three phases of research.

Method and Results: Data were primarily collected in football in the United Kingdom, involving a total of 1,096 participants. Results of Phase I of this study provided little to no evidence that the ILI – originally developed for adults – was understandable (Study 1) and had factor validity and internal consistency (Study 2) in a sample of youth athletes. Therefore, in Phase II, the ILI was revised, leading to the development of the ILI-Y, which was understandable for youth athletes (Study 3). Results from Phase II (Study 4) also indicated that the ILI-Y exhibited a unidimensional factor structure, which was subsequently confirmed in Phase III (Study 5). This last phase offered additional evidence for the discriminant, criterion, and incremental validity of the ILI-Y and its short form, along with their measurement invariance across genders and age groups, and internal consistency.

Conclusion: This study provides sports psychology researchers and practitioners with a valid measure to assess identity leadership in youth sports.

**Turning Involvement into Investment: Organizational System Design to Support Youth Sport Coach Leadership**

Kristen Dieffenbach, Hannah Swartz, Derek Read, Jordan Rademacher

*West Virginia University*

The lifelong value of participating in youth sports is the foundation of long-term athletic development guidelines like Canada's Sport for All (2019). These evidence-informed models bring together literature from child development, motor learning, physical education, sport and exercise psychology, and related disciplines supporting a 'right age right stage' multi-dimensional approach to sport development promoting a lifelong healthy relationship with physical activity as well as creating healthy competitive sport pathways. Within the United States, programs for youth sport participants commonly rely on community volunteers as the coaching workforce (NYSS, 2019). Unfortunately, despite the value and importance placed on the youth sport experience, coach training to support holistic youth development is often minimal, if required at all (Dieffenbach, 2019). In addressing concerns about the accessibility and quality of youth sport, the U.S. Department of Health and Human Services released the National Youth Sport Strategy (2019) calling for programs to prepare and support volunteer leaders.

Recognizing the skills and knowledge needed to facilitate the full spectrum of positive youth sport outcome expectations, a systems-based approach was developed to provide initial and ongoing support to 300 volunteer coaches within a youth ice hockey program. This presentation will outline a coach developer leadership strategy that provided training on volunteerism (e.g., Hoye et al., 2019), principles of adult learning theory (Knowles, 1984), and a sport specific long-term athletic development framework (Martel, 2015) to individuals with technical sport proficiency and youth program delivery experience. Throughout the season these prepared devel-

opers were responsible for communicating plans, learning objectives, and teaching strategies to the volunteer coaches who in turn worked with over 1,000 kids weekly. Throughout the season long program, developers also provide in-practice support for coaches. Challenges, unintended consequences, and successes from the coach development program will be discussed along with next steps.

**CULTurn: A Leadership Intervention based on 360-Degree Competing Values Framework and Charismatic Leadership Feedback with National Team Coaches**

Sebastian Brueckner<sup>1</sup>, Maike Tietjens<sup>2</sup>, Ralf Lanwehr<sup>3</sup>, Jasper Guzmán<sup>2</sup>

<sup>1</sup>Private Practice, Germany, <sup>2</sup>University of Muenster, Germany, <sup>3</sup>South Westphalia University of Applied Sciences, Germany

This study aims to implement a leadership intervention in a national team context, based on the Competing Values Framework (CVF) and visionary-charismatic leadership to gain a comprehensive understanding of successful coaching behaviors in complex sport settings.

The research involved 21 national coaches from trampolining, rhythmic gymnastics, and gymnastics, along with 241 external reviewers providing 360° feedback before and after the intervention. Modified questionnaires covering collaboration, creativity, control, competition, (Lawrence et al., 2009) and charisma (Bastardo, 2020) were employed, supplemented by personality diagnostics measuring extraversion, neuroticism, openness, conscientiousness, agreeableness (BFI-10, Rammstedt et al., 2014), and the Honesty-Humility Scale (HEXACO, Ashton & Lee, 2009). A pre- and post-intervention involved competence reports, individual feedback, and three person-centered coaching sessions. Sessions were recorded and a qualitative content analysis was conducted.

High scores in all CVF leadership roles were observed across self-perception and external perception, with slight increases post-intervention. Gender-specific differences emerged, with women scoring higher in roles like “team developer” and “mentor,” while men scored higher in the “competitor” role. Men were generally rated higher in the strategy field “competition” in external perception. Conscientiousness positively correlated with CVF leadership roles, while neuroticism showed a negative correlation. External reviewers (athletes, colleagues, and supervisors) partly differed in their external perceptions. The qualitative content analysis revealed a diverse spectrum of themes being addressed during intervention, focusing on “athletes”, “training culture”, “organizational dynamics”, and coaches’ “self-management”.

Discussion centers on the professionalism demonstrated by coaches through the 360° feedback, emphasizing their commitment to personal development. Challenges in communication and organizational aspects, particularly within the association, were identified.

This study contributes valuable insights into leadership dynamics. By combining quantitative and qualitative approaches, it offers a comprehensive view of coaching behaviors, providing a foundation for enhancing coaching strategies and furthering the development of coaches in competitive sports.

**Moving Beyond the Social Vacuum in Research on Stress, Emotion, and Thriving: Individual, Interpersonal, and Collective Perspectives**

**Faye Didymus<sup>1</sup>**

<sup>1</sup>Leeds Beckett University, Leeds, United Kingdom

Symposium 50: Social psychology,  
Hall Freiburg, Juli 18, 2024, 14:40 - 15:40

**Do more skilled athletes appraise high-pressure situations as a challenge? A multi-study investigation**

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<sup>1</sup> University of Bath, United Kingdom <sup>2</sup> University of Essex, United Kingdom

Introduction and Problem Statement: Appraising high-pressure situations as a challenge (i.e., coping resources match/exceed situational demands) has been associated with better performance (Hase et al., 2019). However, despite much theorising (e.g., Meijen et al., 2020), little is known about the antecedents of challenge and threat appraisals. Although skill-level (or ability) has been assumed to predict these appraisals (Seery, 2011), no research has directly tested this assertion. Drawing on three datasets, this investigation examined whether skill-level predicted athletes’ challenge and threat appraisals during high-pressure situations.

Theoretical Framework: The biopsychosocial model (BPSM) of challenge and threat (Blascovich, 2008) underpinned this original multi-study investigation.

Methods: Across all studies, appraisals were assessed via the cognitive appraisal ratio (Tomaka et al., 1993). In study 1, 1813 roller-derby players (90% female; Mage = 33 ± 7 years) of varying skill-levels (i.e., rookie to international) reported their appraisals in response to nine vignettes (e.g., deselection). Moving from hypothetical scenarios to real-world competition, in study 2, 199 golfers (17% female; Mage = 36 ± 16 years) of differing skill-levels (i.e., handicaps) reported their appraisals before a competition. Progressing from an ecologically valid to a laboratory setting, in study 3, 59 elite and sub-elite golfers (39% female; Mage = 19 ± 2 years) reported their appraisals before a pressurised task.

Results and Implications: In studies 1 and 2, higher skill-levels were associated with appraising high-pressure situations as more of a challenge ( $r = .17, p < .01$  and  $r = .13, p < .05$ , respectively). In study 3, elite golfers appraised the task as more of a challenge than sub-elite golfers ( $d = .70, p < .05$ ). Collectively, the results of this novel investigation support the BPSM’s predictions and are the first to highlight that skill-level (or ability) is an important antecedent of challenge and threat appraisals.

### Interpersonal Coping in Sport: A Systematic Review

Chloe J. Woodhead<sup>1</sup>, Faye F. Didymus<sup>1</sup>, Alexandra J. Potts<sup>1</sup>

<sup>1</sup> Leeds Beckett University, United Kingdom

**Introduction and Problem Statement:** Coping in sport has historically been explored via an intrapersonal lens but, recently, interpersonal coping (IC) has become more widely researched. This is a noteworthy shift given that coping often involves more than one person (Folkman, 2009). Due to inconsistencies in IC related terminology, and conceptual overlaps between IC and other concepts (e.g., social support), a review is needed to develop conceptual competence and formulate a concise definition. In turn, this will develop understanding of potential adaptive and maladaptive consequences of IC for development, health, well-being, and performance.

**Theoretical Framework:** We view IC as an umbrella concept under which various hyponyms (e.g., dyadic coping, communal coping) are nested. Many theories of IC have been proposed, which are often underpinned by transactional perspectives of coping (e.g., Lazarus & Folkman, 1984). These theories influenced the development and execution of this review.

**Methodology:** Adhering to PRISMA-P guidelines, systematic searches of CINAHL, PsycArticles, APA PsycInfo, and SPORTDiscus were conducted. To be included, papers had to be published in the English language in a peer-reviewed journal and had to directly or indirectly explore IC in sport. Thematic synthesis (Thomas & Harden, 2008) was used to extract, record, and synthesize relevant data.

**Summary and Implications:** The final sample consisted of 28 studies (22 qualitative, five quantitative, one mixed-methods) spanning 14 years. The results highlight eight antecedents and facilitators (closeness, commitment, communication, complementarity, cultural values, environment and situations, sharing of demands, support), two mediators (appraisal of own and others' emotions and or coping, individuals within the relationship), one moderator (gender), and three outcomes (performance, relationships, regulation or management of emotions) of IC. The findings of this systematic review offer a vantage point from which composed and coordinated action can be taken to develop research on IC in sport.

### Who engages in positive and negative interpersonal emotion regulation within teams? A social network analysis study

Katherine A. Tamminen<sup>1</sup>, Jeemin Kim<sup>2</sup>

<sup>1</sup>University of Toronto, Canada <sup>2</sup>Michigan State University, United States of America

**Introduction and Problem Statement:** A growing body of literature demonstrates how athletes engage in interpersonal emotion regulation (IER) behaviours to improve or worsen the emotions of others and the outcomes associated with IER. To advance the research in this area, it is necessary to examine who is engaging in patterns of IER within teams. The purpose of this research was to examine the charac-

teristics of athletes engaging in affect-improving and -worsening IER within teams.

**Methods:** Athletes (n = 335, 35.8% women, Mage = 19.78 years old) from 25 teams completed cross-sectional surveys to indicate the extent to which they provided and received emotion-improving and -worsening IER with each teammate. Athletes also completed demographic items (i.e., years on team, leadership status, starting status) and a measure of emotion dysregulation. Social network analyses were used to examine the strength of the ties between teammates' ratings of IER behaviours between one another and associations with predictor variables.

**Results and Implications:** Results indicated that athletes who were leaders on the team, and athletes who were starters on the team, were more likely to be rated by teammates as providing more emotion-improving IER toward others. Athletes who reported engaging in more emotion-worsening IER toward their teammates also reported greater emotion dysregulation (nonacceptance of emotions, difficulties in impulse control). Athletes who reported more difficulties in goal-directed behaviours when upset reported engaging in less emotion-worsening IER toward teammates. These results suggest that leaders and starters on the team may be instrumental for engaging in emotion-improving IER with teammates, and that improving emotion dysregulation may help to reduce athletes' emotion-worsening IER behaviours. This research provides indications of those athletes who may benefit from interventions that can help to improve interpersonal emotion regulation dynamics within teams.

### United in joy and misery?

#### Investigating the links between collective emotions and team integration

Svenja A. Wolf<sup>1</sup>, David W. Eccles<sup>1</sup>, Vanessa Wergin<sup>2</sup>,

<sup>1</sup>Florida State University, United States of America <sup>2</sup>University of Queensland, Australia

**Introduction and Problem Statement:** High-performance teams are frequently evaluated teams on their performance, rather than on their social qualities. Yet, social integration can contribute substantially to success and can enhance member commitment, enjoyment, and adherence (Knight & Eisenkraft, 2015). To enhance social integration, coaches and consultants usually implement more or less complex and time intensive interventions (Martin et al., 2009). An alternative and more efficient way to build integration could be to enhance the experience of collective emotions with a team (i.e., instances where team members experience similar emotions). Teams experience emotions frequently and naturally, and greater collective emotions link with greater social integration (e.g., member attraction, group integration; Tamminen et al., 2016; Zumeta et al., 2016). We do not know, however, if these links apply equally to pleasant and unpleasant collective emotions and across affective, cognitive, and behavioral facets of integration on member and team levels.

**Theoretical Framework:** We operate from a self-categorization (Livingstone et al., 2011) and entitativity perspective (Forsyth, 2010) that leads us to expect that greater emotional similarity, regardless of valence, will act as cues for team identification and demarcation to other groups.



Methods: Before and after a match, 200 athletes (63% female) across 18 teams completed questionnaires about their perceived collective emotions and social integration (i.e., entitativity, identification, social cohesion, commitment).

Results and Implications: When controlling for initial integration, experiences of greater emotional similarity, regardless of valence, predicted greater perceived social integration across all facets but especially for the cognitive team-level variable of entitativity (i.e., whether the collection of individuals looked and felt like a team). These findings support our theoretical assumptions, highlighting the importance of emotional similarity and the potential functionality of expressing and sharing unpleasant emotions.

### **A mixed-methods audit of human thriving at Mercedes AMG High-Performance Powertrains (HPP)**

Tommy Hughes<sup>1</sup>, Rachel Arnold<sup>1</sup>, Desmond McEwan<sup>2</sup>, Lee Moore<sup>1</sup>

<sup>1</sup> University of Bath, United Kingdom <sup>2</sup> The University of British Columbia, Canada

Introduction and Problem Statement: In the fast-paced world of Formula One (F1), performance has been prioritized over employee well-being. However, F1 teams are starting to recognize the power of helping employees to manage demands and thrive (i.e., to both perform optimally and experience high well-being). Thus, this study aimed to enhance our understanding of the key enablers, inhibitors, and processes of human thriving within a high-pressure domain (i.e., F1) and organization (i.e., Mercedes AMG HPP).

Theoretical Framework: This work is based on Brown et al.'s (2017) conceptualization of human thriving.

Methods: A concurrent mixed-methods design was used. Seven hundred and seventy-six employees of Mercedes AMG HPP (698 male, 78 female; Mage = 39 years, SD = 12) completed an online survey assessing thriving (e.g., positive affect, vitality, and subjective performance) as well as key enablers (e.g., coping strategy use), inhibitors (e.g., workplace stressors), and processes of thriving (e.g., challenge appraisal). Twenty interviews were conducted (Mage = 33 years, SD = 10) to gather in depth insight to the study aims.

Results and Implications: Regression analyses identified various significant predictors of thriving including key enablers (e.g., manager support), inhibitors (e.g., dysfunctional coping), and processes (e.g., challenge appraisal). Quantitative data also revealed 'at-risk' groups who were experiencing greater demands and lower thriving in comparison to others (e.g., team leaders and managers). Qualitative findings highlighted an array of contextual (i.e., high-demand environment, team culture, leadership) and personal (e.g., mindset, coping strategies, motivation) enablers and inhibitors of thriving. These results highlight some unique factors (e.g., mindset and dysfunctional coping strategies) that have not previously been explored in the context of human thriving. As well as offering a foundation for interventions in wider high-performance contexts, the results will be vital for developing evidence-based interventions that help employees to thrive in the high-pressure world of F1.

## **The Psychology of Crises in Sport: Interdisciplinary Perspectives**

**Bernd Strauss<sup>1</sup>**, Katherine Tamminen<sup>2</sup>

<sup>1</sup>University of Muenster, Muenster, Germany, <sup>2</sup>University of Toronto, Toronto, Canada

Symposium 51: Crisis,  
Hall Strassburg Nord, Juli 19, 2024, 11:00 - 12:30

### **Theoretical perspectives of performance crises in sport psychology**

Stephanie Buenemann<sup>1</sup>, Charlotte Behlau<sup>1</sup>, Katherine Tamminen<sup>2</sup>, Maike Tietjens<sup>1</sup>, Bernd Strauss<sup>1</sup>

<sup>1</sup> University of Muenster, <sup>2</sup> University of Toronto

In sport psychology, a variety of conceptualizations have emerged to explain underperformance. Amongst others, these include choking under pressure (Baumeister, 1984), negative momentum (Iso-Ahola & Dotson, 2014) trading stocks, or playing sports, performance-enhancing effects of psychological momentum (PM, collective collapse (Wergin et al., 2018), and most recently team performance crises (Buenemann et al., 2023). They can most easily be differentiated by whose performance is paid attention, individual or team, and their timely perspective, ranging from failing in a very specific situation (e.g., choking) to performing poorly across multiple competitions (e.g., team performance crisis). Our aim is to outline theoretical perspectives on poor performance alongside with a specific focus on team performance crises. While individual poor performances have been researched for a long time, team performance slumps are only just beginning to attract attention. Based on crisis definitions from other fields e.g., communication sciences, as well as stress research, we define a team performance crisis as continuous underperformance across games, accompanied by team members' threat states, and the inability of a team to cope, resulting in low team functioning. In this sense, a crisis is considered a downward spiral with increasing severity along the process. There are stages in the model: crisis predispositions (stage 0), a crisis trigger (stage 1), and the further crisis process (stage 2). Stage 0 contains conditions under which team performance crises become likely, including the broader context the team is in as well as psychological team factors. Stage 1 is intended to show which negative events have the potential to trigger a crisis and stage 2 is supposed to show how the crisis develops as a team is unable to cope/to deal with the perceived threat state. We outline not only theoretically expected mechanisms, but also initial research results to empirically validate the model. By providing the model, we hope to inspire further research efforts and endeavors.

Baumeister, R. F. (1984). Choking under pressure: Self-consciousness and paradoxical effects of incentives on skillful performance. In *Journal of Personality and Social Psychology*, 46(3), 610-620. <https://doi.org/10.1037/0022-3514.46.3.610>

Buenemann, S., Raue-Behlau, C., Tamminen, K. A., Tietjens, M., & Strauss, B. (2023). A conceptual model for performance crises in team sport: a narrative review. *International Review of Sport and*

Exercise Psychology, 1–26. <https://doi.org/10.1080/1750984X.2023.2291799>

Iso-Ahola, S. E., & Dotson, C. O. (2014). Psychological momentum: Why success breeds success. *Review of General Psychology*, 18(1), 19–33.

Wergin, V., Zimanyi, Z., Mesagno, C., & Beckmann, J. (2018). When suddenly nothing works any-more within a team - Causes of collective sport team collapse. *Frontiers in Psychology*, 9, 2115. <https://doi.org/10.3389/fpsyg.2018.02115>

### Personal crisis in athletes: injuries and retirement

Andreas Ivarsson<sup>1</sup>, Adam Gledhill<sup>2</sup>

<sup>1</sup> Halmstad University, Sweden; and University of Agder, Norway <sup>2</sup> Leeds Beckett University, United Kingdom

Injuries and involuntary retirement are common within sport. Also, these two life-events are often associated because injuries are one of the main factors for involuntary retirement (Cooper et al., 2021). These two life events can often be uncontrollable, unpredictable and often of unexpected nature increasing the risk of the athlete to experience them as career crisis. If an athlete does not have adequate strategies or support to deal with these life events, negative consequences are likely to follow. Examples of such consequences are reduced level of well-being and increased likelihood of mental ill-health, which can lead an athlete to crisis point. Given that these life events are common within sport and might be associated with potential negative consequences it is important both to reduce the risk of injuries and involuntary retirement, but also to help athletes develop strategies to cope with these events when experiencing them. During the presentation we will discuss the negative consequences of sports injury and involuntary retirement for athlete's health and highlight aspects that can influence the likelihood of such consequences. That discussion will be followed by a presentation of strategies to alleviate the negative impacts of retirement on athlete health and wellbeing. Last we will discuss and illustrate ways in which we can facilitate athletes' retirement transitions.

Cooper, D. J., Batt, M. E., O'Hanlon, M. S., & Palmer, D. (2021). A cross-sectional study of retired great British Olympians (Berlin 1936 – Sochi 2014): Olympic career injuries, joint health in later life, and reasons for retirement from Olympic sport. *Sports Medicine – Open*, 7, 54.

### The Crisis of Toxic Cultures in Competitive Sport

Gretchen Kerr, Anthony Battaglia

University of Toronto, Canada

Recently, athletes have publicly condemned their experiences of maltreatment in sport, including psychological, physical, and sexual abuse, and neglect. They have also disclosed fears of speaking up about these harmful experiences, negative repercussions as a result of disclosing their experiences, and efforts by sport organizations to cover-up known cases of maltreatment in their ranks. Similar stories of maltreat-

ment and cover-ups have emerged from women's and men's sports, individual and team sports, various levels of sport, and across countries, thus drawing attention to the common denominators of sport cultures that are conducive to experiences of harm. Athletes have used the term 'toxic cultures' to describe the conditions of the sport environment that increase vulnerability to experiences of maltreatment and that deter them from coming forward about these experiences (Ewing, 2022; Willson et al., 2022a). In this presentation, we posit that the current crisis in sport is one of toxic cultures. The documented characteristics of a toxic culture will be described, including being authoritarian and fear-based, and devoid of values and diversity. Additionally, the connections between these characteristics and research findings on athlete maltreatment will be illustrated. An emphasis will be placed on the social norms in sport that enable the occurrence and perpetuation of harmful practices, concealment by organizations, and the development of toxic cultures. Finally, recommendations will be posed for addressing toxic cultures by modifying the predominant social norms in sport through changes in environmental cues and the engagement and empowerment of all stakeholders.

### The COVID-19 Pandemic Crisis-Transition and Its Influence on Sport

Natalia Stambulova<sup>1</sup>, Kristoffer Henriksen<sup>2</sup>

<sup>1</sup> Halmstad University, Halmstad, Sweden <sup>2</sup> University of Southern Denmark, Odense, Denmark

In this presentation we look at Covid 19 pandemic through the lens of transition literature as a global crisis transition and elaborate on its influence on sport. Theoretically we subscribe to the idea that developmental crises have a double nature and create barriers for functioning as well as opportunities for adaptive growth (Vygotsky, 1933). We outline four sport-related pandemic phases organized around the International Olympic Committee decision to postpone the Tokyo-2020 Olympic Games, which had an impact on all levels of sport and athletes' preparation and development worldwide. The pandemic compromised stability in the sport world and triggered a shift to creative and flexible managerial solutions in athletes' macro- and micro- environments. Extensive sport research (e.g., Frawley & Schulenkorf, 2022) has revealed that the pandemic affected athletes, coaches, managers, sport psychology practitioners and their environments (e.g., lockdowns, cancellation of competitions, closed facilities). Athletes experienced simultaneous changes in all levels of their development, and most of these changes compromised their mental health and well-being (e.g., Dithurbide et al., 2022; Stambulova et al., 2022). At the same time, the pandemic became a catalyst for positive change, including an increased focus on athletes' mental health and a reduction in stigma. Sport psychology practitioners were put to the test and had to develop creative solutions, including new forms of mental skills training, problem solving, behavioral activation, acceptance and mindfulness training, meditation, virtual competition, replanning sport and life, and more (Lundqvist et al., 2022; Schinke et al., 2020). To comple-

ment the research summary, we include reflections of a sport psychology practitioner (the second author) about athletes', coaches', and his own experiences of preparation for, and participation in, the Tokyo-2020 Olympic Games under the pandemic conditions followed by lessons learned from the pandemic crisis to rely upon in the future.

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The impact of the COVID-19 pandemic on Canadian national team athletes' mental performance and mental health: The perspectives of mental performance consultants and mental health practitioners. *Frontiers in Psychology*, 13, 937962.

Frawley, S., and N. Schulenkorf, N. (2022). *Routledge handbook of sport and COVID-19*. Routledge.

Lundqvist, C., Macdougall, H., Noguchi, Y., Malherbe, A., & Abejean, F. (2022). When COVID-19 struck the world and elite sports: psychological challenges and support provision in five countries during the first phase of the pandemic. *Journal of Sport Psychology in Action*, 13 (2),116–128.

Schinke, R. J., Papaioannou, A., Henriksen, K., Si, G., Zhang, L., & Haberl, P. (2020). Sport psychology services to high-performance athletes during COVID-19. *International Journal of Sport and Exercise Psychology*, 18, 269–272.

Stambulova, N., Schinke, R. J., Lavallee, D., & Wylleman, P. (2022). The COVID-19 pandemic and Olympic/Paralympic athletes' developmental challenges and possibilities in times of a global crisis-transition. *International Journal of Sport and Exercise Psychology*, 20(1), 92–101.

Vygotsky, L. S. (1933). Problema vozrasta [Problem of age]. *Archives of the St-Petersburg Pedagogical University*.

Discussant: Maurizio Bertollo

*University of Chieti-Pescara, Italy*

## Fostering Environments for Mental Health in Competitive Sport

Philipp Röthlin<sup>1,2</sup>, Stephan Horvath<sup>1</sup>, Emilia Backman<sup>3</sup>, Johanna Kaiser<sup>4</sup>, Göran Kenttä<sup>5,6</sup>, Kyle Paradis<sup>7</sup>

<sup>1</sup>Swiss Federal Institute Of Sport Magglingen, Magglingen, Switzerland, <sup>2</sup>Institute of Sport Sciences, University of Bern, Bern, Switzerland, <sup>3</sup>University of Copenhagen, Copenhagen, Denmark, <sup>4</sup>University of Leipzig, Leipzig, Germany, <sup>5</sup>The Swedish School of Sport and Health Sciences,, Sweden, <sup>6</sup>The School of Human Kinetics, University of Ottawa, Ottawa, Canada, <sup>7</sup>Ulster University, Belfast, Northern Ireland

Symposium 52: Well-being and quality of life,  
Hall Strassburg Süd, Juli 19, 2024, 11:00 - 12:30

### Triangulating recreational, competitive, and elite athlete perceptions of mental health in sport.

Kyle Paradis<sup>1</sup>, Gavin Meek<sup>1</sup>, Gavin Breslin<sup>2</sup>, Mark Tully<sup>1</sup>

<sup>1</sup>School of Sport, Ulster University <sup>2</sup>School of Psychology, Queens University Belfast

The purpose of the present study was to garner and triangulate recreational, competitive, and elite athlete perceptions of mental health in sport. Athletes experience a unique number of stressors that can impact their mental health. As such, it is vital that athlete voices are heard and their lived experiences considered, to increase the understanding of mental health in sport. The terms mental health and mental wellbeing have been used casually and interchangeably in the literature, which has led to conceptual confusion. Thus, there is a need to advance conceptual clarity of athlete mental health. Additionally, most research has focused on competitive and elite athlete samples, while recreational sport has received far less empirical and policy attention by comparison. This is an oversight considering that approximately 95% of global sports participants are classified as recreational athletes and 8% of these will have a mental health concern.

Qualitative semi-structured interviews were conducted with a total of 32 participants (n=20 males, n=12 females) who were recruited to participate across the spectrum of athlete classifications; recreational (n=11), competitive (n=11), and elite (n=10) level athletes. The interviews yielded a total of 35 hours of discussion (M=65 mins), and 1433 pages of transcripts consisting of 330,000 words. An interpretive phenomenological approach (IPA) was adopted to analyse the data. Results indicated that athletes offered many explanations of mental health (e.g., how well you're coping with life") and conceptual understandings that aligned with Keyes (2002) Mental Health Continuum: From Languishing to Flourishing (e.g., "it's obviously not a binary situation, it can range from really bad to really good").

Athlete perceptions from different classifications are explored and implications around the advancement of a conceptual understanding of mental health in sport are discussed.

**Compassion matters in elite sports environments: Insights from high-performance coaches**

Emilia Backman<sup>1</sup>, Charlotte Hejl<sup>1</sup>, Kristoffer Henriksen<sup>2</sup>, Ingo Zettler<sup>1</sup>

<sup>1</sup>University of Copenhagen <sup>2</sup>University of Southern Denmark

While research shows that self-compassion is beneficial for athletes' mental health, little is known about the role of compassion on an interpersonal or environmental level in sport. Given the important role of the coaches in determining athletes' experiences and shaping their environment, we tackle these gaps in knowledge by exploring high-performance coaches' perspectives on the role of compassion in elite sports.

Twelve coaches working at the highest level of their respective sport (in Denmark) partook in semi-structured interviews focusing on the role of compassion within the elite sport context, including the utilization, implications, as well as barriers, fears and resistances for implementing compassion in elite sports environments. Following a thematic analysis, three themes and their subthemes were identified and discussed.

The first theme – Benefits of compassion – focuses on coaches' perception of the use and implications of compassion in elite sports and comprises four subthemes: Compassion is important when times are tough; Compassion promotes performance; Connecting on a human level; and Fostering unity in competitive environments. The second theme – Enhancing compassionate competence – focuses on how coaches learn to utilize a compassionate approach and comprises three subthemes: Coach reflection; Increased awareness and knowledge; and Keeping up with the times. The third theme – Barriers to compassion – comprises four subthemes: Compassion as soft; The hierarchical structure of elite sport; Lack of time and resources; and At the end of the day, we are measured in medals.

Coaches perceived compassion to be beneficial, however they expressed uncertainty with its use and implications. This study underscores the need for compassion training for coaches in elite sports environments using context specific methods and examples, and taking into account possible cultural or structural barriers in elite sports environments.

**Utilization of Psychological Support in Leipzig (Germany) – An Inventory of the LIFENET Initiative**

Johanna Kaiser, Julian Schmitz

University of Leipzig, Germany

LIFENET is an initiative of the Psychotherapeutic University Outpatient Clinic for Children and Adolescents at Leipzig University (Germany), with a primary focus on enhancing, sustaining, and restoring the mental well-being of young elite athletes. Over the past two years, this initiative has implemented a comprehensive range of integrated cognitive-behavioral stepped-care services designed for both active and former competitive athletes, along with their immediate social circles. The array of

care services include informative sessions for young athletes and caregivers to raise awareness about mental health, workshops tailored for club officials addressing the issue of athlete dropout, a special consultation hour providing counseling services inclusive of psychodiagnostic assessments, an indicated group program for mentally stressed athletes, and individual psychotherapeutic treatments or referrals to relevant contact points. Scientific evaluations are continually conducted to ascertain the effectiveness of these services, contributing to ongoing quality assurance.

The objective of this presentation is to show the level of acceptance and willingness to engage with the offerings provided by LIFENET as well as the satisfaction of the participants. Noteworthy commendation and support for the initiative are received from Leipzig's sports schools and boarding institutions, underscoring a pronounced demand for psychological support. Barriers to taking advantage of psychological support in junior professional sports can be seen in the form of inflexible training and school schedules, fear of stigmatization or negative consequences for sports careers, as well as a lack of support from coaches and clubs. The presentation concludes with a brief discussion of what is needed to implement psychological prevention and psychotherapeutic interventions in professional sports in the long term.

**Elite Athlete Mental Health: Federations' Views on Key Issues and Responsibilities**

Stephan Horvath<sup>1</sup>, Philipp Röthlin<sup>1,2</sup>, Christoph Andreas Weber<sup>1</sup>

<sup>1</sup>Swiss Federal Institute of Sport Magglingen, Magglingen, Switzerland <sup>2</sup>Institute of Sport Sciences, University of Bern, Bern, Switzerland

Given the significance of mental health in elite sports and the comparable prevalence of mental health issues among athletes and the non-sporting population in Switzerland, the question arises how Swiss sport federations promote and maintain the mental health of their athletes.

We conducted a survey involving 121 federation officials, ranging from presidents to national coaches and medical directors, to assess the perceived importance of mental health and the implementation and assigned responsibility for ten specific mental health measures (e.g., enjoying training).

The results show that there is broad agreement on the importance of mental health, though it sometimes falls behind sporting success in priority. Protection from violence emerged as a top priority for athletes' mental health, with many federations reporting effective implementation. Conversely, the influence of social media is considered less important and the greatest need for improvement seems to be in the area of financial security. Responsibility for mental health initiatives is primarily seen as falling within the federation's purview, with a notable emphasis on the role of national coaches and, interestingly, the athletes themselves.

Based on the results, further steps will be taken to further strengthen the mental health of athletes. These include a clear division of responsibilities and an increase in sport psychological support.

**“How much pain and suffering do I need to go through in order to become successful?”**

Göran Kenttä<sup>1,2</sup>

<sup>1</sup>The Swedish School of Sport and Health Sciences, Sweden. <sup>2</sup>The School of Human Kinetics, University of Ottawa, Canada.

The aim of this presentation is to critically reflect upon challenges to foster psychologically safe, healthy, sustainable, and compassionate environments in high-performance sports from a perspective of professional practice.

Research reported that psychological safety is associated to team performance, team resilience, increased help-seeking behavior, enhanced mental health, and good quality coach-athlete relationships. Giving voice to athletes is fundamental to foster a psychologically safe environment. In contrast a culture of silence invokes psychological unsafety. Thus, a perceived need to wear a mask and mental health stigma will be maintained and a reduced help-seeking may lead to an elevated risk that mental health problems develop into clinical disorders and potentially a reduced performance. Monitoring and raising awareness about athlete mental health have the potential to lower the threshold for help-seeking, but it may also involve ethically informed decisions when there is a need to support both mental health and performance during major events that ultimately may challenge voice and psychological safety. Brief athlete narratives will further showcase the complex interdependent relationship between psychological safety, compassion, mental health, and performance in high performance sport. It will be argued that some elite athlete may have normalized a toxic environment to the extent that they fail to recognize or understand emotional abusive coach behavior.

## Identity Dynamics in Sport: Navigating Social Identities and Identity Leadership Across Cultures and Ages

**Katrien Fransen**<sup>1</sup>

<sup>1</sup>KU Leuven, Leuven, Belgium

Symposium 53: Group dynamics and team sports,  
Hall Maximilian, Juli 19, 2024, 11:00 - 12:30

### **Exploring the Experience of Retired Elite Chinese Athletes via the Social Identity Model of Identity Change: A Longitudinal Qualitative Study**

Ye Zhang, S. Alexander Haslam, Catherine Haslam, Niklas K. Steffens

*The University of Queensland, Australia*

**Objectives:** The end of an athletic career often leads to profound identity change and psychological challenges for athletes. This longitudinal study explored the retirement experiences of 16 recently retired elite Chinese athletes through the lens of the Social Identity Model of Identity Change (SIMIC).

**Methods:** Two interviews were conducted a year apart, and reflective thematic analysis was then used to examine the dynamic interplay between social support systems, athletes' adaptation, and identity transition.

**Results:** Findings revealed the importance of social group membership in facilitating a smooth retirement transition that allowed them to reshape their identities and integrate them into new roles. In particular, the responses highlighted the roles played by processes of identity maintenance and identity acquisition as well as dynamics of identity remigration and identity remooring that underlie these processes. Retired athletes who integrated their former identities with new societal roles reported smoother transitions, highlighting the importance of social identity compatibility.

**Conclusions:** The exclusive nature of elite sporting environments was found to limit athletes' ability to broaden their social network during their careers, revealing an area needing organisational support. Theoretically, the study advances our understanding of social identity change dynamics during athletes' transition to retirement and speaks to the relevance of SIMIC in this context. The study also highlighted the domains in which sports organisations and practitioners can provide targeted support by acknowledging and engaging with social identity dynamics. This is essential when it comes to addressing athletes' psychological and identity needs during retirement transitions. Additionally, the study points to ways in which support programs can be improved — arguing for comprehensive, customised support that helps athletes navigate the complexities of identity change and associated social upheaval during this critical life transition.



**Crossing the Finish Line: Facilitating Athletes' Retirement with the More Than Sport Program**

Korneel Schepers<sup>1</sup>, Filip Boen<sup>1</sup>, Niklas K. Steffens<sup>2</sup>, Tegan Cruwys<sup>3</sup>, Catherine Haslam<sup>2</sup>, S. Alexander Haslam<sup>2</sup>, Katrien Fransen<sup>1</sup>

<sup>1</sup>KU Leuven, Belgium; <sup>2</sup>The University of Queensland, Australia; <sup>3</sup>Australian National University, Australia

**Objectives:** Retirement from elite sports presents a significant challenge for many athletes, with research indicating that up to 46% athletes face problematic transitions (e.g., depressive symptoms). A primary issue is that many athletes during their careers primarily rely on their athletic identity for their sense of self, so when this identity is lost, they are left without alternative roles to assume. Recognizing and managing identity change is thus essential for athletes approaching retirement. The Social Identity Model of Identity Change (SIMIC) framework, which has been validated in non-sporting contexts, postulates that life transitions can be supported by identity management (Haslam et al., 2019; Cruwys et al., 2019). However, such strategies are notably lacking in existing programs for retiring athletes. The present study aims to develop and evaluate a new online social identity management intervention – the More Than Sport Program – grounded in the SIMIC framework, but specifically tailored for elite athletes navigating the transition to retirement.

**Methods:** The study features a 2x2 design (intervention/control, pretest/post-test) to evaluate the intervention's effectiveness. Participants are elite Belgian athletes from diverse sports disciplines, who have recently retired. The online More Than Sport intervention incorporates exercises in social identity mapping and guided goal setting and planning, aiming to strengthen and extend participants' social identities. The outcomes cover multiple aspects of (mental) health (e.g., depressive symptoms) and well-being (e.g., thriving).

**Results:** The data collection is currently ongoing, and results will be available for the conference.

**Conclusion:** This study expands upon the promising discoveries that social identity management plays a crucial role during life transitions, by applying these insights within the context of elite sports. If proven effective, The More Than Sport program could improve retirement support in elite sports by providing actionable strategies for athletes, coaches, and sports organizations.

**Does Identity Leadership Provided by Coaches and Athlete Leaders Promote Team and Individual Performance? A Cross-Cultural Study in Football Teams.**

Radhika Butalia<sup>1</sup>, Filip Boen<sup>1</sup>, S. Alexander Haslam<sup>2</sup>, Stef Van Puyenbroeck<sup>1</sup>, Pete Coffee<sup>3</sup>, Nasrin Biglari<sup>4</sup>, Mark W. Bruner<sup>5</sup>, Aashritta Chaudhary<sup>6</sup>, Paweł Chmura<sup>7</sup>, Alyson J. Crozier<sup>8</sup>, Emma S. George<sup>9</sup>, Swanaya Gurjar<sup>10</sup>, Chris Hartley<sup>11</sup>, Maciej Huzarski<sup>12</sup>, Francisco M. Leo<sup>13</sup>, Miguel A. López-Gajardo<sup>13</sup>, Todd M. Loughhead<sup>14</sup>, Moe Machida-Kosuga<sup>15</sup>, Colin D. McLaren<sup>16</sup>, Seyed Reza Hosseini Nia<sup>4</sup>, Matthew J. Slater<sup>17</sup>, Katrien Fransen<sup>1</sup>

<sup>1</sup>Department of Movement Sciences, KU Leuven, Belgium <sup>2</sup>School of Psychology, University of Queensland, Australia <sup>3</sup>Department of Psychology, School of Social Sciences, Heriot-Watt University, United Kingdom <sup>4</sup>Faculty of Physical Education, Shahrood University of Technology, Iran <sup>5</sup>School of Physical and Health Education, Nipissing University, Canada <sup>6</sup>Department of Psychology, Jamia Millia Islamia, India <sup>7</sup>Department of Team Games, Wrocław University of Health and Sport Sciences, Poland <sup>8</sup>Alliance for Research in Exercise, Nutrition and Activity, University of South Australia, Australia <sup>9</sup>School of Health Sciences, Western Sydney University, Australia <sup>10</sup>Department of Psychology, Cleveland State University, The United States of America <sup>11</sup>Faculty of Health Sciences and Sport, University of Stirling, The United Kingdom <sup>12</sup>Institute of Physical Culture Sciences, University of Rzeszow, Poland <sup>13</sup>Faculty of Teacher Training, Universidad de Extremadura, Spain <sup>14</sup>Department of Kinesiology, University of Windsor, Canada <sup>15</sup>School of Physical Education, Osaka University of Health and Sport Sciences, Japan <sup>16</sup>Department of Experiential Studies in Community and Sport, Cape Breton University, Canada <sup>17</sup>School of Health, Science and Wellbeing, Staffordshire University, The United Kingdom

**Objectives:** The social identity approach to leadership contends that the most effective leaders represent, advance, create, and embed a shared social identity (i.e., a sense of 'we' and 'us'). Building on previous research, our study examines whether the perceived identity leadership of coaches and athlete leaders is associated with key performance indicators (notably team and individual performance and effort) through team identification and team cohesion. We examine if these relationships are generalisable across WEIRD (Westernised, Educated, Industrialised, Rich, and Democratic) and non-WEIRD countries while also looking at whether they vary as a function of national culture (i.e., in-group collectivism).

**Method:** We conducted a cross-sectional study and collected data from 3,135 football players from 211 teams across 9 countries.

**Results:** Study results indicate that coaches' and athlete leaders' perceived identity leadership is positively associated with all performance indicators via both team identification and cohesion. For the most part, these relationships hold across WEIRD and non-WEIRD countries. However, we also found some evidence that the relationships between identity leadership and performance vary cross-culturally. More specifically, these relationships tend to be stronger in countries that are high on in-group collectivism.

**Conclusion:** Together, these data suggest that identity leaders—across geographical and cultural borders—can make teams more effective, and that they achieve this by leveraging 'our' strength in ways that make 'us' more cohesive.

**Unlocking the Power of Groups in Youth Sport: A Proof of Concept Evaluation of the Together For Us (T4Us) Intervention**

Mark W. Bruner<sup>1</sup>, Colin D. McLaren<sup>2</sup>, Meredith Schertzing<sup>1</sup>, Ian D. Boardley<sup>3</sup>, Luc J. Martin<sup>4</sup>, Richard B. Slatcher<sup>5</sup>, Stewart Vella<sup>6</sup>, Justin M. Carré<sup>1</sup>, Katrien Fransen<sup>7</sup>

<sup>1</sup>Nipissing University, <sup>2</sup>Cape Breton University, <sup>3</sup>University of Birmingham, <sup>4</sup>Queen's University, <sup>5</sup>University of Georgia, <sup>6</sup>University of Wollongong, <sup>7</sup>KU Leuven

**Objectives:** Together For Us (T4Us) is a newly developed and evidence-informed social identity intervention for youth sport. Drawing on theoretical underpinnings of

social identity theory and previous shared leadership intervention research in sport, T4Us leverages athlete leaders to foster a shared sense of social identity within the team. The purpose was to conduct an initial feasibility study (Study 1) and a proof-of-concept evaluation (Study 2) to determine whether T4Us enhanced social identity and assess the intervention implementation.

Methods: In Study 1, five competitive youth ice hockey teams (Mage = 13.02 years) completed T4Us at midseason. In Study 2, 14 competitive youth soccer teams (Mage = 14.71 years) completed the revised T4Us at midseason.

Results: In Study 1, athlete leaders (n = 19) and coaches (n = 4) expressed support for the acceptability and feasibility of the initial T4Us workshop in a youth sport setting, including the creation of a unique team 'trademark' and the shared leadership mapping exercise. Participants also recommended possible improvements to T4Us (e.g., intervention timing and follow-up booster sessions to reinforce content). In Study 2, results revealed that T4Us significantly increased athletes' perceptions of social identity. Post-intervention implementation evaluation results revealed that the teams used the game plan to support the team trademark, and athlete leaders and coaches encouraged team members to act according to the team game plan. Interviews with athletes described the different ways in which T4Us enhanced social identity within the team.

Conclusion: Overall, the initial feasibility evidence and the proof-of-concept evaluation supports T4Us as a viable intervention to enhance social identity in youth sport. Continued development of T4Us is warranted, including a randomized-controlled protocol to further establish causality.

### **Towards Leaderful Youth Teams: Testing the Effectiveness of the 5R Shared Leadership Program in Youth Sports**

Marie-Laure Hendrickx<sup>1</sup>, Filip Boen<sup>1</sup>, Radhika Butalia<sup>1</sup>, Mark W. Bruner<sup>2</sup>, Katrien Fransen<sup>1</sup>

<sup>1</sup> KU Leuven, Belgium; <sup>2</sup> Nipissing University, Canada

Objectives. The sports context has proven to be a powerful context for youth development. One crucial competence is the development of leadership skills. Indeed, leadership quality has been shown to be a key factor for team functioning, performance and well-being, both in and outside the sports context. Importantly, research has shown that the leaders within the team (i.e., athlete leaders) are even if not more important to obtain these outcomes than the coach. Of course, the quality of these leaders is key. The social identity approach to leadership posits that the best leaders are those that can strengthen a sense of 'we' and 'us' (i.e., a shared social identity) in the teams they lead. These findings emphasize the importance of training identity leadership skills of these athlete leaders. To this end, the 5R Shared Leadership Program has been developed and successfully evaluated in adult sports teams. However, despite the strong interest and potential, little is known about its application in youth sports. Moreover, research indicates important differences between leader-

ship in adults and youth (e.g., experience and developmental level). Therefore, the goal of this study is to test the effectiveness of the 5Rs Program, tailored to youth sporting populations.

Methods. We will conduct a 2 x 2 intervention study with a baseline measurement followed by the random allocation of 48 participating youth teams to three conditions: (a) full-experimental (i.e., receiving a leadership report and the 5Rs Program), (b) semi-experimental (i.e., receiving only a leadership report), and (c) control.

Results. The data collection is ongoing, but initial findings will be presented at the conference.

Conclusion. The study contributes to filling the gap in research and implementation of effective leadership development in youth athletes.

## Neurophysiological approaches to studying motor skill acquisition and expert performance

Mark Williams, Nicola Hodges

<sup>1</sup>Florida Institute of Human and Machine Cognition, Pensacola, United States, <sup>2</sup>University of British Columbia, Vancouver, Canada

Symposium 54: Elite sports and expertise,  
Hall New Orleans, Juli 19, 2024, 11:00 - 12:30

The field of human expertise continues to grow and diversify. In the spring of 2025, a third edition of the Cambridge Handbook of Expertise and Expert Performance will be published by Cambridge University Press. The book highlights the diversity and multi-disciplinary nature of research on human expertise and learning. A significant focus in this book will be on new and emerging fields related to neuroscience. Sport remains a very prominent domain in which to study expertise given its popularity globally and our capacity to be able to systematically measure various aspects of performance. However, there remains a need to integrate the science of expertise with the science of motor learning in order to determine and describe ways that best promote motor skill acquisition in the long term and under conditions of high pressure indicative of real-world performance environments. In this symposium, we focus on how new research using neuroscience methods can further increase our understanding of the factors that differentiate how experts and novices perform tasks under high-pressure situations and what types of interventions are likely to facilitate the more rapid acquisition of expertise in future. As organisers of the symposium, we introduce and set the scene for the three main talks around these themes and then we close, by outlining the implications of the work presented for new research avenues that would further increase our understanding of expertise and skill acquisition more broadly.

### Beyond the neural underpinnings of action emulation in expert athletes: an EEG study

Saskia Wilken<sup>1</sup>, Adriana Böttcher<sup>2,3</sup>, Christian Beste<sup>2,3</sup>, Markus Raab<sup>5</sup>, Sven Hoffmann<sup>1</sup>

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**Objectives.** Athletes specializing in sports demanding rapid predictions and hand-eye coordination (racket sports, martial arts, ball team sports) are highly trained in predicting consequences of motor commands. In terms of the action emulation framework by Ptak et al. (2017), sports training improves the internal emulator's efficiency. It computes a precise forward model from motor input commands that

relies less on feedback. We aim to investigate which neuronal processes reflect this training effect on a non-domain specific level.

**Methods.** To this end, we recruited 76 participants: 37 athletes with a median of 4000 hours of sport expertise and 39 healthy non-athletes. Using EEG, we examine these processes employing a continuous pursuit tracking task. Participants continuously track a target across a screen using a cursor. We manipulated feedback availability by intermittently occluding the cursor. As performance measure we used the distance between cursor and target (position error) as well as the angle between cursor and target movement direction (direction error). We investigated beta, alpha and theta EEG frequency bands.

**Results.** Athletes' position error is lower than non-athletes when there is no feedback about the cursor location, but direction error is not. We did not find quantitative power differences in the investigated frequency bands. However, different patterns of beta and alpha band activity sources emerge between the groups when athletes and non-athletes cope with withdrawn feedback about movement success. Controls recruit more diverse functional regions, while athletes mostly employ visual ventral stream pathways.

**Conclusion.** The study broadens our knowledge about the consequences of extensive sports training on non-domain specific motor plan encoding and its neuronal underpinnings. We aim to qualitatively describe the differences in brain activity patterns between athletes and non-athletes. In addition, behavioral performance measures need to be more fine-grained to isolate what sets expert performance apart.

### To be, or not to be... consciously aware: A neurophysiological examination of explicit and implicit motor learning

Andrew Cooke<sup>1</sup>, Eduardo Bellomo<sup>1</sup>, Germano Gallicchio<sup>1</sup>, Christopher Ring<sup>2</sup>, James Hardy<sup>1</sup>

<sup>1</sup>Institute for the Psychology of Elite Performance (IPEP), School of Sport Science and Psychology, Bangor University, United Kingdom <sup>2</sup>School of Sport, Exercise and Rehabilitation Sciences, University of Birmingham, United Kingdom

**Objectives.** Motor learning can be explained via a chunking mechanism whereby individual elements of a movement are progressively combined with practice (Sakai et al. 2003). Different modes of training (e.g., explicit, implicit) are said to influence the rate of learning and robustness under pressure (Masters, 1992), but the underpinning mechanisms are unclear. This experiment examined the behavioural and neurophysiological features of explicit and implicit modes of training.

**Methods.** Forty participants were assigned to an explicit or an implicit learning group. They practiced (day 1: 4 x 40 trial blocks) and were then tested (day 2: 40 trials low-pressure, 40 trials high-pressure, 40 trials low-pressure) on a 12-element serial reaction time task. Members of the explicit group were informed of and verbalised the 12-element sequence prior to practice. Members of the implicit group were unaware of the repeating sequence. We used electroencephalography (EEG)

to measure premovement cortical activity from 32-channels across the scalp and we used the time intervals between each element of the sequence to assess practice-induced chunking.

Results. Both modes of training produced reductions in cortical activation across acquisition blocks, and both training modes conferred chunking. Explicit learners achieved greater chunking than their implicit counterparts, and displayed more parietal activation and less connectivity between parietal and other scalp regions. This infers a more anticipatory “top-down” mode of control (Ashe et al. 2006). The performances of both groups peaked during the high-pressure test.

Conclusion. Our findings reveal distinct neurophysiological features of explicit and implicit learning pathways. Implications for future expertise and skill acquisition research will be discussed.

### Neuroimaging in sport: A narrative review on research directions to expand knowledge on expert perceptual-cognitive skills

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Expertise in any performance domain is characterized by the cognitive, perceptual, and motor adaptations that arise from extensive experience with a stimulus or environment. Over the past 50 years, advancements in neuroimaging and eye-tracking technology have enabled researchers to study perceptual-cognitive adaptations in expert performers with increased precision. Yet, much of the literature on the neuroscience of expertise has focused on action observation, with published reports showing that neural activation related to the action observation network (AON) is influenced by skill, contextual cues, deception, and the time-course of observed actions (Balsler et al., 2014; Tidoni et al., 2013; Amoruso et al., 2014). Research focusing on the AON highlights the superior ability of experts to intimately process kinematic cues using fine motor representations developed through experience. However, the neural processes underlying other perceptual-cognitive skills have been understudied. For instance, in team sports such as volleyball or soccer, the positioning of teammates and opponents is critical for informed decision-making (Williams et al. 2012). The ability to recognize patterns based on the positions of players is an integral tool in the expert’s perceptual-motor toolkit, enabling quick orientation, situational understanding, and appropriate decision-making (Bilalić, 2018). Moreover, these decisions are shaped by contextual factors that may be internal, such as situational probabilities, or external, such as the game score and overarching objectives (Gredin et al., 2020). In this presentation, we review research focusing on how neuroimaging has been used to study how experts effectively extract information from displays and highlight new research directions to follow to paint a clearer picture of how neural structures and networks contribute to the processing of different information sources in dynamic performance environments.

### Performing under pressure; Firearms use and firearms training in police

**Vana Hutter**<sup>1</sup>, Mario Staller<sup>2</sup>, Swen Koerner<sup>3</sup>, Karlijn Kooijman<sup>4</sup>, Jennifer Chan<sup>6</sup>, Paula Di Nota<sup>6</sup>, Judith Andersen<sup>6</sup>, Raouf Oudejans<sup>4</sup>, Mr Daniel Kennedy<sup>4</sup>, Mustafa Sarkar<sup>5</sup>, Ben Ashdown<sup>5</sup>, Judith Nijenstein<sup>4</sup>, Anne Bik<sup>4</sup>

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Symposium 55: Military, police and tactical populations,  
Hall Innsbruck, Juli 19, 2024, 11:00 - 12:30

### Good and Bad Performance under Pressure: Results from a German Police-Citizen Encounter

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Introduction: Police firearms training, within the performance psychology discourse, regularly emphasizes “Performance under Pressure,” reflecting an assumption that perceived danger constitutes a significant pressure on officers.

Problem Statement: The focus on confronting perceived dangers frequently results in performances that, from a citizen’s perspective, are deemed inadequate, yet are often police-internally assessed as satisfactory. This discrepancy highlights a critical ethical dimension within the research and consulting practices of performance psychology.

Theoretical Framework: Adopting a Social Systems perspective, this study views violence as the de-optionalization of communication, with “Danger Narratives” in police work narrowing officers’ perceived options by focusing on specific threats. This focus significantly influences police-citizen interaction dynamics.

Methodology: Utilizing Video Data Analysis (VDA) with an emphasis on situational awareness, the current research examines the microanalytic interaction dynamics of a prototypical incident involving police officers and an individual with mental illness. This approach allows for an in-depth analysis of how officers’ focus on perceived threats (e.g., a knife) as opposed to the contextual conditions (e.g., the individual’s mental health crisis) influences the escalation of violence.

Summary of Results: Results show that officers’ focus on immediate threats, overlooking broader situational factors, leads to dynamics that corner them into using lethal force, suggesting a gap in training that fails to address the complexity of re-

al-life encounters.

Implications: The findings call for a critical examination of the decontextualization in current police firearms training. It suggests that performance psychologists, both in research and consultancy, need to foster reflexivity, considering the broader implications of their work on police practices and societal perceptions of police performance.

**Risk factors for involuntary firearm discharges in Special Intervention Division of-ficers; A focus group study**

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<sup>1</sup> VU University, Amsterdam <sup>2</sup> NSCR, Amsterdam

Introduction: Police agencies, including the highly trained special intervention division, encounter incidents of involuntary firearms discharges (IFD). These incidents may lead to injuries or fatalities, presenting a substantial risk to both police agencies and the communities they serve. Following the integrated model of perceptual-motor performance and anxiety (Nieuwenhuys and Oudejans, 2012, 2017), our study aimed to examine the risk factors of IFDs in high-pressure situations. To get a better understanding of risk factors that contribute to IFD's, insights from field experts are invaluable.

Methods: The methodological approach employed for this study involved conducting focus group interviews. Three focus groups with field experts were conducted to gain deeper insight into the factors, situations, and circumstances contributing to IFDs. Two focus groups consisted of operators of special intervention divisions and one of firearms trainers and other topic experts of special intervention divisions.

Results: The preliminary results of the focus groups reveal that there is no clear consensus on specific risk factors of IFDs. Nevertheless, several personal, situational, psychological, physiological, procedural and interrelated factors that were potentially related to IFDs, were mentioned by the experts. Situations that could increase the occurrence of an IFD were described as highly stressful, dynamic and chaotic with unforeseen changes in the situation and the procedures.

Conclusion: The obtained insights will be used to design experimental follow-up studies. In these experiments we will investigate the influence of these risk factors and circumstances on firearm handling, aiming and involuntary discharges. Insight into these risk factors presents the opportunity to investigate measures to prevent or decrease the occurrence of IFDs.

**Assessment and Implications of Biomarkers for Predicting Lethal Use-of-Force Decisions in Applied Police Environments**

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Objectives: Lethal use-of-force (UOF) errors by police result in significant public demand for explanations of why they occur. Despite the urgency for oversight bodies to advance policies regarding UOF training and procedures, the underlying biopsychosocial factors implicated during UOF encounters are often not considered. Theory and research demonstrate that prolonged and repeated occupational exposure to potentially traumatic events is linked to higher rates of stress, allostatic load, and adverse health and performance. However, the impact of these factors on police lethal UOF errors is unclear.

Methods: The present study tested the relationship between biopsychosocial stress symptoms and lethal UOF errors among a combined sample of non-clinical, active-duty frontline (n=57) and tactical (n=44) police officers. Biological measures included: diurnal cortisol awakening response (CAR-collected at wake and 30 min), and reactive cortisol (measured pre-post critical incident (CI) simulations) both measured via passive drool saliva according to standard saliva collection protocols. Psychological self-reported symptoms included: pre-CI stress, depression, anxiety, post-traumatic stress disorder (PTSD), and occupational stress.

Results: While CAR was the only significant predictor of lethal UOF errors (p<0.05), the effect did not remain once CAR outliers (n=6), identified by Cook's Distance (D), were deemphasized. Of note, all police samples displayed higher CAR than the general population, and tactical officers made up the majority of the outlier data (n=5), potentially related to their intensive occupational training and duties.

Conclusion: The current findings suggest that dysregulation in biological measures of systemic regulatory process, like diurnal cortisol, may influence lethal UOF decision-making relative to reactive or subjective measures of stress, including sub-clinical psychological symptoms. Given the nuanced findings from this study, we recommend further research to prevent the misuse of biological predictors of performance and overextended interpretations of biometrics for activities such as informing reactionary UOF policies or engaging in punitive selection and training procedures.

**Evaluating the impact of mental fortitude (resilience) training in UK police firearm instructors and students**

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Background: The Initial Firearms Course (IFC) is one of the most demanding cours-



es in UK policing. Nationally, the pass rate for the IFC is low (about 50%). Despite the growing interest in resilience training programs with police forces (Moreno et al., 2024), there remains a gap relating to resilience development within the IFC in the UK. One approach to resilience development is that of mental fortitude training (MFT; Fletcher & Sarkar, 2016). MFT recognises that the development of resilience is a multifactorial endeavour by focusing on three main areas – personal qualities, facilitative environment, and challenge mindset – to enhance performers' ability to withstand pressure.

**Objective:** After 2 days of MFT with National Firearm Instructors (NFIs) within a specific police force in the UK, the purpose of this study was to evaluate the impact of this resilience training on both instructors and students and to see if the training helped to increase the pass rate on two subsequent IFCs.

**Methods:** A range of qualitative methods were used to collect data from students (n= 9) and instructors (n=8) including 1-to-1 interviews (n=3), focus groups (n=6), and observation (n=1 day of the IFC). Data was analysed using reflexive thematic analysis (Braun & Clarke, 2019).

**Results:** Themes related to the course experience, student-instructor relationship, lessons learned and application of psychological principles from the resilience training, barriers to the application of psychological principles, and potential factors contributing to student dropout.

**Conclusion:** Although the IFC pass rate was maintained and did not increase after MFT, there were wider benefits of the resilience training including a (more) positive student experience, officer development, and a positive impact on future student recruitment to the IFC. Thus, it is recommended that police forces hold a broader optic of 'success' (i.e., beyond pass rates) when evaluating the impact of resilience training.

### **Short, Powerful and Intensive? An evaluation of a new training program for firearms training at a police academy.**

J.R. Nijenstein, A. Bik, R.R.D. Oudejans, R.I. (Vana) Hutter

**Objectives:** Recently, a new Short, Powerful and Intensive (SPI) firearms training program has been introduced to police academies. Compared to the regular firearms training program, the SPI-program has a larger emphasis on practicing with a non-firing replica firearm, and is organized in more compact, intensive clusters. Since there does not seem to be consensus on the most effective training schedule and minimum threshold of time-on-task for optimal motor learning (Smith & Scarf, 2017), the aim of this study is to evaluate the effectiveness of the SPI-program, compared to the regular program.

**Methods:** Our quantitative, comparative analysis encompasses an assessment of learning outcomes (i.e., shooting accuracy, self-efficacy; decision-making, weapon handling, mental effort and anxiety in decisional scenarios) and learning experiences (i.e., learning efficacy, autonomy, relatedness, competence and intrinsic motivation)

at four test moments for both programs (2x4-design). At retention, focus groups will be held for additional in-depth qualitative assessment of learning experiences. Moreover, all training sessions will be video-recorded for assessment of the learning environment (i.e., instructions, assignments, effective training time, time-on-task [weapon in hand] and number of fired shots).

**Results:** Preliminary results suggest that participants following the SPI-program demonstrated improved decision-making ( $F(3,572)=396, p<.001$ ) over the four test moments, including high scores at retention ( $M=7.8, [0-10]$ ). Mental effort during scenarios, as well as anxiety before and during scenarios were moderately high, with no significant differences over the four test moments (all  $F_s<1.8, p_s>.05$ ). Learning experiences were positive, based on the focus group and questionnaires. At the conference, results of additional measurements and comparison with the regular program will also be presented.

**Conclusion:** The SPI-program holds promise in enhancing both learning outcomes and -experiences for police aspirants. Its focus on compact, intensive clusters and practice with replica firearms may contribute to improved performance and retention of skills crucial for on-duty police work.

## Self-Regulated Sport Practice: International Perspectives of Theoretical, Assessment and Applied Interest

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Symposium 56: Elite sports and expertise,  
Hall Aalborg, Juli 19, 2024, 11:00 - 12:30

### Assessing athletes' self-regulated learning using the Self-Regulation of Sport Practice – Short survey

Stuart G. Wilson<sup>1</sup>, Bradley W. Young<sup>2</sup>, Sharleen Hoar<sup>3</sup>, Kathryn Johnston<sup>4</sup>, Royden Radowits<sup>2</sup>, Joseph Baker<sup>4</sup>

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**Objectives.** Athletes can shape their practice by engaging in self-regulated learning (SRL), the self-awareness and control of thoughts, motives, and behaviours in pursuit of learning goals (Young et al., 2023). The Self-Regulation for Sport Practice (SRSP; Wilson et al., 2021) survey effectively measures practice-related SRL—for instance, by discriminating between athlete skill levels—however its length may limit practical use (Horvath & Röthlin, 2018). Wilson et al. (2019) used an expert panel and a-posteriori analysis to propose a 14-item version of the SRSP (SRSP-S) with subscales for 'motivational' and 'metacognitive' processes. This study aimed to validate the proposed SRSP-S in an independent sample, to consider its utility relative to the full-length SRSP.

**Methods.** We assessed psychometric validity using a confirmatory factor analysis (CFA) of SRSP-S responses from 504 North American athletes (Mage = 18.5, SD = 4.1, 13-40), and assessed criterion validity using MANOVA to compare subscale scores for athletes 17+ yrs (n = 219) across four ascending skill levels.

**Results.** The CFA indicated acceptable fit (CFI = .927, TLI = .912, RMSEA = .059, SRMR = .051) for a two-factor structure of metacognition (10 items, loadings .57-84,  $\alpha$  = .83) and motivation (4 items, loadings .41-.62,  $\alpha$  = .65). Scores generally escalated across ascending skill groups. The main effect for skill level was significant: Wilk's  $\Lambda$  = .94,  $F(6,428) = 2.38$ ,  $p = .028$ ,  $\eta^2 = .03$ . Follow-up analyses indicated that international-level athletes scored significantly higher than regional-level athletes on motivation ( $p = .024$ ,  $\eta^2 = .04$ ). Skill-level differences in metacognition did not reach significance ( $p = .089$ ,  $\eta^2 = .03$ ).

**Conclusion.** The SRSP-S is a psychometrically valid survey that retains adequate criterion validity. While the full-length SRSP may be more sensitive, the SRSP-S provides practitioners with a valid tool to initiate practical conversations/interventions about SRL with athletes.

### Self-regulated learning in sport practice: Do individual- and team-sport Polish athletes judge the content and contribution of survey items differently?

Malgorzata Siekanska<sup>1</sup>, Jan Blecharz<sup>1</sup>

<sup>1</sup>University of Physical Education in Krakow

**Objectives.** Self-regulated learning (SRL) entails psychological processes that elite athletes employ to optimize their practice. Research suggests that generally greater engagement in metacognitive and motivational processes of SRL distinguishes the most elite group from lesser-skilled groups (Siekanska et al., 2023). Although mixed-sport samples have been represented in prior studies, questions about specific sport types have not been addressed. Moreover, to the best of our knowledge, athletes' perceptions of how content on the SRL-Sport Practice (SRL-SP) Short Form survey (Wilson et al., 2019) contributes to their performance has not been explored. Therefore, the purpose of the study was twofold: (1) to compare how individual- and team-sport athletes perceive their SRL behaviors; (2) to examine how they perceive relationships between the SRL-SP content and performance improvement.

**Methods.** Forty-eight Polish elite athletes (Mage = 21.58, SD = 3.25) comprising track and field (n = 24) and soccer (n = 24) groups responded to the Polish Short Form of the SRL-SP (Siekanska et al., 2023). They also uniquely rated their agreement (1-7) for the extent to which each item 'contributes' to their performance improvement. Between-group analyses were conducted, separately for metacognition and motivation subscales.

**Results.** For the SRL-SP survey, results revealed no significant differences between groups for either metacognition or motivation. For SRL-SP item 'contribution' to performance, both metacognition and motivation scores were assessed highly (Mmetacognition = 57.58, max = 70; (Mmotivation = 25.12, max = 28) as performance determinants. Track and field (vs. soccer) athletes scored significantly higher for contributions by the metacognitive factor ( $Z = 2.89$ ,  $p = .004$ ).

**Conclusion.** These findings can help in better understanding athletes' beliefs about how SRL strategies associate with performance improvement. Discussion relates interpretations for why and how metacognitive skills might be more salient in specific individual-sport contexts.

### How coaches use their adolescent athletes' scores on the Self-Regulation of Sport Practice survey to problematize their coaching

Royden Radowits<sup>1</sup>, Bradley W. Young<sup>1</sup>, Sharleen Hoar<sup>2</sup>, Joseph Baker<sup>3</sup>

<sup>1</sup>University of Ottawa <sup>2</sup>Canadian Sport Institute Pacific <sup>3</sup>University of Toronto

**Objectives.** Self-regulated learning (SRL), defined as an athlete's awareness and control over their thoughts, motivations, and goal-directed actions, involves important processes to enhance the quality of practice (McCardle et al., 2019) and improve interactions with one's coach (Bain et al., 2023). Although the Self-Regulation of Sport

Practice (SRSP) survey can reliably assess an athlete's SRL competency (Wilson et al., 2021), there is a lack of research demonstrating its practical utility with coaches (Young et al., 2023). This study aimed to understand whether and how coaches saw value in the SRSP and its subscales, and how they would use the survey to prospectively interact with their athletes.

Methods. Twelve Canadian coaches (6 men; 6 women) of adolescent athletes from both individual and team sports participated in two semi-structured interviews that were stimulated by anonymized SRSP responses collected from their athletes. Through reflexive thematic analysis, four themes were developed that encompassed how coaches made meaning out of the survey and their athletes' scores.

Results. The first theme, the integration of SRL processes reflected how coaches saw each survey subscale (planning, checking, evaluating-reflecting, effort, self-efficacy for challenge) being integrated and influenced by others, while centered around athletes' evaluating-reflecting. Second, valuing of processes captured the overarching and unique meanings espoused by the coaches across the subscales. Third, coaches' problem-setting and problem-solving activities demonstrated how coaches problematized their athletes' scores, rooted in either 'athlete explanations', 'coach (in) actions', or 'cultural constraints'. Fourth, coach actioning to improve athletes' scores comprised the 'specific' and 'transcendent actions' they would use to improve their athletes' SRL capabilities.

Conclusion. This study provides insight into how coaches meaningfully reflected on their athletes' SRSP scores to create strategies to potentially enhance their coaching. Findings demonstrate the value of the SRSP in prompting coaches to think about how they support athlete self-directedness.

### **Self-Regulated learning: Theory-to-practice and data-driven decision-making**

Jordan D. Goffena

*Miami University*

Objectives: The social cognitive nature of self-regulated learning (SRL) is best exemplified by the developmental model and cyclical model of SRL (Zimmerman, 2000). Developmentally, SRL is a learned skill that progresses through the observation and emulation of a model (i.e., sport coach), which transitions into using process and outcome standards to support one's learning. Cyclically, learning is temporally situated between forethought, performance, and reflection phases, and is a task-specific and goal-directed process. The goal of the current presentation is to draw connections grounded in SRL theory, situate the connections relative to applied sport psychology consulting, and furthering illustrating a case study in consulting practice.

Method: The presentation will initially frame a narrative on the theory-to-practice applications of SRL for the research-practitioner in applied sport psychology. In addition, the presentation takes an instrumental case study approach to evidence such applications in applied sport psychology consulting.

Results: This theory-to-practice presentation will: (a) overview the theoretical under-

pinnings of SRL, (b) provide a direct application for physical skills learning in sport (e.g., within the coach-athlete dyad), and (c) provide a direct application for mental skills learning in sport (e.g., within the Mental Performance Coach (MPC)-athlete dyad).

Conclusion: Discussion will elaborate on how a MPC can hone their consulting effectiveness skills through a research-practitioner approach involving data-driven decision-making to inform one's professional practice. In particular, theory-based data-driven decision-making (Goffena, 2023) serves to help MPCs use data grounded in SRL theory to make decisions on which mental skills should be focused on for any given athlete. The case study provided an example of this individualized approach for sport psychology consulting.

### **A view to further enhance work on the psychology of practice: Addressing contextual and personality factors in self-regulated sport practice**

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The aforementioned presentations have illustrated emerging perspectives on self-regulated sport practice that implicate assessment, conceptual, and applied considerations. They have interrogated facets of a "practice-enhancement orientation" (McCardle et al., 2019), whereby self-regulatory competencies are invoked that help athletes maneuver themselves strategically to get the most out of training. Reflecting on the evolution of this work, it exemplifies a process for the transfer of knowledge from predominantly theoretical, academic works to products that are bridging narratives between researchers and practitioners (Young et al., 2023a). The research shows self-regulated sport practice to be a valid and valuable concept, increasingly involving international scholars on studies that are branching out to better understand athletes', coaches' and mental performance consultants' voices on the topic. After mapping where the research has come from, we hope to chart routes forward. Although SRSP (Wilson et al., 2021) survey-related works have many merits, studies with mental performance consultants (Young et al., 2023b) and coaches (Radowits et al., 2024), suggest several areas requiring address. Practitioners indicate difficulties relating actionable strategies to specific in situ tasks within training, that 'preparedness' may be more important than 'planning', and that there is a need to address emotional regulation. Moreover, there are boundaries on the use of the SRSP to promote self-directedness in adolescents, including the culture associated with some sports and developmental age constraints (Siekanska et al., 2019). Not all athletes have an orientation that aligns with the metacognitive, information-seeking nature of this concept (Hill & Vickers, 2003), which may influence how praxis aligns with athletes' individual differences. Finally, we revisit the notion (Abernethy et al., 2003) that not all practice needs to be deliberate and interrogate where automaticity may feature within the practice habits of elite athletes.

## Unlocking Team Dynamics: Integrating Theory, Empirical Findings

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Symposium 57: Group dynamics and team sports,  
Hall Strassburg Nord, Juli 19, 2024, 13:30 - 14:30

### The Nature of Transience in Teams and the Consequences on Group Dynamics

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Florida State University, Western University

Teams are utilized widely across performance domains, and we know that the dynamics of these teams, such as group structure, cohesion, and group processes like communication (Eys et al., 2020) are crucial for sustained and successful performance. Most of this knowledge is based on typical intercollegiate or club teams. Yet, a considerable number of teams operating in high level competition and meaningful performance environments differ from these teams because they are transient. Transient teams undergo regular reconfiguration and member change, frequently performing with different team members, some of which they have never performed with before (Bezemer et al., 2016; Hancock et al., 2018). Examples of such teams include national and Olympic teams competing in international events, Ryder and Solheim Cup teams in golf, teams of referees in sport, and surgical teams in the healthcare field. Due to the quality of transience, it is plausible that transient teams experience different group dynamics in comparison to more traditional, archetypal teams. Specifically, transient teams' dynamics likely differ from archetypal ones especially in terms of social structure and roles, trust, team cohesion, communication and shared mental models (Bezemer et al., 2016; Hancock et al., 2018; Martin & Eys, 2019). These variations pose unique challenges for transient teams and individual who work with them, putting them at risk for performance decrements and poor member experience, including increased attrition and diminished motivation and identity perceptions if team dynamics are understood and applied inadequately. Thus, transient teams require additional attention, particularly as these teams and their stakeholders aim to optimize their group dynamics and improve group functioning. We conclude with specific suggestions for how transient teams can be further researched and supported, for example targeting interventions toward elements of group structure given their central role and relationship to other group dynamics.

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### The Impact of Team Environment on the Positive and Negative Consequences of Social Indispensability

Carly Block, Svenja Wolf

Boston University and Florida State University

**Objectives:** To be indispensable means that the athlete's performance is instrumental for group success (Wittchen et al., 2007). While perceptions of indispensability have been found to increase athlete's effort and motivation, being the most indispensable position might also place feelings of responsibility resulting in increased feelings of performance pressure and negative emotions (Block & Wolf, 2021; Hertel et al., 2018). In addition, the team environment plays an important role on athletes' performances and experiences that could affect the impact indispensability has on athletes' psychological outcomes (Hüffmeier et al., 2017; Wittchen et al., 2007). Thus, the purpose of the present study was to examine the outcomes of perceived indispensability and determine if the team environment acted as a moderator.

**Methods:** 229 athletes from 47 competitive collegiate teams completed an online survey comprised of measures for self-perceptions of indispensability, positive psychological outcomes (i.e., effort, enjoyment, and excitement), negative psychological outcomes (i.e., concerns over mistakes, perceived pressure, and anxiety) and the team environment (i.e., team cohesion and coach-athlete relationship).

**Results:** By conducting regression analyses, the results revealed that although greater perceptions of indispensability predicted more effort, excitement, and enjoyment, only under high team cohesion (i.e., Individual Attractions to the Group-Task) did indispensability also relate to more concerns over mistakes and perceived pressure.

**Conclusion:** These findings show that despite the positive psychological outcomes associated with indispensability, the potential negative psychological outcomes can be present and dependent on athletes' own perceptions of task cohesion on their team. The present study can provide practitioners and coaches with an increased awareness of the cognitive, behavioral, emotional, and social impact athletes on a team endure under the framework of social indispensability. It also teaches them the importance of helping athletes improve perceptions of indispensability while also fostering a team environment with high cohesion and lower levels of associated negative outcomes.

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**Towards an Integrated Framework of Team Dynamics in Sport: Linking Cohesion, Team Mental Models, Coordination, Collective Efficacy, and Team Performance**

Edson Filho

*Boston University*

**Objectives:** Previous research in group dynamics in sport has examined the reciprocal relationship among team processes and team performance (e.g., Filho et al., 2015; Leo et al., 2023). To this extent, input-throughput-output models linking myriad team processes and team performance can aid practice and advance theory in sport psychology (Filho et al., 2023). Given this background, the purpose of this study was to test an integrated model linking cohesion (CO), team mental models (TMM), coordination (CD), collective efficacy (CE), and team performance (TP).

**Methods:** Three hundred and sixteen futsal athletes (64% male; 35% female; 1% non-reported) at an international university tournament participated by answering the Group Environment Questionnaire (G), the Team Mental Models Instrument (Filho et al., 2022), the Collective Efficacy Questionnaire for Sport (Moriz et al., 2000), the coordination sub-scale of the Transactive Memory System Scale in Sport (Leo et al., 2018), and the Team Outcome Questionnaire (Coleman, 2011). Multilevel structural equation modelling using MPlus 8 was used to analyze the data.

**Results:** A best fit model yielding good fit emerged from the data analysis, CFI = 980, TLI = .970, RMSEA = .056, SRMR = .031. Specifically, the final model revealed that CO predicted both TMM ( $\beta = .35, p < .05$ ) and CE ( $\beta = .72, p < .05$ ), that TMM predicted CD ( $\beta = .35, p < .05$ ), and that CE predicted TP ( $\beta = .64; p < .05$ ). Furthermore, CE was found to be correlated with TMM ( $r = .53, p < .05$ ) and CD ( $r = .25, p < .05$ ).

**Conclusion:** Taken together, these results suggest that CO is a starting point for the development of functional team dynamics, and that CE is central to team performance. These findings also corroborate the notion that TMM is a formative indicator of CD and that TMM and CE are reciprocally linked (see Filho, 2019). From an applied standpoint, these findings suggest that practitioners should aim to simultaneously monitor and develop myriad team processes, while also recognizing the paramount importance of CO and CE in the functional architecture of high-performing sport teams.

C

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**Great minds think alike: Measuring Shared Mental Models using virtual reality in team sports**

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*University of Muenster*

**Objectives:** Shared Mental Models (SMMs) explain how teams in sports perform well (Filho et al., 2022). Recent measurement methods focus on situational SMMs and measure them using computer-based approaches (Raue et al., 2020). However, the ecological transfer to behavior on the field is still limited. The current study pursues two objectives: testing a measurement method in Virtual Reality (VR) (pilot study) and examining the relationship between SMMs and predictive group processes (Rico et al., 2008), such as team trust and collective efficacy, as well as the impact of SMMs on team performance (main study).

**Methods:** The developed VR measurement is tested in the pilot study with 9 middle-block teams (M=16.39years of playing experience,SD=3.17;M=3.00years of shared playing experience,SD=3.88). The measurement consists of two conditions (Self/ Partner) with 35 video clips. In the Self condition, participants indicate their own decision, while in the Partner condition, they indicate their middle-block partner's decision. In the main study, 33 middle-block teams (M=16.92years of playing experience,SD=4.47;M=2.38years of shared playing experience,SD=2.24), identified through apriori-power analysis, participated and completed questionnaires on team trust,



collective efficacy, and team performance.

Results: The pilot study shows that SMMs are measurable using VR ( $M=34.13\%$ ,  $SD=12.26\%$ ). In the main study, a Structural Equation Model (SEM) ( $\chi^2=2.78$ ,  $df=1$ ,  $p=0.096$ ;  $CFI=0.86$ ;  $RMSEA=0.236$ ) did not confirm the assumed influences. Only team trust significantly influences team performance ( $\beta=0.45$ ), even though the trend is in line with the hypothesis (SMMs on performance;  $\beta=0.18$ , collective efficacy on SMMs  $\beta=0.25$ ).

Conclusion: The small variance of SMMs might be a reason for these findings. Despite the heterogeneous expertise in our sample (5th league to Bundesliga), future research should aim to incorporate more variance within SMMs, for example, through shared playing experience. The study serves as a starting point for more situational group research, and the VR measurement holds promise for this purpose.

Filho, E., Rettig, J., Gaspar, P., & Bagni, G. (2022). Development and initial validation of the Team Mental Models Instrument (TMMI): A psychometric tool to measure shared and complementary mental models in sports. *Psychology of Sport and Exercise*, 61(1), 102198. <https://doi.org/10.1016/j.psychsport.2022.102198>

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## Sport Psychology in Esports: Performance Under Pressure

**Oliver Leis<sup>1</sup>**, Laura Swettenham<sup>2</sup>, Iván Bonilla Gorrindo<sup>3</sup>, Phil DJ Birch<sup>4</sup>, Matthew R Welsh<sup>4</sup>

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Symposium 58: E-Sports,  
Hall Brüssel, Juli 19, 2024, 13:30 - 14:30

Esport players need to develop specific skills while performing within stressful, competitive environments (e.g., Leis & Lautenbach, 2020). Recognizing the potential benefits of sport psychology support into esports, a growing number of sport psychology consultants have entered the field of esports (Smith et al., 2019). In addition, researchers argue that sport psychologists can be an integral part of esports teams, emphasizing the need for evidence-based knowledge to maintain ethical standards and promote competent and conscientious behavior (Leis et al., 2021). This symposium aims to initiate a constructive discussion at the intersection of sport psychology and esports by presenting findings from five research projects. The first presentation conducts a systematic review of stressors and coping strategies in esports, identifying common themes among players and assessing the applicability of sport psychology frameworks. The second presentation explores the cognitive processes in League of Legends players through qualitative analysis of Think Aloud data captured during solo queue. The third presentation provides a qualitative examination of players' lived experiences concerning the phenomenon associated with emotional dysregulation and insufficient emotional regulation skills. This experience manifests as heightened frustration and declined performance, commonly referred to within the esports domain as tilt. The fourth presentation examines the effects of psychological pressure on gaze behavior and performance during an esports task. The fifth presentation investigates the effect of pressure on vagally mediated heart rate variability in an esports specific task. By delving into these diverse facets of esports performance, this symposium endeavors to provide a starting point for understanding the role of sport psychology in supporting esports players. The collective insights aim to inform practitioners, researchers, players, fostering a more nuanced approach to enhancing performance in this rapidly evolving performance domain.

### Stressors and coping strategies in esports: A systematic review

Oliver Leis<sup>1</sup> Benjamin T. Sharpe<sup>2</sup>, Vincent Pelikan<sup>1</sup>, Julian Fritsch<sup>3</sup>, Adam R. Nicholls<sup>4</sup>, Dylan Poulus<sup>5,6</sup>

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Faculty of Health, Southern Cross University, Australia;<sup>6</sup> Manna Institute, Southern Cross University Australia

**Objectives:** This study aims to review stressors and coping strategies in esports, identifying common themes among players, assessing the applicability of sport psychology frameworks, and establishing a starting point for practical implications and future research.

**Methods:** Employing the PRISMA guidelines and the SPIDER framework, this systematic review synthesizes findings from 19 studies on stressors and coping strategies in esports. The search strategy included seven databases (Web of Science, PsychArticles, PsychInfo, SportDiscuss, Google Scholar, Science Direct, Sponet) along with reference list, citation, and hand searching.

**Results:** Performance stressors, such as defeat and performance pressure, are prominently observed, along with team, organizational, and personal stressors. Coping strategies align with Nicholls et al. (2016)'s classification, with internal regulation emerging as the most frequently reported strategy. While mastery coping were commonly reported, goal withdrawal strategies were less frequently identified. Comparisons with traditional sports emphasize the role of stressors such as social media and equipment challenges in esports. However, personal stressors are underexplored. Research gaps in stressor appraisal and communal coping strategies, identified through this review, suggest future exploration of personal stressors, psychological factors, and dynamic methodologies (e.g., diary studies). Practical implications, drawn from the review findings, include tailored interventions, promotion of open communication, mastery coping techniques, and holistic well-being strategies.

**Conclusion:** This review provides a broader understanding of esports stressors and coping strategies, offering a starting point for targeted interventions aimed at enhancing performance and well-being in the distinctive competitive landscape of esports.

### Exploring Cognitions of League of Legends Players Using 'Think Aloud'

Laura Swettenham<sup>1</sup>, Joe Willia<sup>2</sup>, Oliver Henriks<sup>3</sup>, Heini Hermann Hansen<sup>4</sup>, Oliver Leis<sup>5</sup>, Matthew Watson<sup>6</sup>, Amy Whitehead<sup>1</sup>

<sup>1</sup> Liverpool John Moores University, United Kingdom <sup>2</sup> TBC, <sup>3</sup> Henriks Consulting Group, <sup>4</sup> Holbæk Hospital, Denmark <sup>5</sup> Leipzig University, Leipzig, Germany, <sup>6</sup> German Sport University Cologne, Germany

**Objectives:** Esports is a relatively new phenomenon, and little is known about the cognitive process underlying performance. To generate initial insights, this study sought to qualitatively explore cognitive processes in League of Legends (LoL) players by inductively analysing Think Aloud (TA) data captured during solo queue.

**Method:** Participants were four male semi-professional LoL players (M age = 19.5, SD = 2.38) from the same European Esports organisation. A fifth player in the team at-

tended the initial workshop but did not contribute to data collection due to difficulties using TA in English. An initial workshop was delivered to the players, introducing them to TA following training guidelines (Ericsson & Simon, 1993; Birch & Whitehead, 2019). During data collection, players were asked to 'think aloud' by verbalising their thoughts whilst playing six solo queue games each over three weeks. Level 2 TA was prompted for, which involves the verbal encoding and vocalisation of an internal representation (Whitehead et al., 2015). Data was recorded, transcribed verbatim, and analysed thematically.

**Results:** Cognitive processes during LoL were captured by four main themes: assessment and planning, adaptability, emotion regulation, and teamwork. These themes were broken down into higher-order themes. For example, situational appraisal, which demonstrated that players gather information, process it, and choose alternative options. Findings also highlight the importance of game-specific knowledge in effectively strategising, making split-second decisions, and solving complex problems during gameplay.

**Conclusion:** This is the first study to explore cognitive processes in LoL using TA, showing TA to be viable within a LoL setting. This study demonstrates the benefits of moving beyond deductively analysing and quantifying cognitions, and instead using an inductive approach to analyse TA data. Finally, the findings illustrate the dynamic process that occurs during decision-making in LoL and provides a starting point for future research to expand upon.

### Tilt on Esports: Conceptualization and Measurement

Iván Bonilla<sup>1</sup>, Andrés Chamarro<sup>1</sup>, Carles Ventura<sup>2</sup>

<sup>1</sup>Autonomous University of Barcelona, Cerdanyola del Vallès, Spain. <sup>2</sup>National Institute of Physical Education of Catalonia, Barcelona, Spain.

**Objectives:** The objective of the present study is to define and conceptualize the construct of TILT and propose a psychometric measure to measure TILT on esports players.

**Method:** In the first part of the study, a total of 27 interviews to professional players (N=6), semi-professional players (N=8), amateur players (N=8) and coaches (N=5) have been done to develop the concept of TILT.

After doing the interviews, a definition of TILT has been made and a total of 53 items has been done by a panel of 5 experts in sports psychology and esports. A total of 488 participants (278male, 210 females: M=26,9 years, SD= 7,57) completed the survey with the 53 items from TILT, a Toxic behaviour scale and Internet Gaming Disorder.

**Results:** The definition and conceptualization of TILT is "Behaviour of frustration that increases in the because of a repeated error in an easy situation, because of own mistakes or those of others in a context where performance is required. This frustration causes anger, decreased performance, attention and/or recurring negative thoughts about the error. The Tilt has a close relationship with stress situations with a duration of about 30 minutes."

From the psychometric measurement a total of 18 items has been selected divided into two factors Causes (7 ITEMS) and Consequences (11 ITEMS) of TILT. The full questionnaire showed a Cronbach's  $\alpha$  of 0.922 for the full questionnaire and 0.854 for first factor and 0.890 for the second factor. Confirmatory analysis showed a good index adjustment 0.992 and external validity with other construct like Toxicity and IGD showed positive correlations.

Conclusion: The findings suggest that there is a construct for esports called TILT that can be conceptualized, and we propose a first questionnaire that works fine with other related concepts for future research.

### Pressure impacts esports performance

Benjamin T. Sharpe<sup>1</sup>, Emmanuel A. C. Obine<sup>1</sup>, Phil D. J. Birch<sup>2</sup>, Chris Pocock<sup>2</sup>, Lee J. Moore<sup>3</sup>

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Objectives: The present study examined the effects of psychological pressure on gaze behaviour and performance during an esports task.

Method: In Experiment 1, 90 participants (67 male, 23 female; M = 20.57 years, SD = 2.26), divided into national (n = 33) and university (n = 57) level Counter-Strike competitors, completed an esports task under both low- and high-pressure conditions while gaze behavior (fixation duration, number of fixations) and performance (accuracy, time to complete trial) were assessed. In Experiment 2, the same protocol was repeated with 28 national-level Counter-Strike competitors (25 male, 3 female; Mage = 22.01 years, SD = 4.35), using further ecologically valid adjustments to the pressure manipulation given the eliteness of participants (i.e., live audience, intra-round feedback, audience reactions).

Results: In Experiment 1, participants displayed suboptimal gaze behaviour and poorer performance in the high-pressure condition than the low-pressure condition, and effects were stronger for university- than national-level competitors. In Experiment 2, participants displayed suboptimal gaze behaviour and poorer performance.

Conclusion: In line with pertinent theory (e.g., Integrative Framework of Stress, Attention, and Visuomotor Performance), the findings suggest that esports performance might breakdown under pressure due to disrupted gaze behaviour.

### The Effect of Pressure on Heart Rate Variability in Esports.

Matthew R. Welsh<sup>1</sup>, Emma Mosley<sup>2</sup>, Sylvain Laborde<sup>3,4</sup>, Benjamin T. Sharpe<sup>5</sup>, Melissa C. Day<sup>1</sup>, Phil D. J. Birch<sup>1</sup>

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Objectives: The present study aimed to investigate the effect of pressure on vagally mediated heart rate variability (vmHRV) in an esports specific task.

Method: First person shooter esports players (n = 28) completed five timed trials of a Counter-Strike aim training map under two conditions (low pressure and high pressure). Conditions were separated by a 30-minute washout period (Laborde et al., 2022; You et al., 2021) in a randomised, counterbalanced design (testing in progress and due for completion March 2024). vmHRV measures of root mean square of successive differences (RMSSD), percentage of adjacent NN intervals that differ by more than 50 ms (pNN50), and absolute power of high frequencies (HF ms<sup>2</sup>) were recorded due to their direct physiological underpinning within the parasympathetic nervous system (Laborde et al., 2018; Mosley & Laborde, 2022). vmHRV was recorded via three-lead electrocardiogram (Faros 180, Bittium, Finland) at three timepoints for each condition (i.e., rest, reactivity, and recovery; Laborde et al., 2018). Psychometric inventories of perceived stress visual analogue scale, perceived effort visual analogue scale, self-assessment manikin, and immediate anxiety measurement scale were selected to indicate the effectiveness of the pressure manipulation.

Results: Within subject repeated measures ANCOVA will be completed for each of the vmHRV variables (RMSSD, HFms<sup>2</sup>, pNN50) with post hoc T-tests with Bonferroni correction. Covariates of age, height, weight, waist circumference, hip circumference, and competitive level will be included. T-tests will be completed for all between condition psychometric results to determine if the stress manipulation was successful.

Conclusion: It is predicted that participants will display lower vmHRV in high pressure situations compared to low pressure situations due to an increase in self-regulatory demand (Laborde et al., 2018).

## A global exploration of challenges coaches experience in the pursuit of effective coaching

**Sophia Jowett**<sup>1</sup>, Gordon Bloom<sup>2</sup>

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Symposium 59: Coaching,  
Hall Igls, Juli 19, 2024, 13:30 - 14:30

### Exploring the career experiences and reflections of Special Olympics Canada's National team program coaches

Danielle Alexander-Urquhart<sup>1</sup>, Gordon A. Bloom<sup>2</sup>, Madison M. Fraser<sup>2</sup>

<sup>1</sup>University of Ottawa, <sup>2</sup> McGill University

**Objectives:** The Special Olympics provides 5.5 million athletes an opportunity to train and compete in sport from around the world (Turgeon et al., 2023). Despite its prominence, little research has focused on coaching in this context (Bentzen et al., 2021; Campbell et al., 2022; Turgeon et al., 2023). The purpose of this study was to explore the experiences and reflections of Special Olympics coaches from across Canada. **Methods:** 13 Special Olympic coaches from the National Team Program in Canada participated in individual semi-structured interviews (Smith & Sparkes, 2016). Interviews were audio recorded and transcribed verbatim. Data were analyzed using a thematic narrative analysis (Smith, 2016) and creative analytical practice (McMahon et al., 2016). **Results:** Three creative non-fiction stories were created using a storyteller approach to portray coaches' career experiences and reflections. The first story, *Feeling Unprepared*, depicts 30-year-old Coach Sarah bringing her team to Special Olympics for the first time and feeling overwhelmed with managing athlete travel, medications, emotions, and behaviours. The second story, *Advocacy and Awareness*, is from the perspective of 45-year-old Coach John who is constantly advocating for his athletes, whether it's promoting awareness of the Special Olympics or fighting to change societal attitudes surrounding disability. The third story, *Recommendations for the Next Generation*, was from the perspective of recently retired 65-year-old Coach Michael. He considers the benefits he experienced having a mentor coach throughout his journey and hopes that incoming Special Olympics coaches will have this opportunity to learn and connect in a formal way. **Conclusions:** Together, this study offers an in-depth understanding of the experiences and reflections from Special Olympics coaches that can enhance the quality of coaching provided to athletes with intellectual disabilities across Canada and around the world.

### Australian National Coaches: The unique challenges that can impede the effectiveness of the national coaching environment

Jordan S. Lefebvre, Steven B. Rynne, Clifford J. Mallett

University of Queensland

**Background and Objectives:** Although the last few decades have seen a wealth of research examining coaches in recreational (Grant et al., 2020; McGuckin et al., 2022), elite (Lefebvre et al., 2021; Rynne & Mallett, 2012), and professional contexts (Claude et al., in press; Lefebvre et al., 2022), our understanding of effective coaching at the Olympic and Paralympic level (i.e., national team coaches) remains quite limited. Accordingly, in collaboration with various sports institutes and national sport organisations in Australia, we are conducting a multiphase program of research designed to examine the responsibilities, learning and effectiveness of Australian national coaches. Accordingly, this presentation will discuss a study conducted as part of the larger program of research (i.e., phase 2). Specifically, the purpose of this study was to examine existing reports of past international events to identify challenges representing your country as a coach. **Methods:** We collected and reviewed debriefs and reports from international campaigns across two national sport organisations (NSOs) in Australia. The data were analysed using reflexive thematic analysis. **Results:** The findings indicated that national team coaches experienced unique challenges to the international level, including organizational tensions and relational tensions. First, the organizational tensions included the need to carefully navigate the distribution of event accreditation (e.g., the right to enter the Olympic village), discontent among national coaches around the distribution of funding and resources, and concerns around limited developmental opportunities targeting the unique demands of national coaches. Second, interpersonal tensions included the lack of communication between personal coaches (i.e., the athlete's day-to-day coaches) and the team coaches, impeding the team coaches' ability to properly prepare the athletes prior to the pinnacle event. **Conclusion:** This presentation will offer some practical implications that can serve to help national coaches and NSOs navigate organizational and relational tensions in the national sport context.

### University Serial Winning Coaches' Experiences With Low Performance And Maladaptive Team Culture

Madison M Fraser<sup>1</sup>, Gordon A Bloom<sup>1</sup>, Clifford J Mallett<sup>2</sup>

<sup>1</sup>McGill University, <sup>2</sup>University of Queensland Australia

**Objectives:** Despite the breadth and depth of high-performance coaching research, the focus has largely focused on the positive aspects of coaching, including how successful coaches achieved their success and created a winning team culture (Griffo et al., 2019; Hodge et al., 2014; Mallett & Lara-Bercial, 2016, 2023; Urquhart et al., 2020; Vallée & Bloom, 2005). However, it is unclear how successful coaches' behaviours and strategies change when faced with barriers to success, such as low performance

and team culture. Thus, the purpose of this study was to explore the strategies and behaviours of highly successful University coaches who have experienced both the highs and lows of performance and team culture. **Methods:** Our research was conducted within a constructivist paradigm. Seven University team sport coaches from Canada participated in individual semi-structured interviews, which were subsequently analyzed using a reflexive thematic analysis (Braun & Clarke, 2019). **Results:** Analysis of the data revealed three overarching themes: factors contributing to the low season, influences on coach well-being, and end of season lessons. Although the context differed between teams, coaches felt that factors such as toxic team behaviours, athlete complacency, and coaching mistakes contributed to their poor season. Results also indicated that coaches generally felt unprepared for the low season, leading to increased stress and decreased well-being. Coaches experienced frustration, disappointment, and self-doubt, which was either exacerbated or mitigated by their access to social support. Despite the emotional turmoil coaches experienced, they were able to reflect on their actions and take away key lessons, helping them to return to success in future seasons. **Conclusion:** Findings provide insight into how winning coaches manage and overcome adverse situations. These coaching strategies may help coaches of all levels overcome barriers to success and may be transferable to leaders across a range of disciplines outside of sport.

#### **A conceptualisation of care within sport coaching**

Matthew Gherardi, Sophia Jowett, Ed Cope

*Loughborough University*

**Background and Objectives:** This research aims to provide a conceptualisation of care within the context of sport coaching. Informed by cross-disciplinary perspectives of care, this paper focusses on presenting the process and practice of care in coaching (i.e., how coaches and athletes interact to identify and meet needs). The relationship between the coach and athlete is a factor in sporting success and well-being (Jowett & Slade, 2021). Identifying concepts that can enhance this relationship is of practical importance. One such concept is care. Care as a psychosocial concept has received increased attention within sport as an antidote to the psychological, physical, and emotional mistreatment of athletes (Partington, 2021). However, care can also serve as an active ingredient in the promotion of healthy coach-athlete relationships (cf. Cronin & Armour, 2019). Noddings' (1984) theory has guided much of the research exploring care in sport coaching whereby coaches' actions of care (e.g., engaging in dialogue, being present and meeting their needs) for their athletes have been captured and explained (e.g., Annerstedt & Lindgren, 2014; Jones, 2009; Knust & Fisher, 2015). While Noddings' theory has guided much of this work, care in sport coaching requires greater clarification from a conceptual, operational and measurement. It is important to (a) understand what constitutes care beyond the narrow focus of avoidance of mistreatment and (b) ensure care is not confused with seemingly similar concepts as empathy, sympathy, compassion, and love. **Conclusion:** This paper will present a conceptualisation of care based on an extensive review of diverse lit-

eratures representing philosophers, psychologists, sociologists and pedagogists as well as diverse contexts such as health, education, and sport. The conceptual and operational model of care in coaching will be explained and preliminary empirical evidence collected from university performance coaches will also be discussed.

#### **The cost of greater communication in remote coaching in endurance sports**

Doug G Stewart, Sophia Jowett, Richard C Blagrove

*Loughborough University*

**Background and Objectives:** Many endurance coaches operate in the remote coaching environment, using online and desktop software (telecommunications). Research exploring coaching effectiveness in remote settings is scarce. This study examined remote online coaching with the aim of identifying the main characteristics that define effective coaching within the remote setting, from a coach's perspective. **Method:** The study employed a critical realist ontology and implemented a content analysis approach. Ten endurance coaches (N = 5 female; mean age 42.4) based in different parts of the work who had coached remotely at different performance levels participated in semi-structured interviews. Participants had coached on average for 13.9 years, while they practised remotely on average 9.5 years. **Results:** Analysis revealed that effective remote coaching pivoted on the development of quality relationships (e.g., trust, respect), achieved through two-way communication (e.g., openness, candour) and safe environments that encouraged active involvement on the part of the athlete. Additionally, coaching effectiveness manifested through the timely delivery of personalised and adaptable training plans that incorporated athlete feedback. Communication (i.e., what went on between a coach and an athlete) emerged as the differentiated factor in coaching practices between the coaches examined; in terms of how they communicated and what was perceived to be optimal communication levels. It became evident that the frequency (quantity) of communication and in turn its quality as well as the online platforms or technologies used to communicate differed between the coaches examined (e.g., some coaches limited their availability, others withheld their phone numbers, some did not impose any limits). Ultimately, the quantity of communication was the factor that determined the value or price of the coaching packages many of these coaches offered. **Conclusion:** While relationships and communication emerged as the currency of effective coaching in remote settings, further investigation is warranted.



## Xtending Reality to Performance under Pressure: Advancing Operational Skills of Police and Military with Virtual Training

**Lisanne Kleygrewe**<sup>1,2</sup>, Jennifer Lavoie<sup>3</sup>, Jakob Uhl<sup>4,5</sup>, Tom Arthur<sup>6,7</sup>, Judith P. Andersen<sup>8</sup>

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Symposium 60: Military, police and tactical populations,  
Hall Innsbruck, Juli 19, 2024, 13:30 - 14:30

### Virtual Reality Training: A Concoction of Risks and Opportunities for Operational Skill Development

Tom Arthur<sup>1,2</sup>, Sam Vine<sup>1,2</sup>, David Harris<sup>1</sup>, Mark Wilson<sup>1</sup>

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**Objectives:** As virtual reality (VR) technologies continue to grow in prevalence and capability, their potential disadvantages and risks to training become increasingly salient. Indeed, issues relating to motion sickness, transfer of learning, and haptic feedback remain key barriers for many user groups, while the breadth and depth of research evidence can often prove limited. Despite these risks, it is clear that immersive technologies are not going away, and that they offer exciting opportunities for future training. Accordingly, our research seeks to identify suitable and effective applications of VR for operational environments, and the optimal methods for assessing these novel technologies.

**Methods:** We have devised a series of bespoke theoretical frameworks that can support developers, policymakers, and research during the 'life cycle' of VR training. This presentation will provide an overview of these frameworks, and describe how they are shaping the design, assessment and implementation of training tools across wide-ranging defence sectors.

**Results:** A collection of military-related studies from the armed forces, police, aviation, and emergency medicine will be discussed, which highlight the fundamental advantages and risks of different VR-based training solutions. Our results emphasize the advanced potential for simulating high-fidelity perceptual and psychological conditions, and the unique opportunities that VR presents for assessing and developing skill competencies.

**Conclusion:** Our findings will be discussed alongside inherent system constraints, to underlie the importance of taking a measured, evidence-led approach in the field. The presentation will conclude by highlighting some new and emerging VR-related concepts, which can draw upon our research and the fast-evolving capabilities of immersive technologies to stimulate future training innovation.

### Quantifying the Physiological Signatures and User Experience of Virtual Reality Training for Mental Health Crisis Response in Police Officers Using a Full-body Immersive System

Jennifer Lavoie<sup>1</sup>, John E. Muñoz<sup>2</sup>, Alan T. Pope<sup>3,4</sup>

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**Objectives:** In recent years, Virtual Reality (VR) has emerged as a promising tool for enhancing training responses in high-stress professions, notably among police officers. This study investigates the psychophysiological responses, de-escalation behaviors, and subjective user experience of active police officers taking part in community co-designed Mental Health Crisis Response (MHCR) training scenarios using an immersive full-body VR system.

**Methods:** A total of ten active police officers with Special Weapons and Tactics (SWAT) training participated in our controlled study. Each officer independently took part in one VR training session lasting 7-12 minutes involving an avatar in crisis portrayed by an actor. Officers wore integrated cardiovascular and electrodermal activity measurement devices for physiological monitoring. VR user experience aspects such as induced symptoms and game mechanics were investigated upon completing the simulations, aiming to assess the officer's perceptions of the technology. We used the DePICT scale to evaluate observable de-escalation skills of each officer.

**Results:** Our findings revealed significant differences in heart rate and heart rate variability responses between baseline and VR scenario immersion, suggesting heightened stress regulation during the MHCR simulation using full-body VR. Arousal measurements also revealed measurable responses during the training in VR. Additionally, the user experience assessment indicated a positive reception to the VR training, with minimal VR-induced symptoms. A "Defensive Dynamics Dichotomy" was revealed highlighting the dominant autonomic responses elicited by defensive actions (i.e., withdrawing or holstering weapons) and their implications for stress management and cognitive function. A unique constellation of de-escalation skills was revealed among officers who relied on weapons relative to those who did not.

**Conclusion:** The study highlighted the perceived utility of physiological monitoring technologies in enhancing police training outcomes. In conclusion, our research underscores the potential of VR as an effective tool for de-escalation training following MHCR simulated scenarios among active police officers, offering insights into its psychophysiological impact and user experience. The findings contribute to improving

our understanding of the physiology associated with decision-making in police officers to draw a weapon, emphasizing the role of advanced simulation and physiological monitoring technology in developing evidence-based training programs for public safety.

### **Human Digital Twin: Enhancing Close Combat Training with Extended Reality Integration**

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**Objectives:** Extended Reality (XR) technologies are becoming widely accessible for use in operational training. To ensure the effectiveness of XR training tools, our research work delves into the transformative potential of XR technologies in supporting trainers' efficacy within training systems. Our work addresses the topic of Close Combat Battle Training (CCBT), which involves intensive preparation in hand-to-hand combat and strategies for close-range engagements, such as room clearance. CCBT not only encompasses physical conditioning and combat skills like striking and weapon handling but also enhances tactical expertise, decision-making, and reaction speeds under pressure.

**Methods:** Our approach incorporates XR technologies, including body-capturing suits and tracking systems, into real training sessions to accurately collect and capture real-time data on trainee behavior. As a result, both the movement and physiological data of the trainees are meticulously documented. Additionally, our methodology employs wearable devices to collect bio signal data, encompassing Heart Rate Variability (HRV), Heart Rate (HR), and respiratory rates.

**Results:** This collected data is seamlessly integrated with a digital model of the training environment, thereby creating a comprehensive simulation of the CCBT session. Immediately accessible to trainers after the session, this integrated data facilitates an After-Action Review with the trainees, leveraging the learning principle of self-observation to significantly enhance the training's impact. It provides instant feedback and fosters self-reflection, leading to improved educational outcomes. Building on this foundation, the concept of a Human Digital Twin is introduced. It serves as a virtual counterpart to the individual, meticulously capturing and synthesizing physical movements, behavioral patterns, and physiological data.

**Conclusion:** This research work outlines our technical approach and describes the underlying concept, particularly emphasizing the benefits for trainers. By harnessing XR technology, we aim to refine the training process, providing trainers with the tools to offer instantaneous, precise feedback and craft a more effective and engaging learning milieu through the synergy of actual and virtual training components

### **Considerations on VR Training and Evaluation in Police: From Neurophysiology, Cognition and Performance to Ethics, Policy, and Practice**

Judith P. Andersen<sup>1</sup>, Paula M. Di Nota<sup>1,2</sup>, Juha-Matti Huhta<sup>3</sup>

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**Objectives:** Police officers are regularly evaluated for their competency in a variety of skills related to use of force (UOF), including lethal force decision-making, using stressful reality-based scenarios presented in both live and virtual reality (VR) formats. Growing interest in adopting cutting-edge tools like VR by police agencies around the world necessitates consideration of the practical realities of VR implementation, especially at agencies that lack the resources for highly sophisticated VR systems.

**Methods:** We exemplify this discussion with findings from an observational study that compared lethal force decision-making errors and physiological arousal in 187 Canadian police officers during virtual (i.e., video-based) and live UOF scenarios included in their agency's annual requalification assessment.

**Results:** Consistent with extant evidence, both conditions elicited significant physiological arousal relative to rest and greater elevations in heart rate during live scenarios. However, significantly more errors were observed in video (5.92%) versus live (0.81%) scenarios.

**Conclusion:** Error inflation related to scenario design, not officer skills, may have devastating consequences on the officer's confidence and evaluation outcomes, and potentially on their future performance and public safety. The current findings support a critical discussion of the practical and ethical implications of implementing VR that is: a) lacking technical sophistication and realism, b) unaccompanied by evidence-based didactic approaches to specific to training or evaluation in virtual environments, and c) potentially inducing UOF errors by virtue of the mode of delivery. We conclude with evidence-based recommendations on how virtual and live approaches may be most effectively leveraged and employed for the dual purposes of training and evaluating police officers' UOF skills while simultaneously considering agency resources.

### **Performing under Pressure: Applying Didactical Principles to Virtual Reality to Prepare Police Officers for High-Risk Situations**

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**Objectives:** Police officers face a variety of complex, ambiguous and stressful situations. In Europe, police officers receive 16 to 48 hours of training per year for their continued professional development. Virtual Reality (VR) is being explored as a training tool to make police training more time-efficient and effective.

**Methods:** To ensure that VR training results in optimal learning and retention of skills, didactical principles, namely developing a well-designed practice environment and providing constructive performance feedback were assessed in two separate studies. First, 237 police officers of the Dutch National Police completed high-risk scenario-based training in VR and real-life. Physical and psychological training responses were recorded and compared. Second, to assess feedback options in VR, 413 police officers of a Swiss police agencies received an After-Action Review after completing VR based scenario training. Learning efficacy was assessed after officers reviewed their performance from different perspectives.

**Results:** Developing a well-designed practice environment seems to differ in VR and real-life training. We found that the maximum heart rate and average level of physical activity were significantly higher in real-life training, whereas invested mental effort was significantly higher in VR training. The After-Action Review in VR can further support the learning efficacy of police officers. We found that reviewing the performance from a bird's eye view in combination with the suspect perspective elicits significantly greater learning efficacy compared to using a bird's eye view alone.

**Conclusion:** The use and application of contemporary educational approaches is necessary to design VR training for realistic training with aligned learning outcomes. Particularly the use of didactical criteria for high quality police training (see Hutter et al., 2023) appears to benefit VR training for performance under pressure.

## Creating sport (performance) environments for individual and organizational thriving: Current challenges and potential avenues

**Svenja Wachsmuth**<sup>1</sup>, Associate Rebecca A. Zakrajsek<sup>2</sup>

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Symposium 61: Built environment,  
Hall Strassburg Nord, Juli 19, 2024, 14:40 - 15:40

### Creating sport (performance) environments for individual and organizational thriving: Current challenges and potential avenues

Svenja Wachsmuth<sup>1</sup>, Rebecca A. Zakrajsek<sup>2</sup>

<sup>1</sup>Eberhard Karls University Tübingen; <sup>2</sup>University of Tennessee

Sport psychology has long been understood as an endeavor aiming to help the individual athlete or the team to strive for performance success. However, as the profession develops new opportunities and perspectives emerge, one of them being an organizational perspective on promoting sport performance (Wagstaff, 2019). Moreover, recent history also highlights the dangers of merely focusing on sporting success (e.g., mental ill-health, early career termination) reinforcing a plea for a more holistic approach to working with athletes as people (Hauser et al., 2022). Thus, this symposium aims to critically discuss the challenges perceived by sport practitioners and researchers in facilitating nourishing sport environments in which individuals can strive for success defined by sport performance, personal development as well as biopsychosocial wellbeing. It also sets out to illustrate potential avenues which may help to address these challenges through evidence-informed educational interventions and innovative projects promoting science-to-practice transfer on an organizational scale.

The first presentation aims to set the scene by highlighting current and future challenges in creating optimal talent development and performance environments within an individual Olympic sport. The second and third presentation follow-up upon these challenges focusing specifically on the promotion of supportive and caring coach-athlete interactions. Two educational programs designed to facilitate positive relationships (second and third contribution) and positively impact contextual enablers of thriving (third contribution) will be discussed in terms of their feasibility and impact. Finally, the fourth contribution will demonstrate a science-to-practice transfer project aiming at developing thriving environments in sport organizations through the use of relational and systems-led approaches. Based upon those presentations, the two chairs will act as discussants and contribute a session summary as well as personal reflections upon the role of sport psychology in promoting individual and organizational thriving within sporting institutions. They will then invite the audience to join this discussion.

Hauser, L. L., Harwood, C. G., Höner, O., O'Connor, D., & Wachsmuth, S. (2022). Talent development environments within sports: A scoping review examining functional and dysfunctional environmental features. *International Review of Sport and Exercise Psychology*, 1-27.

Wagstaff, C. R. D. (2019) Taking Stock of Organizational Psychology in Sport. *Journal of Applied Sport Psychology*, 1, 1-6.

### **Current and future challenges in creating optimal talent development environments in sport: Perceptions of athletes and their entourage**

Luca L. Hauser<sup>1</sup>, Oliver Höner<sup>1</sup>, Svenja Wachsmuth<sup>1</sup>

<sup>1</sup>*Eberhard Karls University Tübingen*

**Objectives:** Empirical studies have demonstrated a number of beneficial as well as harmful features of talent development environments (TDEs) impacting athletes' holistic development (i.e., sport and personal development, wellbeing and health; Hauser et al., 2022). Thereby, TDEs are not only shaped by the social actors within the direct (micro) sport environment but also by restrictions and norms exposed upon them by the wider (macro) sport system and society (Wagstaff, 2019). For example, stakeholders within TDEs need to continuously adapt to new generations of athletes with their own respective characteristics, values and expectations (Gould et al., 2020). This study therefore explores perceptions of developing athletes and their entourage pertaining to current and future challenges of creating optimal environmental conditions for athletes' individual thriving.

**Methods:** Adopting a case study design, data were collected from interviews with 13 members (e.g., athletes, coaches, support and managerial staff) belonging to a TDE of a German Olympic sport. The transcribed interviews are analysed employing an abductive approach to reflexive thematic analysis (Braun & Clarke, 2021).

**Results:** Preliminary findings indicate that new demands are placed on the TDE due to changing societal values (e.g., greater emphasis on wellbeing, decreasing social recognition of high-performance sport), an increased recognition for the importance of athletes' holistic development (e.g., health and wellbeing concerns, dual careers), and a growing complexity of the talent development system (e.g., coordinating a growing number of stakeholders within the sport and non-sport environment).

**Conclusion:** The current study highlights a number of (future) challenges resulting from athletes' increasing desire to strive for a more holistic talent development approach in sports. In this regard, TDEs that understand and are willing to adapt to the characteristics and demands of a new generation of athletes might be better placed to facilitate personal thriving.

### **The Effectiveness of a Coach-Athlete Relationship Intervention for Enhancing Relationship Quality and Athletic Thriving within Swedish Teams Sports.**

Louise Davis<sup>1</sup>, Svenja Wachsmuth<sup>2</sup>, Daniel J. Brown<sup>3</sup>, Marius Sommer<sup>1</sup>, Sophia Jowett<sup>4</sup>

<sup>1</sup>*Department of Psychology & Umeå School of Sports Science, Umeå University, Sweden*

<sup>2</sup>*Institute for Sports Science, Eberhard Karls University of Tübingen, Germany* <sup>3</sup>*School of Sport, Health & Exercise Science, University of Portsmouth, United Kingdom* <sup>4</sup>*School of Sport, Exercise and Health Sciences, Loughborough University, United Kingdom*

**Objectives:** Regardless of whether the sport environment emphasizes performance or participation, the coach-athlete relationship has been found to be central to athlete development as well as a potential contextual enabler of athletic thriving (Brown et al., 2021). That said, research to date has predominantly been cross-sectional in nature and rarely have intervention programs been developed to increase the quality of the coach-athlete relationship and in turn athlete thriving. Adopting the 3Cs model (Jowett, 2007) and the COMPASS model (Rhind & Jowett, 2012), this study aimed to develop and evaluate the effectiveness of a coach-athlete relationship intervention program for enhancing the quality of the coach-athlete relationship and athlete thriving over time.

**Methods:** We used a nonrandomized cluster-controlled trial design. Coaches (n = 45) and athletes (n = 328) from 15 sport teams were allocated into either an intervention group or no-treatment control. Following baseline questionnaire assessments, teams in the intervention group received two workshops, four weeks apart, and encouraged to implement taught strategies during practice and to complete bi-weekly diary logs. Follow-up assessments were completed at four and eight weeks after baseline.

**Results:** The effects of the relationship intervention on relationship quality and athlete thriving were assessed using two-level growth models, with athletes nested within teams. Preliminary findings showed no significant change over time in both the intervention and control conditions. Diary data indicated that coaches utilized the covered strategies and attempted to foster positive relationships with their athletes; however, several barriers were suggested to have restricted the coaches' efforts.

**Conclusion:** Whilst the quantitative results suggest the intervention was not effective in enhancing relationship quality and thriving in athletes over time, the qualitative data suggest increased awareness for and effort in facilitating positive coach-athlete interactions. Possible explanations for these findings and the challenges regarding implementing such interventions will be discussed.

**Promoting Thriving Environments in the University Sport System through a Pilot Credential of Coaching Excellence**

Lauren McHenry<sup>1</sup>, Emily Beach<sup>2</sup>, Daniel Brown<sup>2</sup>, Shelby Miller<sup>2</sup>, Rebecca A. Zakrajsek<sup>2</sup>

<sup>1</sup>McHenry Mental Performance, LLC; <sup>2</sup>University of Portsmouth, Portsmouth, United Kingdom  
<sup>3</sup>University of Tennessee, Knoxville, United States

Objective: Scholars have recently integrated person-centered theory (Rogers, 1959) and self-determination theory (Ryan & Deci, 2017) to propose the humanistic framework for thriving through interpersonal relationships in sport (McHenry & Zakrajsek, 2023). Within this framework, there are many levels in sport systems at which to intervene to promote thriving. Given the significance of the coach in facilitating contextual enablers of thriving (e.g., secure attachment in coach-athlete relationships, McHenry et al., 2022; creating fear-free environments, Brown & Arnold, 2019), one critical entry point for intervention is the education and professional development of coaches. This presentation will discuss evaluation findings of a pilot program through which 60 American college coaches of men's and women's soccer earned a credential of coaching excellence.

Method: The credentialing program curriculum was delivered through 20 in-person educational sessions, 12 Zoom educational sessions, and 28 hours of self-paced assignments. Realist evaluation methodology was adopted to test elements of the program's context, mechanisms, and outcomes with quantitative and qualitative analyses (e.g., repeated measures t-tests; constant comparative, abductive analysis; Pawson & Tilley, 1997) of data collected through pre- and post-program surveys.

Results: The program theory proposed that engagement in the curriculum would support coaches' own self-regard, connection to other coaches, and thriving while providing coaches with tools to impact contextual enablers of thriving within their sport programs. Preliminary results support the program theory with statistically significant increases from pre- to post-program in coaches' self-regard, thriving at work, sense of belonging in their professional association, trust-building behaviors, and person-centered attitudes.

Conclusion: Results will be discussed with attention to relationships between the program's context (e.g., promotion, timing, and access), mechanisms (e.g., instructional design and learning processes), and outcomes (e.g., pre- and post-program measures). Implications offer new insights for applying the humanistic framework for thriving to coach education to enhance thriving sport environments.

**Promoting Thriving using Relational and Systems-Led Approaches with Sport National Governing Bodies**

Daniel J. Brown<sup>1</sup>, Chris R. D. Wagstaff<sup>1</sup>

<sup>1</sup>University of Portsmouth, United Kingdom

The evidence-base on thriving in sport has continued to build over the past decade with increasing numbers of research groups studying the construct and working to elucidate the intrapersonal, interpersonal, and organisational variables associated with its occurrence (see, for a review, Brown et al., 2024). Moreover, within practice, thriving has been used as a vehicle to guide agendas that forefront well-being alongside performance in elite sport service organisations (e.g., English Institute of Sport, 2018; Passaportis et al., 2022). The purpose of this talk will be to share our experiences of, and reflections on, promoting thriving in sport using a relational and systems-led approach. Specifically, we will discuss our ongoing collaborative delivery with a mental health partner to promote mental health through the creation of thriving environments in 32 Welsh Sport National Governing Bodies. Through a combination of workshop delivery, bespoke support, and the establishment of communities of practice our work is serving to build critical understanding of a relational perspective to mental health within sport organisations and supporting them to implement this knowledge through systems-led approaches across the participation-performance continuum. Based on this work, and our wider collaborations with high-performance sport organisations within the UK, we will reflect on some of the challenges faced when adopting a salutogenic approach in sport, including navigating clients' anxieties and confusion about welfare and well-being, and the conflict between performance and well-being needs.



## Positive psychology in sport and physical activity: Leaders and prosocial behaviors promoting health, well-being and adaptive social functioning

**Athanasios Papaioannou<sup>1</sup>**, Maria Kavussanu<sup>2</sup>

<sup>1</sup> University of Thessaly, Greece, <sup>2</sup> University of Birmingham

Symposium 62: Well-being and quality of life,  
Hall Strassburg Süd, Juli 19, 2024, 14:40 - 15:40

This symposium focuses on characteristics and goals of leaders in sport and physical activity that are associated with athletes' and youngsters' mental health, well-being and effective social functioning.

The first two presentations focused on two models of coach leadership. A large number of British and Greek athletes responded on valid measures of authentic and virtuous leadership respectively. Results show that both leadership styles relate positively to athletes' mental health/well-being and prosocial behavior and negatively to antisocial behavior. The first presentation exhibits new findings suggesting that prosocial/antisocial behavior mediate the effects of authentic leadership on mental health. The second presentation is unique in terms of validating a new measure for virtue leadership, a style that is new to research in sport that should be further explored.

The positive association of prosocial goals and behaviors with well-being also emerged in the next two presentations in Physical Education (PE). A cross-cultural study across Portugal, Greece and Malaysia presented unique findings underscoring the importance of Self-Transcendent (ST) goals aiming to improve others' competence in PE. Across all countries, students' intentions to help peers to become physically active mediated the effects of students' ST goals to improve others' competence in PE and students' physical activity. Moreover, ST goals had direct effects on students' vitality.

The last presentation shows results supporting the validity of a new measure of motivational climate in PE, which in addition to performance and mastery goal structures it also captures Self-Transcendent goal structures focused on helping others' improve their competence. The study also showed that students' ST goals (i.e., to improve others' competence in PE) mediated the effects of perceived teacher-initiated ST climate, on social efficacy and socially shared regulation. The latter although critical for group effectiveness it has been rarely examined in sports.

All presentations present novel research across different cultures underlying the importance of boosting prosocial goals and behaviors for health and well-being. Findings indicate that it is worthwhile to invest on the cultivation of virtues and character of leaders, athletes and students and on positive institutions to promote health and well-being in sport and physical activity.

## Authentic Leadership and Athletes' Mental Health: The Role of Psychological Capital and Teammate Behaviour

<sup>1</sup>Maria Kavussanu, <sup>2</sup>Shuge Zhang, <sup>3</sup>Qing Tang, <sup>1</sup>Jennifer Cumming, <sup>1</sup>Thomas Mackman

<sup>1</sup>University of Birmingham, United Kingdom <sup>2</sup>University of Derby, United Kingdom <sup>3</sup>Zhejiang University, China

**Objectives:** Recent research has attested to the prevalence of mental health issues in sport, and the need to identify factors that could promote athletes' mental health. In this study, we investigated: (a) whether authentic leadership is associated with athletes' mental health directly and indirectly via psychological capital and teammate prosocial and antisocial behaviour; and (b) whether the hypothesized model would be the same in higher versus lower competitive level athletes. We examined two dimensions of mental health namely positive mental health and mental illness.

**Methods:** A total of 751 athletes (Mage = 22.92, SD = 8.53; 294 female) from a range of sports completed a multi-section questionnaire administered via an online survey.

**Results:** Structural equation modelling showed that authentic leadership was positively related to positive mental health via psychological capital and prosocial behaviour and negatively linked to mental illness via psychological capital and antisocial behaviour. The effects of authentic leadership on positive mental health via prosocial teammate behaviour and subsequently psychological capital, and on mental illness via prosocial teammate behaviour, were stronger in higher compared to lower athletes.

**Conclusions:** The findings suggest that by adopting an authentic leadership style coaches could strengthen athletes' positive mental health and protect them from mental illness. This may happen by increasing athletes' psychological capital and prosocial teammate behaviour and decreasing the frequency of antisocial behaviour toward one's teammates.

## Measurement of Virtuous Leadership in Sports (VLQS)

George Loules,<sup>1</sup> Athanasios, Papaioannou<sup>2</sup>

*Affiliation:* <sup>1</sup> University of Thessaly

**Objectives:** The aim of this study was to develop a measure of Virtuous Leadership (VL) in sports. An extensive bibliographic review suggested that no measure existed on VL in sports. The most relevant was one developed for business environment (Wang & Hackett, 2016; VLQ) capturing five virtues of leaders. However, the existing items were not enough to capture the broader meaning and impact of a virtuous leader. No items were found measuring humanity in a universal way, neither items capturing wisdom aiming to promote ethics and common good.

**Methods:** The VLQ items capturing prudence, justice, courage, temperance and humanity virtues of leaders were adjusted for sport. We also created new items for two

new factors (1) “universalism”, a hypothesized lower-order factor of humanity virtue to examine the impact of a virtuous leaders values not only on their close environment but in a more broader way (other teams, individuals, society etc.), (2) “morality-oriented wisdom”, an assumed lower-order factor of the wisdom factor. Three pilot studies were made to develop the final form of the 31-item VLQS questioner. One thousand ninety football athletes responded to the VLQS concerning their perception of current coaches. They also responded to measures of perceived coach’s encouragement of pro-social behavior or anti-social behavior in order to win, flourishing and pro environmental behavior.

Results. Confirmatory analysis supported a factor structure of VLQS consisted of three first – order factors (Courage, Temperance, Justice) and two higher-order factors, Humanity (Humanity-L & Universalism being the lower-order factors) and Wisdom (Prudence & Morality-oriented Wisdom being the lower order factors). All factors had positive relationships with perceived coach’s promotion of pro-social behavior, flourishing and pro environmental behavior and negative association with perceived coach’s promotion of anti-social behavior.

Conclusion: The VLQS is a valid measure for use in future research and applications in sport.

### **Self-transcendent goals, helping peers to be physically active, vitality and physical activity: A study across three cultures**

Athanasios Papaioannou,<sup>1</sup> Joao Martins<sup>2</sup>, Aruna Santhappan<sup>3</sup>, Marcos Onofre<sup>2</sup>, Charalampos Krommidas<sup>1</sup>

<sup>1</sup> University of Thessaly, Greece, <sup>2</sup> University of Lisbon, Portugal, <sup>3</sup> National Sports Institute of Malaysia, Malaysia

Objectives: The aim of the study was to investigate whether achievement goals and particularly Self-Transcendence (ST) goal (helping peers to develop athletic competence) and intentions to help peers to be physically active are positively linked to vitality and Physical Activity (PA) across three cultures.

Method: Participants were adolescents from Greece (n= 1099), Malaysia (n = 291) and Portugal (n = 1004). They completed measures capturing (1) ST goals alongside mastery approach/Self-Improvement (SI) and performance approach/Self-Enhancing (SE) goals (Papaioannou & Krommidas, 2021), (2) three widely used measures of PA in out-of-school settings which were combined to one, (3) intention to help others to be physically active, (4) vitality.

Results: Confirmatory Factor Analyses (CFAs), including multi-group CFAs, supported the factorial validity of all measures and their metric invariance across the three countries. All scales had acceptable alpha reliability. Findings from Structure Equation Modelling (SEM) suggested that across the three countries intention to help peers to be physically active had direct positive effects on PA, while ST goal had positive effects on intention to help peers to be physically active and on vitality. In Greece and Portugal, SI goal and vitality had direct positive effects on PA, while both SI and

SE goals had direct positive effects on vitality. SE goal had direct positive effects on PA in Portugal and Malaysia but not in Greece. In Malaysia SI goal had no effects on any outcome variable (PA, vitality, intention to help others be physically active) and SE goal had no effect on vitality.

Conclusion: Goals and intentions to help others improve their competence and be physically active seems beneficial for adolescents’ well-being and PA across three different cultures. However cultural differences might exist with regards to the effects of self-centered goals such as SE and SI goals on adolescents’ well-being and PA.

### **Measurement of Self-transcendent oriented climate and its association with social self-efficacy and socially shared regulation**

Savina Sereli<sup>1</sup>, Athanasios Papaioannou<sup>1</sup>

<sup>1</sup>University of Thessaly, Greece

Objectives: Existing motivational climate questionnaires based on Achievement Goals Theory (ACT) capture two major climate dimensions focused on promotion of two self-centered achievement goals, performance or Self-Enhancing (SE) and mastery or Self-Improvement (SI). The aim of the present study was to improve these measures by adding the dimension of selfless/Self-Transcendent (ST) oriented-climate that directs students in Physical Education (PE) classes to improve the competence of others/peers. Moreover, the association of ST oriented climate with social outcomes was examined.

Methods: New items assessing perceived PE teacher’s initiated ST climate were developed by experts in motivational climate in PE and ST goals. The new ST climate dimension alongside two others capturing perceived SE and SI climate were completed by five hundred sixteen students (262 boys and 254 girls) in PE classes. The latter also completed valid measures of positive and negative affect in PE, socially shared regulation and social efficacy with peers.

Results: Findings from Confirmatory Factor Analyses (CFAs) supported the factorial validity of the measure assessing perceptions of Physical Education (PE) teachers’ emphasis on ST, SI and SE goals. Multigroup CFAs supported scalar invariance across genders and different age groups. Perceptions of PE teachers’ emphasis on ST goals was positively related to ST goal adoption, positive affect, socially shared regulation, social efficacy with peers and negatively related to negative affect. ST goal adoption fully mediated the effects of perceived teacher-initiated SI and ST climate, on social efficacy and socially shared regulation. Perceptions of teachers’ emphasis on ST had also direct effect on socially shared regulation.

Conclusions: The results are in line with expectations that a motivational climate focused on ST goal promotion facilitates harmonic promotion of achievement and adaptive social outcomes in PE and youth sport settings.

## Advancing the Field: Current Research on Psychological Safety in Sports

Sophia Jowett<sup>1</sup>, Katrien Fransen<sup>2</sup>

<sup>1</sup>Loughborough University, Loughborough, United Kingdom, <sup>2</sup>KU Leuven, Leuven, Belgium

Symposium 63: Group dynamics and team sports,  
Hall Maximilian, Juli 19, 2024, 14:40 - 15:40

### Coach and Athlete Perceptions of Psychological Safety in Sport: Advancement of a conceptualization for sport

Kyle Paradis<sup>1</sup>, Michael Cooke<sup>1</sup>, Lee Ann Sharp<sup>1</sup>, David Woods<sup>1</sup>, Mustafa Sarkar<sup>2</sup>

<sup>1</sup>School of Sport, Ulster University, <sup>2</sup>Nottingham Trent University

**Objectives:** The purpose of the current study was to garner coach and athlete perceptions of psychological safety in sport to advance a conceptualization for sport.

**Background:** An environment where an individual perceives that they can express themselves without fear of negative consequences to self-image, status, or career, is characterised as psychological safety (Edmonson, 1999). Initially identified in organisational contexts, the construct of psychological safety in the sport domain has garnered research attention (Fransen et al., 2020). Due to its relatively recent presence in the sport literature, psychological safety holds a commensurate lack of conceptual clarity, despite acceptance of its existence and wide applicability in sport contexts (Vella et al., 2022).

**Methods:** Six focus groups were conducted with coaches' (two focus groups) and athletes' (four focus groups) who were from four sports (Association Football, Boxing, Field Hockey, and Swimming). A total of 25 participants included 18 athletes (Mage = 19.6 years; MExperience = 10.6 years), and 7 coaches (Mage = 45 years; MExperience = 19.6 years). Focus groups lasted from 36-78 minutes (Mlength = 56 minutes).

**Results:** Qualitative findings yielded a five-pronged conceptualization of psychological safety in sport: i) acceptance, equality, and inclusiveness; ii) environmental coherence and clarity; iii) supportive response to errors; iv) freedom to speak freely and raise issues; and v) freedom to take risks; along with nine antecedent categories: i) coaching behaviours; ii) external influences; iii) positional competition, selection, and deselection; iv) performance cognitions; v) communication norms; vi) athlete leadership behaviours; vii) status attributes; viii) transitions; and ix) social connections; and six outcome categories: i) positive climate and enjoyment of sport; ii) learning and improvement; iii) mental health and wellbeing; iv) holistic development; v) trust and support; and vi) positive relationships.

**Conclusion:** Findings aim to contribute to the advancement of conceptual clarity of psychological safety in sport.

### Investigating the impact of coach behaviours and coach-athlete relationships on psychological safety

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**Background and Objectives:** Psychological safety is pivotal for understanding individual expression, teamwork dynamics, and learning processes across various levels (Edmondson & Lei, 2014). In sports, in both practice and competitive settings, transparent communication, interpersonal trust, and effective decision-making are crucial for performance excellence and personal satisfaction (Gosai et al., 2023). Empirical evidence consistently shows that coach leaders' behaviors and the quality of coach-athlete relationships are positively associated with perceptions of psychological safety (Jowett et al., 2023). The objectives of this study were to: (a) examine the associations between perceived coach behaviors (supportive and controlling) and psychological safety, and (b) investigating whether the coach-athlete relationship quality explains the association between coach behaviors and perceptions of psychological safety.

**Methods:** A sample of 295 Turkish athletes in team sports, with a mean age of 21.69 (±4.71), completed a multi-section questionnaire assessing coach behaviors, coach-athlete relationship quality, and psychological safety.

**Results:** Structural equation modeling revealed that both perceived coach behaviors (supportive and controlling) and coach-athlete relationship quality predicted athletes' psychological safety. Additionally, the quality of the coach-athlete relationship emerged as a mediator variable in the association between athletes' perceptions of coach behaviors and psychological safety within the team context.

**Conclusion:** This study contributes to research exploring the mechanisms for fostering psychological safety in sports. Despite the prevailing belief that a coach predominantly shapes the environment, our findings suggest that athletes, by cultivating high-quality relationships with their coaches, can actively contribute to establishing a psychologically safe milieu.

### A Multi-Study Exploration of the Antecedents and Consequences of Psychological Safety Across Adult, Youth, and Cross-Cultural Sports Contexts

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**Background:** Psychological safety refers to the belief that a team is safe for interpersonal risk-taking. Research on this topic in sporting contexts is an expanding and promising area of sport psychology. Contributing to this growing body of knowledge, our presentation will outline a series of three studies that focused on identifying the cross-context generalisability of both the antecedents and consequents of psychological safety.

**Methods and Results:** In the first study (N = 289 Belgian handball players), we found that coaches' and athlete leaders' identity leadership (i.e., leaders who represent, advance, create, and embed a sense of 'we' and 'us') is associated with feelings of psychological safety amongst athletes. In turn, psychological safety was found to be associated with team effectiveness and athlete mental health. However, this study was conducted in one country, focusing exclusively on an adult sporting sample, raising questions regarding the generalisability of its findings cross-culturally and in a youth sporting sample.

In an attempt to address this gap, we will present results from two studies that are currently underway. More specifically, the second study aims to examine the generalisability of the relationships between identity leadership, psychological safety, and outcomes towards youth contexts (using a sample of 360 Belgian youth athletes), while the third study will test the cross-cultural generalisability of these relationships in a sample of 3,135 football players from 9 different countries.

**Conclusion:** This research underscores the critical role of leadership in fostering psychological safety within teams, thereby enhancing both performance and well-being across various sporting contexts and cultures.

## Developing psychological safety in elite sport: Research to practice

Mustafa Sarkar, Sally J. Hilton

*Nottingham Trent University*

**Background:** Although the concept of psychological safety has been studied extensively in occupational contexts (see, for reviews, Frazier et al., 2017; Newman et al., 2017), it has only recently been investigated in sporting contexts (see, e.g., Fransen et al., 2020; Gosai et al., 2021; Jowett et al., 2022; McLaren & Spink, 2021) especially in elite sport (Taylor et al., 2022). In addition, there is limited information on applying this research in practice.

**Objective and Approach:** Drawing on the authors' own research programme investigating psychological safety in elite football and the Leaders Performance Institute evidence-based report on "Psychological safety: The origins, reality, and shelf life of an evolving high performance concept" (Portch, 2021), the purpose of this presentation is to critically discuss the concept of psychological safety in the context of elite sport and, utilizing this knowledge, to provide some practical ideas for developing psychological safety in elite sport in applied practice.

**Results/Discussion:** Areas that will be discussed include shifting cultures to be more relational, considering how sessions are framed, creating space and prompts to talk about emotion, knowing the person behind the 'performer' (staff or athlete), conversational turn-taking and ostentatious listening during meetings, asking questions and valuing (open and honest) feedback, acknowledging fallibility, recognising the role and position of power, being mindful of language/communication around risk and failure, and role modelling especially from senior leadership.

**Conclusion:** It is hoped that this presentation will help bridge the gap between research and practice in this area of developing psychological safety in elite sport.

## Sources of Influence in Sport and Exercise Psychologists' Professional Development

Martin Eubank<sup>1</sup>, Nick Wadsworth<sup>2</sup>, Hayley McEwan<sup>3</sup>, Johanna Belz<sup>4</sup>, Göran Kenttä<sup>5</sup>, David Tod<sup>6</sup>, Moira Lafferty<sup>7</sup>

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Symposium 64: Professional development and mentoring,  
Hall Igls, Juli 19, 2024, 14:40 - 15:40

### The Evolving Practitioner: A Longitudinal Narrative Analysis of Critical Moments and Practitioner Development

**Objectives:** This study was undertaken to explore how critical moments, experienced by sport and exercise psychology practitioners, contributed to practitioner development over time. **Methods:** We adopted a longitudinal approach to data collection, by examining the development of two groups of UK trainee sport and exercise psychologists throughout their supervised practice. Participants included 41 trainees (2 males and 21 females, aged 20-44 at the first interview) who we interviewed between 2 and 4 times across 2 and 6 years. Semi-structured interviews explored participants' (a) motivations for becoming practitioners, (b) developmental objectives, (c) the development of a philosophy of practice, (d) approach to practice, (e) cultural and contextual demands, (f) important sources of influence, and (g) service delivery emotions. Interviews were audio-recorded and transcribed verbatim. We conducted a longitudinal narrative analysis of the data, which involved identifying stories of critical moments within the transcripts, aligning these stories to common narrative plots (Bell, 2004; Booker, 2004), and themes of counsellor development (Rønnestad & Skovholt, 2013). **Results:** All of the participants' stories followed a similar structure: 1.) Context (the participant was working towards a goal), 2. Conflict (they experienced an obstacle or a threat), and 3. Conclusion (they experienced growth and/or change in attempting to overcome this obstacle). Participants experienced a variety of personal and professional critical moments throughout their development and relied on support networks (supervisors, peers, friends, family, etc.) to navigate these critical moments successfully. Participants used these critical moments as an opportunity for self-examination and reflection, which facilitated the development of a more congruent philosophy of practice. **Conclusion:** Our findings highlight the importance of discovering philosophy through experience and provide an insight into how practitioners might develop optimally throughout their supervised experience.

### Mind the Gap: How Trainee Sport and Exercise Psychologists' Close the Personal and Professional Divide

**Objectives:** This project examined trainee sport and exercise psychologist's search for coherence between the person and the profession (termed individuation). **Methods:** Seven participants (5 female and 2 males, aged 20-44 at the first interview) enrolled on a Professional Doctorate in Sport and Exercise Psychology participated in 2-3 individual interviews across 5 years regarding their professional development during training. The semi-structured Interviews have been designed to explore participants' (a) motivations for becoming practitioners, (b) major development tasks, (c) theoretical orientations, (d) role and working styles, (e) influential information sources, (f) criteria for evaluating their service delivery effectiveness, (g) service delivery emotions, and (h) preferred learning methods. Interviews have been audio-recorded and transcribed verbatim. We subjected transcripts to an abductive thematic content analysis to interpret participant's perspectives about the alignment of the personal and professional self. **Results:** Participants' individuation process reflected qualities of individuality and connectedness. Individuality concerned participants aim to develop a clear sense of self as a practitioner. Movement from relying less on external knowledge and more on trusting personal judgments reflected the development of individuality. Increased self-trust and awareness allowed for movement from 'working on' to 'working with' clients. Connectedness through interpersonal relationships (e.g., peers, supervisors) influenced participants' individuality. An interplay between individuality and connectedness was evidenced when participants asserted their individuality from those whom they were connected. **Conclusion:** The results illuminate trainee movement along the individuation pathway and how individuals try to negotiate a fit between who they are and their cultures and contexts (Rønnestad & Skovholt, 2013). Findings point to applied implications, such as how to help trainees manage their development.

### "I Can Never Stop Learning": The Importance of Lifelong Learning for Professional Development in Sport Psychology Practitioners

**Objectives:** The significance of continued professional development (CPD) for sport psychology practitioners, encompassing lifelong learning, is widely recognized for sustaining professional effectiveness and excellence (Quartiroli et al., 2021). Lifelong learning reflects sport psychology practitioners' desires to engage in ongoing information-seeking and self-reflective activities. Research on the role of lifelong learning within sport psychology is limited (Wylleman, 2019). This study examined Swedish sport psychology practitioners' experiences engaging in a CPD program, focusing on the role of lifelong learning for their professional development. **Methods:** We explored the influence of a Swedish CPD program targeting performance enhancement services and psychotherapy for sport psychology practitioners. Via semi-structured interviews, we assessed the CPD of thirteen graduates (five females; age in years: M = 41.2, SD = 8.3). Our stance involved a realist ontology and constructionist epistemology (Elder-Vass, 2012). We followed the six-step Reflexive Thematic Analysis procedures to analyze data (Braun et al., 2019). **Results:** All 13 participants unanimously emphasized the significance of lifelong learning for their professional



development. Notably, most participants had already engaged in further education post-CPD program, with nine that took part in an Acceptance-Commitment-Therapy course, seven in a Mindfulness course, and three in a Motivational Interview course. Further reflecting a commitment to lifelong learning, nine participants expressed intentions to qualify as licensed psychotherapists. Conclusion: The sport psychology practitioners viewed participating in the CPD program as a pivotal step in their ongoing professional development journey. Post-course reflections revealed a unanimous understanding that learning and development are continuous, emphasizing that they are always evolving, never a 'finished product'. Sport psychology practitioners should prioritize self-care and self-compassion as integral components of their lifelong learning process to ensure sustainability in high-performance sports.

### **The Generative Self: Trainee Sport and Exercise Psychologists' Identity Narratives**

**Objectives:** This project examined trainee sport and exercise psychologist identity development. The project is a collaboration of four longitudinal studies examining trainee development in the UK and Australia. **Methods:** Participants included 36 trainees (15 males and 21 females, aged 20-44 at the first interview) who we have interviewed between 2 and 4 times across 2 and 6 years. The semi-structured Interviews have been designed to explore participants' (a) motivations for becoming practitioners, (b) major development tasks, (c) theoretical orientations, (d) role and working styles, (e) influential information sources, (f) criteria for evaluating their service delivery effectiveness, (g) service delivery emotions, and (h) preferred learning methods. Interviews have been audio-recorded and transcribed verbatim. We subjected transcripts to a structural analysis to explore narrative types, plotlines, and levels of cohesion to reveal participants' self-identities. **Results:** Participants have been developing identities based on generativity, involving commitments to self-actualization, helping others, and contributing to communities. Generativity has underpinned redemption stories in which participants discuss how negative circumstances lead to positive outcomes for themselves and their clients. Further, generativity narratives have been framed within the languages of psychological and educational theory. Two key features driving the stories are agency (e.g., mastery, achievement, and responsibility) and communion (e.g., caring for others, community engagement, and relationship building). **Conclusion:** The results illuminate trainee identity development and the dynamics of people and culture. Findings point to applied implications, such as how to help trainees manage their development.

## **Promoting Mental Health in High-Performance Sport: Perspectives of Athletes and Entourage Members**

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Symposium 65: Elite sports and expertise,  
Hall New Orleans, Juli 19, 2024, 14:40 - 15:40

### **Evaluating Mental Health Literacy in Sports with a Novel Assessment Tool**

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**Objectives.** Research suggests that athletes face a comparable (Kegelaers et al., 2022) or even increased risk of mental ill-health compared to the general population (Moesch et al., 2018; Poucher et al., 2021). Mental health literacy (MHL) was recognized as a major factor in whether athletes seek help when they experience mental health problems (Bu et al., 2020).

This study aimed to test the reliability and validity of a new context-specific brief instrument to assess MHL in sports. In addition, the objective of this study was also to measure athletes' MHL as well as some other mental health indicators. The study is part of the IOC Advanced Olympic Research Grant "Measuring and Increasing Athletes' Mental Health Literacy (MHL): Cross-Cultural Validation of MHL Questionnaire and Evaluation of MHL Intervention Implementation".

**Methods.** A sample of 600 talented and elite athletes (aged between 18 and 25 years) coming from Belgium, Slovenia, and South Africa was recruited. Participants completed an online questionnaire which consisted of different instruments measuring athletes' MHL and other mental health outcomes. Data analysis included statistical testing of the factorial structure of the instrument, internal consistency, reliability, cross-cultural, convergent, and discriminant validity.

**Results.** The newly developed context-specific MHL scale demonstrated robust reliability and validity in assessing athletes' MHL. In addition, some differences in mental health outcomes appeared between male and female athletes, as well as between athletes coming from three different countries.

**Conclusion.** This validation study revealed that the new sport context-specific MHL scale can be used as a useful instrument to assess athletes' MHL. The results of this study contribute to the growing body of knowledge surrounding mental health in sports and underscore the relevance of tailored assessments for this specific population.

**Mental health outcomes, literacy and support provision of entourage members working in high-performance sport**

Laura Spolverato<sup>1</sup>, Jolan Kegelaers<sup>1</sup>, Paul Wylleman<sup>1</sup>, Maximiliano Devoto<sup>2</sup>, Koen De Brandt<sup>1</sup>

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Objectives: While research has focused on examining the mental health of athletes (e.g. Kegelaers et al. 2022), little is known about the mental health of entourage members working in high-performance. As part of the Erasmus+ Sport project “Promoting Mental health through the ENTourage in high-performance Sport” (MENTiS), we investigated entourage members’ (i) mental health and well-being, (ii) mental health literacy, and (iii) perceived support and promotion of mental health support.

Methods: An online survey was distributed to (i) talented and elite athletes and (ii) entourage members working in high-performance sport in six European countries (Belgium, France, Netherlands, Spain, Sweden, UK). Main outcomes included scores on scales of mental health (PHQ-9, Kroenke et al., 2001; GAD-7, Spitzer et al., 2006; MHC-SF, Keyes, 2002), mental health literacy, and help-seeking attitudes (GHSQ, Wilson et al, 2005). This abstract focuses on the results of the entourage members.

Results: In total, 778 entourage members (mean age = 43.2±11.1 years; 43% F) completed the survey: 511 belonged to the athletic domain (e.g., coaches, physiotherapists, physicians), 98 to the educational and vocational domain (e.g., teachers, dual career support providers, boarding school tutors), and 169 to the personal domain (e.g., parents, partners, family members). Overall, 17% of entourage members reported moderate to severe anxiety, and 12% moderate to severe depression. Lower level of competition, higher MHL, and lower depression were significant predictors of mental well-being. Younger age, less years of experience working in HP, and higher depression significantly predicted anxiety. The entourage members who felt more confident in supporting mental health were psychologists, parents, school tutors, coaches and dual career support providers.

Conclusion: Our results show that entourage members are also exposed to the risk of developing mental health problems. Athletes rely considerably on entourage members for mental health support, highlighting the importance of developing entourage members mental health literacy, first-aid, and self-care competencies.

**Are We on The Same Path? Athletes and Entourage Members’ Perspectives on How to Care for Mental Health in Elite Sport**

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Research on elite athletes’ mental health has emphasised the need to better understand the role of entourage members in the prevention and promotion of athletes’ mental health. As part of the Erasmus+ Sport project “Promoting Mental Health through the ENTourage in High Performance Sport” (MENTiS), we explored the beliefs of athletes and their entourages regarding the resources and competencies for safeguarding mental health.

A total of 711 participants from six European countries, including talented and elite athletes and three types of entourages (sport, personal, academic) responded to open-ended questions about the tools, resources, and competencies required to care for their own mental health and the mental health of athletes. We conducted a reflexive thematic analysis through semantic and inductive coding. For the purpose of reflexivity, two coders developed themes, the other authors acted as critical friends.

Results show the principal themes that athletes and entourage members believe are the major resources and competencies needed for caring their mental health (e.g., life balance, supportive entourage, professional guidance, self-care, help-seeking); and for the entourage to care of athletes’ mental health (e.g., holistic perspective, professional guidance, interconnected entourages, mental health literacy). We highlight the main differences in beliefs between athletes and their entourages (e.g., relation entourage-athlete, knowing the person beyond, the entourage’s mental health, organisational role).

By developing a more reciprocal understanding, athletes and entourage members can better meet each other’s expectations and move closer to sharing the same path for caring mental health. This can help elite sports organisations to optimise their services and offer practitioners with leverage points for designing community-based mental health interventions.

**Be an athlete and a student: Systematic review on the relationships between role interactions and student-athlete well-being, mental and physical health**

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Introduction: Student-Athletes are committed in both academic and athletic contexts, and this dual career could be related to impaired well-being, mental and phys-

ical health (e.g., Kegelaers et al., 2022). Despite the fact that combining athletic and academic contexts was presented in various reviews as potentially problematic (e.g., Steele et al., 2020) or beneficial (e.g., Porto Maciel et al., 2023) for SAs' health and performance, the diversity of mechanisms hypothesised in empirical studies through which these two contexts are likely to affect such outcomes was not identified in any of the previous reviews.

**Objectives:** This systematic review primarily examines the empirical research that has examined sport-school role interactions, whether they are positive or negative, and their consequences on SAs' health and performance.

**Method:** The PRISMA method was used to examine the studies providing findings about these relationships. After removing duplicate, 1069 studies were screened, 12 of which met the inclusion criteria.

**Results:** All included studies approached negative role interactions, whereas a little half of the studies approached positive role interactions (58.3%). Negative role interactions were defined as role, identity or goal conflicts, role separation, imbalance demands, and negative spillover. Positive role interactions were defined as skill transferability, compatibility, role integration, and positive spillover. Our results mostly highlighted that less negative sport-school role interactions and more positive sport-school role interactions were related to better well-being, mental and physical health. They also showed a lack of examination of the sport-school role interactions and their consequences on performance, or their antecedents.

**Conclusion:** Our results also call for a clear operationalisation of role interactions in order to compare and replicate previous results, and for new studies to deeply examine the relationships between sport-school role interactions and SAs' well-being, mental and physical health.

## Empowering women: Navigating gendered spaces in sport with authenticity and systemic resilience

**Tatiana V. Ryba**<sup>1</sup>, Mirjam Raudasoja<sup>1</sup>, Janja Usenik<sup>2</sup>, Aku Nikander<sup>1</sup>, Antoinette Minniti<sup>3</sup>

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Symposium 66: Social and cultural diversity (e.g. migration, ethnicity),  
Hall Aalborg, Juli 19, 2024, 14:40 - 15:40

**Objectives.** Recognizing the systemic injustice in the production of gendered spaces in sport (Messner, 2007), this symposium aims to provide a platform for critical discussion, from theory to practice, to address the multiple challenges and barriers faced by women in their pursuit of excellence. The symposium is rooted in the imperative to foster inclusivity, cultural safety, and ethical practices in sport psychology. Central to the symposium's conceptual framework is a cultural praxis heuristic (e.g. Ryba & Wright, 2005, 2010), which integrates cultural issues into knowledge production and practical aspects of empowerment. By adopting this framework, the symposium endeavors to transform cultural norms and institutional policies that shape gender dynamics within sport environments. **Method.** The symposium will feature four presentations, each offering a unique perspective on the empowerment of women in sport. The first presenter will draw on survey data collected in Finland from different sport stakeholders to argue for reproductive rights and non-discrimination during pregnancy. The second presenter will delve into a longitudinal interview study with a Slovenian judoka, elucidating the intricate interplay of structural and cultural factors in identity construction, with a particular emphasis on the crucial role of authenticity for women's well-being and performance. The third speaker will present a collaborative auto-ethnography of the relational transition of the male coach/female athlete dyad to senior sport. By unpacking the gendered dynamics inherent in this transition process, the symposium aims to shed light on often-overlooked aspects of athletes' career journeys. The final presenter will introduce the audience to High Performance Sport New Zealand's innovative programs designed to empower women pursuing high performance sport careers by fostering resilience within the system. **Conclusion.** This symposium offers a nuanced exploration of gendered spaces, authenticity, and systemic resilience, envisioning the systemic process of establishing a more inclusive and equitable future in sport.

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**“Sport belongs to everyone... But not during pregnancy” Views of Finnish sport stakeholders on pregnancy in sport**

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Research on pregnancy in competitive sport has shown that pregnancy and sport are often portrayed as incompatible in guidelines (Bø et al., 2017) and expert opinion (Kehler & Heinrich, 2015). The diversity of elite athlete mothers' experiences also suggests that they are constructed within the presence of conflicting cultural discourses (e.g. McGannon et al., 2019). However, less is known about how athlete peers and other sport stakeholders view the participation of pregnant athletes. Objectives. To identify barriers to the participation of pregnant athletes in competitive sport, and ways to support their careers and reproductive rights. Methods. This study is part of the project “Who Is Excluded from Gender Equality in Elite Sport?” (Ryba et al., 2023). We used contrapuntal analysis (Baxter, 2011) to analyze survey responses from Finnish sport stakeholders in different roles (athlete, coach, expert, and leader) on their views on athlete pregnancy (n = 505). The focus of the analyses was on different discourses on athlete pregnancy in competitive sport and their interplay, as produced by the participants. Results. Three discourses were identified: equality discourse, responsibility discourse, and incompatibility discourse. The discourses differed in how pregnancy and sport were constructed as (in)compatible: the equality discourse constructed them as compatible; the responsibility discourse constructed them as partly compatible; and the incompatibility discourse constructed them as totally incompatible. Conclusion. Different discourses provide different discursive resources for deriving the meaning of pregnancy as natural versus pregnancy as disease, and sport as inherently masculine versus sport as belonging to everyone. As an athlete's reproductive choices and participation in sport during pregnancy can be influenced by the beliefs of peers, coaches and other staff in the athlete's environment, sports clubs and federations need to implement viable sports policies to support athletes' reproductive rights and create inclusive environments in which pregnancy is accepted.

Keywords: pregnancy, elite athlete, sport, discourse, reproductive rights

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**A single-case exploration of a Slovenian female judoka's identity construction, dual career development, and power dynamics in combat sports**

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Combat sports are often described as 'hyper-masculine' sports in which gender/power relations are still prominent. Research (e.g., Kavoura et al., 2018) suggests that even in relatively egalitarian cultures, gender hierarchies in judo persist. Objectives. Drawing on cultural praxis and feminist poststructuralist frameworks, this single-case study explores how a female judoka makes sense of her athletic career and constructs her identity. In addition, through reflecting on her relationship with her male coach, I examine how gender as a relation of power is exercised in this relationship. Methods. The participant was an 18-year-old Slovenian female judoka who took part in several in-depth interviews during the past four years of her athletic career. A thematic narrative analysis was used to explore the athlete's construction of her athletic identity, perceptions of her career path and its turning points. I reflected on the athlete's career pathway through the lens of gender-specific dual career development in Slovenia (Usenik, 2017). Results. The construction of a female judoka's identity was revealed as a dynamic process in which the athlete constructed multiple identities by trying to adapt to demands in her dual career development. The perception of her athletic career was a constant internal battle in mowing towards and away from the performance narrative which exclusively prioritizes athletic success and is accompanied by masculine constructions of fighting and competitiveness. Performance narrative framed the key turning points within her athletic career path (i.e., the experience of attempted sexual assault, and injury). Her coach reinforced this narrative in multiple ways demonstrating the power gap in their relationship. Conclusion. This study builds upon previous research in sport psychology about patriarchal power in judo (e.g., Kavoura et al., 2015) and emphasizes the need for the facilitation of gender-equal and developmentally supportive relations in sport which meet female judokas' needs.

Keywords: judo, gender, cultural praxis, feminist poststructuralist theory, wellbeing

Kavoura, A., Ryba, T. V., & Chroni, S. (2015). Negotiating female judoka identities in Greece: A Foucauldian discourse analysis. *Psychology of Sport and Exercise*, 17, 88–98. <http://dx.doi.org/10.1016/j.psychsport.2014.09.011>

Kavoura, A., Kokkonen, M., Chroni, S. A., & Ryba, T. V. (2018). “Some women are born fighters”: Discursive constructions of a fighter's identity by female Finnish judo athletes. *Sex Roles*, 79, 239-252. <https://doi.org/10.1007/s11199-017-0869-1>

Usenik, J. (2019). *Investigation into the gender specific transitions and challenges faced by female elite athletes*. VUB Press.

**From a junior coach to the senior ranks: Relational transition from a collaborative autoethnographic perspective**

Aku Nikander, Tatiana V. Ryba

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Coaches are key persons influencing athletes' development, especially when athletes approach the junior-to-senior transition (Keegan et al., 2014). Junior-to-senior mobility involves a transition into a new psychosocial environment, including changes in the dominant cultural narratives and expectations of both an athlete and their coach (Ronkainen et al., 2020). Objective. The purpose of this study was to examine a sports coach's career development by theorizing a relational co-construction of the junior-to-senior transition. In this presentation, we focus on unpacking the gendered dynamics of the transitioning male/female dyad. Method. The cultural transition model (CTM) (Ryba et al., 2016) was used as a conceptual framework to explore the temporality of the first author's relational transition. To co-produce first author's story, a collaborative autoethnographic (Chang, 2012) approach was utilized. A photo-elicitation method and cyclical interviewing were used to generate the data followed by a thematic narrative analysis. Results. In the transition, both the coach and the athlete went through their individual processes, but they also created a shared reality that informed and motivated them throughout the transition process. The co-construction of meaning in the athlete-coach relationship shaped the power relationship between the dyad. Rather than demonstrating controlling coaching behavior according to the performance narrative, self-reflexivity and meaning (re)construction problematized the cultural norms that had shaped the coach's behavior. Conclusion. The subjective repositioning of the dyad can impact the dynamics and outcomes of the transition process. Encouraging the dyad to develop critical awareness of their own subject position and reflect on their experiences can facilitate the transition to the new sociocultural context, as well as address power imbalances. To assist adaptation, future interventions with coaches should focus on becoming aware what sociocultural narratives make their views intelligible whether these are authentically aligned with their subjective meanings of a good career and a good coach-athlete relationship.

**Keywords:** relational transition, adaptation, power relation, collaborative autoethnography

Chang, H., Ngunjiri, F., & Hernandez, K. C. (2012). Collaborative autoethnography. Taylor & Francis Group.

Keegan, R.J., Harwood, C.G., Spray, C.M., & Lavalley, D. (2014). A qualitative investigation of the motivational climate in elite sport. *Psychology of Sport and Exercise*, 15, 97-107.

Ronkainen, N.J., Sleeman, E., & Richardson, D. (2020). "I want to do well for myself as well!": Constructing coaching careers in elite women's football. *Sports Coaching Review*, 9(3), 321-339, <https://doi.org/10.1080/21640629.2019.1676089>

Ryba, T. V., Stambulova, N. B., & Ronkainen, N. J. (2016). The work of cultural transition: An emerging model. *Frontiers in Psychology*, 7, 427. <http://doi.org/10.3389/fpsyg.2016.00427>

**Promoting leadership of women at High Performance Sport New Zealand**

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*High Performance Sport New Zealand, Auckland, New Zealand*

There are clear benefits to embedding women leaders in high performance sport (e.g., see Levi et al., 2023). Despite this, there continues to be a significant imbalance in representation of women at the highest levels of leadership positions, such as high performance coaching roles (Serpell et al., 2023). Objective. To share knowledge and insights through case study examples related to promoting leadership of women at High Performance Sport New Zealand (HPSNZ). Program approach. HPSNZ has focused its resources on a multipronged approach to support leadership of women that includes establishment of Women in High Performance Sport, Healthy Women in Performance Sport, Performance Life, and the Wellbeing programmes. Based upon strategic investment, these programmes comprise project streams to support the broader objective of empowering women as individuals, leaders, and facilitators in various high performance environments. Discussion. The Women in High Performance Sport programme has multiple streams, including a residency experience that promotes future women high performance leaders and coaches, facilitated by support from HPSNZ for wider growth and development. The Healthy Women in Sport programme is an initiative designed to support the health, wellbeing, and performance of women athletes. This programme is focussed on creating environment safety, voice, and choice to empower women to make informed decisions and be leaders who drive their own high performance sporting careers in healthy ways. Performance Life focuses on supporting individual women athletes in their sporting and non-sporting lives, whilst the Wellbeing Programme is focussed on systems and structures for a similar purpose through its wellbeing framework and guidelines, with promotion of women in leadership in high performance sport on a broader environmental level. Case studies will be presented to highlight challenges and lessons learnt across these HPSNZ programmes.

**Keywords:** women, high performance sport, wellbeing, health, leadership

Levi, H., Wadey, R., Bunsell, T., Day, M., Hays, K., & Lampard, P. (2023). Women in a man's world: Coaching women in elite sport. *Journal of Applied Sport Psychology*, 35(4), 571-597.

Serpell, B. G., Harrison, D., Dower, R., & Cook, C. J. (2023). The under representation of women coaches in high-performance sport. *International Journal of Sports Science & Coaching*, 16(2), 1-13. doi: 10.1177/17479541231160229



# WORKSHOPS

## Preparing elite athletes for high pressure situations

**York-Peter Klöppel**<sup>1</sup>, Kate O'Keeffe<sup>1</sup>, Paul Miller<sup>1</sup>, Irene Oyang<sup>2</sup>

<sup>1</sup>Red Bull Athlete Performance Center, Salzburg, Austria <sup>2</sup>Red Bull Athlete Performance Center, Santa Monica, LA, United States

Workshop (applied) 05: Elite sports and expertise,  
Hall Innsbruck, Juli 15, 2024, 13:30 - 14:30

Nowadays, athletes arguably experience more high-pressure situations than ever before. Moreover, they encounter a variety of different types of pressure that can be categorized in the style of Niedeffers attentional model along two dimensions: width (broad to narrow) and direction (external to internal). We will share our insights, experiences, and methods of working with elite-level athletes across many disciplines. Our objectives for participants of the workshop are to expand their knowledge of high-pressure situations in elite sport, to consider and critically reflect on our methods for simulating high-pressure in training and to introduce them to innovative ways of preparing athletes for high-pressure situations.

In the first part of the workshop, we will outline how we conduct assessments with athletes to identify the types of pressure they experience. Next, we will share some innovative and traditional approaches for simulating these pressures in a training environment. Whilst some methods require technologies like Virtual Reality, touch screens or reaction lights, others rely on the athletes' ability to use skills like mental simulations, self-reflections, and mindfulness. The third part will include practical examples of test and training methods. We will demonstrate how we simulate high-pressure situations to test and train athletes and ultimately prepare them for these situations. Participants of the workshop can test these exercises themselves.

In line with our philosophy, we aim to equip athletes with a set of tools to independently overcome the challenges of their discipline. Therefore, the equipment we use is mostly low-cost and easy to travel with. Furthermore, we work interdisciplinary with colleagues from other fields of sports science and sports medicine to achieve the most efficient outcomes for the athlete.

Participants will be provided with a handout of example exercises and a summary of the presented materials.

## New Trends in VR research and future developments

**Tarcan Kiper**<sup>1</sup>, **Fabio Richlan**<sup>2</sup>, Daniel Memmert<sup>3</sup>

<sup>1</sup>Neo Auvra Corp, Istanbul, Turkey <sup>2</sup>Centre for Cognitive Neuroscience, Paris Lodron University of Salzburg, Graz, Austria <sup>3</sup>German Sport University Cologne, Institute of Exercise Training and Sport Informatics, Germany

Workshop (applied) 06: Cognition,  
Hall Strassburg Süd, Juli 15, 2024, 14:40 - 15:40

Virtual Reality (VR) has emerged as a transformative tool in the realm of sports training and performance enhancement (Richlan, Weiß, Kastner, & Braid, 2023). VR simulations offer athletes immersive environments to refine skills, enhance decision-making, and simulate real-game scenarios. Studies have demonstrated the efficacy of VR interventions in improving athletes' performance metrics. As VR technology continues to evolve, its potential to revolutionize sports training methodologies and elevate athletic performance becomes increasingly evident.

This workshop pursues three goals. First, an overview of current trends in basic and applied research on VR training in sports is given. This includes the evidence-based state-of-the-art in the field considering the manifold new possibilities for training and competition preparation, as well as current limitations and potential pitfalls (Richlan & Braid, 2024). In addition, an outlook on fundamental neurobiological mechanisms underlying neuroplasticity related to VR training effects is offered. Secondly, based on, among other things, this cognitive diagnostic, a novel VR environment from Neo Auvra Corp is presented. Thirdly, participants have the opportunity to get to know and try out Neo Auvra Corp's current VR diagnostic and training tools themselves in a real-life demo.

Overall, this workshop will clarify why VR is a useful tool for measuring and training cognitions and will highlight its advantages over other assessment and training methods.

## Translating Pressure Training to Applied Practice

**William Low**<sup>1</sup>, Joanne Butt<sup>2</sup>, Ian Maynard<sup>3</sup>, Mike Stoker<sup>4</sup>

<sup>1</sup>Heriot-Watt University, Edinburgh, United Kingdom <sup>2</sup>Liverpool John Moores University, Liverpool, United Kingdom <sup>3</sup>University of Essex, Colchester, United Kingdom <sup>4</sup>UK Sports Institute, Sheffield, United Kingdom

Workshop (applied) 08: Elite sports and expertise,  
Hall Innsbruck, Juli 15, 2024, 14:40 - 15:40

To prepare athletes for psychological pressure of competition, pressure training (PT) systematically applies pressure on athletes while they practice sport-specific skills. Although research supports PT's impact on performance (e.g., Kegelaers et al., 2021; Low et al., 2021), translating PT to applied practice can be challenging. Methods for creating pressure need to be both effective and feasible in applied settings, and practitioners need to ensure that PT helps, not harms, athletes. This workshop introduces a research-informed model that has helped practitioners design and conduct PT at Olympic and Paralympic levels of sport. The workshop's learning objectives are to: a) discuss the model that outlines key phases of PT, b) explore methods for creating pressure when conducting PT, c) design and assess plans for delivering PT effectively in applied settings, and d) consider guidance for collaborating with athletes and coaches in designing and delivering PT. In the first part of the workshop, we will review the research that was conducted to develop this model. Second, we will discuss applying the model in practice. Through engaging in hands-on activities, participants will experience methods for manipulating pressure as they perform sport-related tasks. These activities will generate discussion of characteristics of effective pressure manipulations. Next, the workshop's third part will involve participants working in small groups to design and critically evaluate PT interventions. Finally, we will discuss do's and don'ts for implementing PT and future research directions that have implications for PT in applied practice. Materials to be shared with participants include: a) a planning sheet that outlines key stages of PT and b) a summary sheet with guidance on manipulating pressure as well as do's and don'ts of PT.

Kegelaers, J., Wylleman, P., Bunigh, A., & Oudejans, R. R. D. (2021). A mixed methods evaluation of a pressure training intervention to develop resilience in female basketball players. *Journal of Applied Sport Psychology*, 33(2), 151-172. <https://doi.org/10.1080/10413200.2019.1630864>

Low, W. R., Sandercock, G. R. H., Freeman, P., Winter, M. E., Butt, J., & Maynard, I. (2021). Pressure training for performance domains: A meta-analysis. *Sport, Exercise, and Performance Psychology*, 10(1), 149-163. <http://dx.doi.org/10.1037/spy0000202>

## Heart rate variability in sport and exercise psychology: Applications of the vagal tank theory

**Sylvain Laborde**<sup>1</sup>

<sup>1</sup>German Sport University Cologne, Cologne, Germany

Workshop (applied) 09: Psychophysiology,  
Hall Strassburg Nord, Juli 15, 2024, 16:10 - 17:10

Heart rate variability (HRV) has recently gained a lot of attention in sport and exercise psychology (Mosley & Laborde, 2022). The reason for this is that it allows for non-invasive and cost-effective measurement of the activity within the parasympathetic nervous system regulating cardiac functioning, cardiac vagal activity (CVA). Based on a recent theoretical development with the vagal tank theory (Laborde et al., 2018), this workshop will introduce how CVA can be used as an indicator for health, stress management, emotion regulation, and executive function, considering the 3Rs of CVA functioning: resting, reactivity, and recovery. Further, practical methodological recommendations will be presented (Laborde et al., 2017), in order to get the most of HRV measurements in sports settings, taking into account the many factors that can influence HRV.

Learning objectives: Participants will get first-hand experience of learning how to measure HRV with smartphone apps and ECG devices in different situations such as morning measurements, night measurements, preperformance routines, physical activity, post-training or post-competition recovery, psychosocial stress and relaxation methods. Further, they will also discover how to analyze and interpret the HRV data in Kubios software.

All participants will be provided with the slides of the presentation, and those who volunteer to have their HRV measured will be provided with their HRV files at the end of the workshop.

Laborde et al. (2018). Vagal Tank Theory: The Three Rs of Cardiac Vagal Control Functioning – Resting, Reactivity, and Recovery. *Frontiers in Neuroscience*, 12.

Laborde et al. (2017). Heart Rate Variability and Cardiac Vagal Tone in Psychophysiological Research - Recommendations for Experiment Planning, Data Analysis, and Data Reporting. *Frontiers in Physiology*, 8, 213.

Mosley, E., & Laborde, S. (2022). A scoping review of heart rate variability in sport and exercise psychology. *International Review of Sport and Exercise Psychology*, 1-75.

## Unlocking Performance Potential: Integrating Existential Psychology into Elite Sports at the Olympic Center Vorarlberg

**Daniel Rähse**<sup>1</sup>, Simon Nußbaumer<sup>1</sup>

<sup>1</sup>Olympiazentrum Vorarlberg GmbH, Dornbirn, Austria <sup>2</sup>German Sport University Cologne, Cologne, Germany

Workshop (applied) 11: Elite sports and expertise,  
Hall Innsbruck, Juli 15, 2024, 16:10 - 17:10

How can performance potentials be raised in the quickly developing world of elite sports? Perhaps by putting the person in the center. Classical sport psychological methods, such as mental skills training, work in improving skills in athletes, whereas existential psychology could be the missing bridge to the person per se and, help to create a sense of purpose and authenticity. Existential psychology is not a unified school of thought, but it was formed by its philosophical underpinnings and shaped as a psychological framework over decades, for example, by publications of Frankl (1984), Längle (2014), or, in the context of sport, by Ronkainen (2015) or Nesti (2006).

Therefore, at the Olympic Center Vorarlberg, an existential project for the entourage of athletes called “Success is a Mindset” (SIAM) was created. Making use of existential themes, like self-responsibility, courage, and will, to support the creation of a person-centered approach in sports and raise performance. Moreover, the sport psychological concept for athletes at the Olympic Center Vorarlberg is rooted in an existential framework, and thereby every offer from counseling to diagnostics is colored by an existential point of view. The presentation of existential psychology in sport and the entourage and athletes' concepts should permit the participants to gain a basic understanding and build the foundation for the interactive part of the workshop.

Through participative group work and discussions about the implementation of an existential framework in the counseling of athletes and sport psychological offers (mindfulness, emotion regulation, etc.), the transfer in the applied work of the participants should be facilitated. Moreover, participants will have the opportunity to share and discuss their own intervention ideas. To facilitate the remembrance of the gained insights, participants will receive documents about SIAM, the sport psychological concept of the Olympic Center Vorarlberg, and the elaborated interventions in the workshop.

Frankl, V. E. (1984). *Man's Search for Meaning: An Introduction to Logotherapy*. Touchstone.

Längle, A., & Bürgi, D. (2014). *Existentielles coaching: Theoretische Orientierung, Grundlagen und Praxis für Coaching, Organisationsberatung und Supervision*.

Nesti, M. (2006). *Existential Psychology and sport: Theory and Application*. Taylor & Francis US.

Ronkainen, N. J., & Nesti, M. (2015). An existential approach to sport psychology: Theory and applied practice. *International Journal of Sport and Exercise Psychology*, 15(1), 12–24. <https://doi.org/10.1080/1612197x.2015.1055288>

## Helping Teams performing under pressure – practical guidelines based on the five core competences of successful teams

**Carl Vincent Mohr<sup>1</sup>**, Mag. Thomas Kayer<sup>1</sup>, Mag. Christian Marko<sup>1</sup>, Ann-Kristin Reuter<sup>1</sup>

<sup>1</sup>Groundwork, Graz, Austria

Workshop (applied) 12: Group dynamics and team sports,  
Hall Aalborg, Juli 15, 2024, 16:10 - 17:10

When people are asked, “What makes a successful team?” the common answers include trust, communication, and cohesion. These responses are undoubtedly valid, as supported by scientific research (Hakkanen et al., 2015; Pescosolido & Saveedra, 2012; Salcinovic et al., 2022). However, especially in high-pressure situations, teams often struggle to prioritize these aspects and fully realize their potential.

Therefore, it is crucial to build and reinforce the fundamental aspects of team structure and dynamics, as outlined by Daniel Coyle (2018) as “Build Safety”, “Share Vulnerability” and “Establish Purpose”. We, Groundwork, drawing from extensive experience working with teams across various fields such as sports and organizations, have expanded upon this framework with two additional competences: “Create Belonging” and “Stimulate Creativity”.

Research by Fransen et al. (2020) has shown that higher team identification leads to reduced athlete burnout and enhanced teamwork, mediated by psychological safety. Moldjord & Iversen (2015) have similarly concluded that increasing trust through sharing vulnerability is essential for team performance. Thus, strengthening these core competences of successful team performance is believed to promote team well-being and ultimately improve performance in high-pressure situations.

The objective of this workshop is to acquaint fellow practitioners with our understanding and further development of these core competences and provide practical guidelines on how to apply this framework when working with high-performing teams in high-pressure scenarios.

The structure of each presentation will involve:

- Providing a brief overview of what each competence entails, particularly in the context of high-pressure situations.
- Sharing our unique experiences with teams that either lacked or embraced these competences.
- Presenting at least one clear cut practical guideline/method to help teams strengthen these core competences.

Coyle, D. (2018). *The Culture Code. The Secrets of Highly Successful Groups*. Penguin Random House UK

Fransen, K., McEwan, D., & Sarkar, M. (2020). The impact of identity leadership on team functioning and well-being in team sport: Is psychological safety the missing link? *Psychology of Sport & Exercise*, 51, 101763.

Hakanen, M., Häkkinen, M., & Soudunsaari, A. (2015). Trust in building high-performing teams: Conceptual approach. *Electronic Journal of Business Ethics and Organization Studies*, 20(2), 43-53.

Moldjord, C., & Iversen, A. (2015). Developing vulnerability trust in temporary high performance teams. *Team Performance Management*, 21(5/6), 231-246.

Pescosolido, A. T., & Saavedra, R. (2012). Cohesion and sports teams: A review. *Small Group Research*, 43(6), 744-764. <https://doi.org/10.1177/1046496412465020>

Salcinovic, B., Drew, M., Dijkstra, P., Waddington, G., & Serpell, B. G. (2022). Factors influencing team performance: What can support teams in high-performance sport learn from other industries? A systematic scoping review. *Sports Medicine*. Advance online publication. doi:10.1007/s12345-022-6789-0

## Collecting Diverse and Inclusive Data for a Youth Engagement Framework for Sport

Sasha Gollish<sup>1</sup>, **Roxy Helliker O'Rourke<sup>1</sup>**, **Catherine Sabiston<sup>1</sup>**, **Delaney Thibodeau<sup>1</sup>**

<sup>1</sup>University Of Toronto, Toronto, Canada

Workshop (applied) 13: Youth,  
Hall Strassburg Süd, Juli 16, 2024, 11:00 - 12:00

Diverse youth voices are needed to foster inclusive decision making, ensuring diverse perspectives and experiences are considered, especially for youth sports. Sport provides several benefits to children and youth. Yet, there are barriers preventing many children and youth from participating in sport. In addition, youth voices are not often included in decision making, especially when trying to attract new youth to sport. Collecting inclusive data to understand the sporting environment is essential to ensure equity-owed groups are represented and empowered.

Considering the lack of youth engagement frameworks in youth sport, and knowing the importance of involving diverse youth voices, how do we collect inclusive data to represent these diverse voices? The objectives of this workshop are twofold. First, to introduce an inclusive data collecting framework. Second, to use the inclusive data to build a diversity skills and competency matrix.

The workshop will be divided into three modules. The first module provides information and context to collecting inclusive data. The second module introduces learners to diversity skills and competency matrices. In third module, participants learn how to incorporate inclusive data collection to frame and build a robust diversity skill and competency matrix, ensuring a diversity of youth voices are included in decision making.

Participants will have the opportunity to contribute in three ways. One, by sharing their stories verbally with the group. Two, writing their thoughts on sticky notes to contribute to poster boards. Also, digitally through a shared platform.

Learners will leave this workshop with the knowledge to describe an inclusive data framework to inform diversity skill and competency matrices. Learners will learn why it is important to include diverse youth voices in their decision-making processes. While this workshop is framed for sport, all participants with youth programming will benefit from learning how to include diverse voices for decision making.

## Doing narrative sport psychology in an elite youth football academy

**Niels Rossing<sup>1</sup>**, Ludvig Johan Torp Rasmussen<sup>1</sup>

<sup>1</sup>Aalborg University,, Denmark

Workshop (applied) 15: Elite sports and expertise,  
Hall Innsbruck, Juli 16, 2024, 11:00 - 12:00

While the rapidly growing field of applied sport psychology directed towards adolescents mostly focuses on what the sociologist C. Wright Mills named the personal troubles of the athlete (e.g., performance anxiety, anger etc.), a narrative approach suggests that such problems are grounded in social issues within the sport environment. By adopting a narrative and athlete-centered approach to sport psychology, we can support relational guidance in sports communities.

Within this workshop, we show how narrative sport psychology can stimulate a mental training program at an elite youth football academy from a organizational, team- and player-focused practices, but also how it can transform individual counselling dialogues.

Objectives:

After this workshop, you will:

- Have knowledge about the primary theories and concepts that underline narrative sport psychology
- Grasp how narrative sport psychology can stimulate practices' at organizational, team- and player-focused practices
- Apply narrative counselling stage-based models and techniques such as externalization in conversations with groups and individuals.

Methods: · Explore and engage in narrative counselling based on a stage-based model and specific question techniques

- Learn how to apply the primary methods and techniques from narrative psychology at team- and organizational level in sports and exercise settings.
- Learn how you can de-objectify and externalize athletes' problems by prompting them to use metaphors.

Results:

- Gain insights into how narrative psychology can be used in various sport and exercise settings.
- Get knowledge about the current limited empirical studies in narrative sport psychology and potential future studies.
- Benefit from the presenter's successful application of this approach across diverse fields.



Conclusion: • After this workshop you will receive concrete, actionable procedures to implement narrative psychology in various settings.

• This workshop reveals how narrative sport psychology can be used at individual, team- and organizational level in an elite youth football academy.

Foucault, M. (1965). *Madness and civilization*, New York: Pantheon Books.

Rossing, N. N., & Rasmussen, L. J. T. (2023). From Individual Fixing to Relational Guidance in Narrative Sport Psychology. In S. Agergaard, & D. Karen (red.), *Social Issues in Sport, Leisure, and Health* (s. 129-145). Routledge. <https://doi.org/10.4324/9781003303138-13>

Sparkes, A. C., & Partington, S. (2003). Narrative practice and its potential contribution to sport psychology: The example of flow. *The Sport Psychologist*, 17(3), 292-317.

Stelter, R., Nielsen, G., & Wikman, J. M. (2011). Narrative-collaborative group coaching develops social capital—a randomised control trial and further implications of the social impact of the intervention. *Coaching: An International Journal of Theory, Research and Practice*, 4(2), 123-137.

White, M. (2007). *Maps of narrative practice*. New York & London: Norton.

## Applying the 5Cs Framework in Youth Sport: Strategies and Tools for Enhancing Your Practice

**Chris Harwood**<sup>1</sup>, Dadi Rafnsson<sup>2</sup>

<sup>1</sup>Nottingham Trent University, Nottingham, United Kingdom <sup>2</sup>Reykjavik University, Reykjavik, Iceland

Workshop (applied) 16: Youth,  
Hall Strassburg Süd, Juli 16, 2024, 13:30 - 14:30

Youth sports represent a rich opportunity for enabling significant psychological growth and development in young people. Practitioners play a key role in integrating and embedding psychological concepts into such environments in cooperation with coaches and parents. This workshop offers students of sports psychology and practitioners insights into the processes, tools, and strategies underpinning the effective delivery of the 5Cs Framework (Harwood, 2008; Harwood & Anderson, 2015; Harwood et al., 2015) – one of the most popular frameworks for integrating sport psychology in UK youth academies. Based on his framework, the lead presenter will outline the principles and aims of the 5C's Framework (commitment, communication, concentration, control, confidence and provide practitioners with detailed insights into the key processes underpinning an embedded program of psychological training and support with athletes, coaches, and parents.

The second presenter will introduce the application of the 5Cs 'action' and 'discussion' cards as behavioural priming, education and conversation tools. These cards were designed through his work as a coach and educator in Icelandic sports and as part of an EU Erasmus+ strategic partnerships project. Their purpose is to facilitate awareness of psychosocial factors through an accessible tool. They have since been used by coaches working with kids from age ten in various sports clubs and teachers in upper-secondary dual-career sports programs. Workshop attendees will engage in interactive exercises with the cards to illustrate their utility value to young people.

Based on these insights, attendees will share their ideas and reflections for advancements in applying the 5Cs framework for psychosocial development and well-being within the sports in which they work. In conclusion, participants will gain a greater professional awareness of the strategies and methods they can apply when attempting to systematically develop psychosocial competencies in athletes

Harwood, C. (2008). Developmental consulting in a professional football academy: The 5Cs coaching efficacy program. *The Sport Psychologist*, 22, 109-133

Harwood, C.G. & Anderson, R. (2015). *Coaching psychological skills in youth football: Developing the 5Cs*. Bennion-Kearney Publishers

Harwood, C. G., Barker, J. B., & Anderson, R. (2015). Psychosocial development in youth soccer players: Assessing the effectiveness of the 5Cs intervention program. *The Sport Psychologist*, 29, 319-334.

## A Holistic Approach to Career Transitions for Elite Athletes

**Wanda Schapendonk<sup>1</sup>**, Hardy Menkehorst<sup>1</sup>

<sup>1</sup>NOC\*NSF, Utrecht, Netherlands <sup>2</sup>Team NL Centrum Noord, Heerenveen, Netherlands

Workshop (applied) 17: Transitions in and out of sport/dual career,  
Hall Brüssel, Juli 16, 2024, 13:30 - 14:30

In the high-stakes world of elite sports, transitions in and out of a sporting career present unique challenges that demand specialized attention.

Goals: This workshop is designed to provide practitioners with valuable insights and practical strategies to support elite athletes in balancing sports and study, facilitating a seamless transition to the professional world.

Methods: The session commences with an overview of the TeamNL@work project, fostering synergy between elite sports and academic pursuits since 2017 in the Netherlands. This initiative not only aids athletes in managing dual careers but also equips them with the necessary skills for a smooth transition into the professional world beyond sports.

Participants are encouraged to share their professional practices and strategies based on the experiences of the 720 elite athletes who have participated in TeamNL@work. Interactive discussions and knowledge exchange foster a comprehensive understanding of the challenges elite athletes face during career transitions.

The workshop introduces a holistic model encompassing psychological, educational, and career-related aspects, allowing participants to explore a well-rounded approach to athlete development. Through case studies and collaborative problem-solving, participants learn from successful interventions that have facilitated smooth transitions for elite athletes.

Conclusion: By the end of this 60-minute workshop, participants will have gained valuable insights to more effectively support elite athletes facing the pressures and challenges of transitions within and beyond their sports careers.

## Promoting stress adaptation: The Pro\*Stress intervention program

**Liliana Fontes<sup>1</sup>**, A. Rui Gomes<sup>2</sup>, Clara Simões<sup>3</sup>, Catarina Morais<sup>4</sup>

<sup>1</sup>School of Psychology, University of Minho, Braga, Portugal <sup>2</sup>Psychology Research Centre, School of Psychology, University of Minho., Braga, Portugal <sup>3</sup>Health Sciences Research Unit: Nursing (UICISA: E), Nursing School of Coimbra (ESENFC), Coimbra, Portugal. School of Nursing, University of Minho, Braga, Portugal <sup>4</sup>Universidade Católica Portuguesa, Faculty of Education and Psychology, Research Centre for Human Development, Porto, Portugal

Workshop (applied) 19: Mental skills training,  
Hall Innsbruck, Juli 16, 2024, 13:30 - 14:30

Stress management is an important life skill that can help individuals to manage stressors in different contexts, thereby improving their performance and wellbeing. According to the Transactional Stress Model (Lazarus, 1991, 1999) and the Interactive Model of Adaptation to Stress (Gomes, 2014), the adaptation to stress process includes the stressors that trigger the situation, how the situation is evaluated by the individual (i.e., cognitive appraisal), and the feelings that emerge from the situation.

In this workshop, participants will learn how to implement Pro\*Stress in their own professional contexts, namely in sports or business settings, among others. We begin with the stressor's characteristics and which strategies can be used to mitigate them. Then, we will move on to cognitive appraisals and how they can be changed to maximize challenge assessments and increase control and coping perception. Finally, participants will learn how to implement techniques to successfully manage psychological and somatic reactions of stressors. Participants will be encouraged to implement this program in four stages: motivation (to increase participants' interest in the topic), learning (to transmit important content), automatization (to apply the life skill in one context), and transference (to apply the life skill to different contexts).

Teaching methods will include brief mini-lectures, with a strong emphasis on applied methods: participants will be expected to work cases in small groups, engage in discussion, and, crucially, role-play situations where they can simulate implementing Pro\*Stress. We will also present the evaluation instruments to monitor participants' stress management life skill; participants in this workshop will be invited to monitor their own stress management skill level. Results are shown immediately and the link will remain active so that anyone can retake the questionnaire and monitor their skill over time. All materials, such as slides and cases, will be made available to all participants to keep.

## The team in crisis - discussion and development of evidence-based interventions

**Charlotte Behlau**<sup>1</sup>, Stephanie Buenemann<sup>1</sup>

<sup>1</sup>University Of Muenster, Muenster, Germany

Workshop (applied) 20: Crisis,  
Hall Orangerie, Juli 16, 2024, 13:30 - 14:30

In the 2018, 2022, and 2023 World Cups, the German male and female soccer teams were unexpectedly eliminated in the preliminary rounds. Such cases are referred to in the media and colloquially as crises. In times like these, sports psychologists are often in demand as crisis managers. So far, research has focused on performance slumps within a game and on the individual athlete (e.g. choking, yips, negative momentum) and less often on a team condition (e.g. collective collapse). These findings form an evidence-based foundation for practice. However, there is little theoretical or empirical basis for performance crises (e.g., Stead et al., 2022). We define performance crises in teams as a downward spiral of persistent underperformance, characterized by threat perceptions, the inability to cope with this, and therefore suffering team functioning (Buenemann et al., 2023). At the same time, the term crisis in sport can be conceptualized broader than performance crises. Crises in sport occur at an individual level (e.g. triggered by injuries or mental health), and at an association or club level (e.g. reputational crises following scandals) and are omnipresent in practice (Strauss et al., accepted).

In this workshop, participants will learn how a performance crisis develops and how to intervene. Thus, we start by briefly presenting the conceptual model for performance crises in team sports (Buenemann et al., 2023). Based on a systemic approach, we include the context and various levels of crisis. Afterwards, participants will discuss crises cases as well as intervention approaches in small groups. We aim to enable an exchange of practical experience in an understudied field. We will synthesize the key findings and discuss the possible scope for action of sports psychologists in practice in plenary. Participants will receive a hand-out on-site as well as following the session a collection of all interventions.

Buenemann, S., Raue-Behlau, C., Tamminen, K. A., Tietjens, M., & Strauss, B. (2023). A conceptual model for performance crises in team sport: a narrative review. *International Review of Sport and Exercise Psychology*, 1–26. <https://doi.org/10.1080/1750984X.2023.2291799>

Stead, J., Poolton, J., & Alder, D. (2022). Performance slumps in sport: A systematic review. *Psychology of Sport and Exercise*, 102136. <https://doi.org/10.1016/j.psychsport.2022.102136>

Strauss, B., Buenemann, S., Behlau, C., Tietjens, M., & Tamminen, K.A. (Eds.). (accepted). *The Psychology of Crisis in Sport*. Springer.

## The Human behind big spotlights, high pressure situations and perfectionism – Ways to improve sense of coherence, self-compassion and self-confidence

**Carl Vincent Mohr**<sup>1</sup>, Mag. Thomas Kayer<sup>1</sup>, Ann-Kristin Reuter<sup>1</sup>

<sup>1</sup>Groundwork, Graz, Austria

Workshop (applied) 21: Best practice,  
Hall Innsbruck, Juli 16, 2024, 14:40 - 15:40

Renowned sports psychologist James E. Loehr once stated in 2006, that one problem that comes with an overly developed competition-self, is the risk of losing contact to your true feelings and emotions.

Elite athletes as well as young competitive athletes are used to being assessed and evaluated all the time. They face extremely tight time-schedules and rigid training plans.

This is taxing and as a lot of practical examples show, fulfilling the role of the perfect performing machine sometimes comes with the price of emotional withdrawal, fatigue, and lack of self-confidence.

Newer research shows that emphasizing on self-compassion not only enhances emotional well-being but also maybe performance-indicators like subjective performance (Killham et al., 2018; Mosewich, 2020). Other research shows that certain aspects of personality like emotional intelligence correlate with mental toughness (Cowden, 2016).

We think there should be a place for these concepts in sports psychology by putting the real-self in the spotlight.

After this workshop participants...

- should have a clear image why sense of coherence, self-compassion and self-confidence are important in elite sports.

- o By giving a quick overview of the scientific research and combining it with personal expertise

- should have a better knowledge of strengthening the athlete´s personality and how this relates to well-being and performance.

- o Achieved through sharing personal expertise, role plays and interactive discussions

- should know certain techniques to foster sense of coherence, self-compassion, and self-confidence.

- o With techniques like compassionate writing, strength-imagery, mindfulness-meditation etc.

Following the session, participants will receive a reference list, a protocol of the flip-charts used and a handout for each individual presentation, containing following information:

- Brief overview of the scientific evidence regarding the presented topic.

- Short descriptions of the techniques presented in the workshop.
- Our key-take-aways for practitioners working with athletes.

Cowden, R. G. (2016). Mental Toughness, Emotional Intelligence, and Coping Effectiveness: An Analysis of Construct Interrelatedness Among High-Performing Adolescent Male Athletes. *Perceptual and Motor Skills*, 123(3), 737–75. DOI: 10.1177/0031512516666027

Killham, M. E., Mosewich, A. D., Mack, D. E., Gunnell, K. E., & Ferguson, L. J. (2018). Women Athletes' Self-Compassion, Self-Criticism, and Perceived Sport Performance. *Sport, Exercise, and Performance Psychology*, 7(3), 297–307. <http://dx.doi.org/10.1037/spy0000127>

Loehr, J. E. (2006). *Die neue Mentale Stärke. Sportliche Bestleistung durch mentale, emotionale und physische Konditionierung*. BLV Buchverlag GmbH & Co.KG München

Mosewich, A. (2020). Self-Compassion in Sport and Exercise. In G. Tenenbaum & R. C. Eklund (Eds.), *Handbook of Sport Psychology* (pp. 31–58). John Wiley & Sons, Inc. <https://doi.org/10.1002/9781119568124.ch8>.

## Leadership development for Bachelor students: A Martial Arts and Performing Arts Approach to thriving under pressure.

**Janneke de Noord<sup>1</sup>**, Daniel de Bruin<sup>1</sup>

<sup>1</sup>*Amsterdam University of Applied Sciences, Amsterdam, Netherlands*

Workshop (applied) 22: Leadership,  
Hall Aalborg, Juli 16, 2024, 14:40 - 15:40

“The safe environment really made me step out of my comfort zone”

“I learned to trust myself under pressure”

“Martial Arts taught me resilience, Performing Arts taught me vulnerability”

“I learned the importance of leading both with courage and compassion”

(Bachelor students, Amsterdam University of Applied Sciences)

This workshop (applied) will demonstrate how Martial Arts and Performing Arts at the Amsterdam University of Applied Sciences (AUAS) are excellent instruments in educating future managers and leaders in the world of sports about performing under pressure and leadership skills. During an eight-week long course students answer the question: How can sport help me to grow in my leadership? They experience and learn how to create psychological safety (Edmondson, 2006). Hereby the necessary conditions of support are being created to challenge the students to step out of their comfort zone, perform under pressure and dare to embrace vulnerability (Brown, 2018; Fletcher & Sarkar, 2016).

In our proposed workshop we will draw on the educational technique of reflective practice (McDonald, 2012). The reflective ALACT model by Korthagen (2005) is used both as a reflection tool and to demonstrate the effectiveness of this teaching method on students' leadership skills development.

Exercises and student reflections will be illustrated during this session. The interactive format of the workshop will invite participants in a safe environment to experience the application of Martial Arts and Performing Arts in performing under pressure. This workshop will be aimed primarily at delegates that wish to learn more about sports as a tool to develop leadership skills for Bachelor students.

Brown, B. (2018). *Dare to lead: Brave work. Tough conversations. Whole hearts.* . Vermilion: Random house.

Edmondson, A. C. (2006). Explaining psychological safety in innovation teams: Organizational culture, team dynamics, or personality. . *Creativity and innovation in organizational teams*, 21, 28.

Fletcher, D., & Sarkar, M. (2016). Mental-fortitude training: An evidence-based approach to developing psychological resilience for sustained success. . *Journal of Sport Psychology in Action*, 135-157.

Korthagen, F., & Vasalos, A. (2005). Levels in reflection: Core reflection as a means to enhance professional growth. *Teachers and teaching*, pp. 47-71.

McDonald, K. (2012). Is reflective practice a qualitative methodology? *Nurse education today*, pp. 13-14.

## A practical workshop on undertaking an ecological grounded theory approach to social sports inquiry.

**Scott Russell<sup>1</sup>**

<sup>1</sup>Queensland University Of Technology, Brisbane, Australia

Workshop (applied) 23: Social Psychology,  
Hall New Orleans, Juli 16, 2024, 16:10 - 17:10

Context. Scientific examination and testing of refereeing expertise in my field of exercise science had been biased towards sources of knowledge gained from empirical inquiry. Research produced, therefore, has prioritised emphasising technical elements of accuracy at the expense of broader socially important task priorities (Russell et al., 2022). This has misrepresented their performance function, leading to assertions of bias and changes in how their cultural practice operates. This workshop is a presentation on how ecological principles can be fused with grounded theory (Glaser & Strauss, 1967) to prioritise understanding how human values define social system order and their animate activity.

Learning objectives: This workshop seeks to support researchers to evaluate how their beliefs about the nature of reality can inform their research approach. We will discuss how all research methods prioritise certain types of knowledge over others, and the importance of recognising these limitations on all findings. The workshop will include a step-by-step guide on how to undertake an ecological grounded theory approach (Russell, 2021) to sports performance. This will involve active participation with guided data analysis, coding, and conceptual development. Materials: Participants will be supplied with readings, slideshow, and data to analyse. Teaching methods will include a presentation, practical demonstration, and group activities. Ultimately, I seek to help researchers better conceptualise the role of psychological processes in social system order and human behaviour using integrative methodological approaches.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory*. New York: Aldine.

Russell, S. (2021). *How individual conceptions of task role influence referee decision-making priorities: Football arbitration as an 'ecologically grounded' process in a complex system*. thesis, Queensland University of Technology.

Russell, S., Renshaw I., & Davids, K. (2022). *Sport arbitration as an emergent process in a complex system: Decision-making variability is a marker of expertise in national-level football referees*, *Journal of Applied Sport Psychology*, 34(3), 539-563.

## Mindful Approaches to Practice, Performance and Pressure: A Micro and Macro Way of Teaching and Training Contemplatives to Athlete-Performers

**Michael Gerson<sup>1</sup>**, Julie Hayden<sup>1</sup>, Vicki Tomlinson<sup>1</sup>, Student Alexa Garratt<sup>1</sup>, Graduate Michael Gonzalez<sup>1</sup>

<sup>1</sup>JFK School of Psychology and Social Sciences at National University, Alameda, United States

Workshop (applied) 24: Mental skills training,  
Hall Innsbruck, Juli 16, 2024, 16:10 - 17:10

Legendary NBA coach Phil Jackson writes, "The hardest thing, after all the work and all the time spent on training and technique, is just being fully present in the moment" (2014, p. 23). To develop the ability to sustain attention, awareness, and acceptance, athletes and sport psychology practitioners are frequently turning to mindfulness approaches. Saltzman (2018) defines mindfulness as "paying attention here and now, with kindness and curiosity, so that we can choose our behavior" (p. 9).

Over the past decade, the Western world has seen an explosion of interest in mindfulness as athletes and coaches are flocking to this performance-enhancing practice. Empirical research has demonstrated that mindfulness training augments athletes' ability to achieve flow and peak performance more readily (Chen & Meggs, 2020). As such, the field of sport and performance psychology has been an active part of this surge, producing Mindfulness Sport Performance Enhancement (MSPE), and various other models. These orientations have contributed to theory and research guiding how to incorporate mindfulness concepts with athletes (Baltzell, 2016). However, frameworks for deploying mindfulness tactics during pre-competition, competition, and post-competition are scarce (Aherne, 2011). Hence, the authors developed a framework for building well-designed mindfulness sessions at the micro and macro levels throughout training and competition.

In this workshop, attendees will learn various mindfulness-related approaches that have been linked to critical performance states such as emotional and attentional regulation, and increased relaxation (Kaufman et al., 2016). At the end of the workshop, attendees will have the opportunity to practice mindfulness drills and learn best practices for incorporating an applied training framework that supports athletes in developing and employing techniques to prepare for competition, handle pressure, and review their performance with less judgment and more insight.

Jackson, P., & Delehanty, H. (2014). *Eleven Rings: The Soul of Success*. Penguin Books, New York: NY.

Saltzman, A. (2018) *A still quiet place for athletes: Mindfulness skills for achieving peak performance and finding flow in sports and life*. New Harbinger Publications, Inc., Oakland, CA.

Chen, M. & Meggs, J. (2020). *The effects of Mindful Sport Performance Enhancement (MSPE) training on mindfulness, and flow in national competitive swimmers*. *Journal of Human Sport and Exercise*, 16(3), 1-11.

Baltzell, A. L. (2016). *Mindfulness and performance*. In I. Ivtzan & T. Lomas (Eds.), *Mindfulness in positive psychology: The science of meditation and wellbeing* (pp. 64-79). Routledge/Taylor & Francis Group.

Aherne, C., Moran, A., Lonsdale, C. (2011). *The effects of mindfulness training on athletes' flow: An initial investigation*. *Sport Psychologist*, 25 (2): 177-189.

Kaufman, K, Glass, C, & Pineau, T. (2016). *Mindful sport performance enhancement (MSP) development and applications*. In A. L. Baltzell (Ed.), *Mindfulness and performance* (pp. 153-185).



## Stress-is-Beneficial Mindset: A Workshop for Creating a Stress-is-Beneficial Mindset using Growth Mindset, REBT, SMART Goals, Fortune Lines and Imagery Scripts.

**Darrell Phillips**<sup>1</sup>, Bailey Gilbert<sup>1</sup>

<sup>1</sup>University of Kansas, Lawrence, Kansas, United States

Workshop (applied) 25: Mental skills training,  
Hall Igls, Juli 17, 2024, 11:00 - 12:00

Stress is ubiquitous in human performance and may be generated by individual or vicarious perceptions in sport, music performance, injury rehabilitation, tactical operations, or general life events (Arnold et al., 2017; Crum et al., 2017). Sport Psychology professionals, coaches, athletes, and other performers pursue multiple avenues to address the symptoms and results of perceived performance stress and equally are apt to identify a need to address the sources of the stress. Alternatively, the objectives of this workshop will include providing attendees with a method of training and teaching performers how to acquire a Stress-is-Beneficial (SiB) mindset (Crum, et al., 2017; 2013). Attendees will learn how identifying growth mindset skills and growth mindset barriers (Buzzetto-Hollywood et al, 2019) can assist in the adoption of SiB Mindset. Hands on activities include the practice and application of how to dispute irrational beliefs related to growth mindset barriers (Jordana et al., 2023), the development of SMART goals, and writing Fortune Lines (White & Gunstone, 1992). Workshop attendees will learn and practice the acquisition of skills, specifically how these skills will be collectively integrated into the creation of SiB verbal and mental rehearsal scripts. Attendees will engage in the application & development of personal schema SiB Mindsets as well as how to implement SiB mental skills training for performers.

Arnold, R., Fletcher, D., & Daniels, K. (2017). Organisational stressors, coping, and outcomes in competitive sport. *Journal of Sports Sciences*, 35(7), 694-703.

Buzzetto-Hollywood, N., Mitchell, B. C., & Hill, A. J. (2019). Introducing a mindset intervention to improve student success. *Interdisciplinary Journal of E-Skills and Lifelong Learning*, 15, 135-155.

Crum, A. J., Akinola, M., Martin, A., & Fath, S. (2017). The role of stress mindset in shaping cognitive, emotional, and physiological responses to challenging and threatening stress. *Anxiety, Stress, and Coping*, 30(4), 379-395.

Crum, A. J., Salovey, P., & Achor, S. (2013). Rethinking stress: The role of mindsets in determining the stress response. *Journal of Personality and Social Psychology*, 104(4), 716-733.

Dweck, C. S., & Yeager, D. S. (2019). Mindsets: A view from two eras. *Perspect Psychol Sci*, 14(3), 481-496  
Holloway. (2020). *Visualization for Growth Mindset of Underrepresented College Students*. ProQuest Dissertations Publishing.

Jordana, A., Turner, M. J., Ramis, Y., & Torregrossa, M. (2023). A systematic mapping review on the use of rational emotive behavior therapy (REBT) with athletes. *International Review of Sport and Exercise Psychology*, 16(1), 231-256.

Özarslan, M., & Çetin, G. (2014). An investigation of students' views about enzymes by fortune lines technique. *Asia-Pacific Forum on Science Learning and Teaching*, 15(1), 1-19.

Turner, M. J. (2016). Rational emotive behavior therapy (REBT), irrational and rational beliefs, and the mental health of athletes. *Front Psychol*, 7, 1423.

Vealey, R., & Wright, E. (2023). Using imagery to build confidence in esports. *Journal of Imagery Research in Sport and Physical Activity*, 18(1)

White, R., & Gunstone, R. (1992). *Probing understanding* (1st ed.). Falmer Press.

Wieber, F., Sezer, L. A., & Gollwitzer, P. M. (2013). Asking "why" helps action control by goals but not plans. *Motivation and Emotion*, 38(1), 65-78

## Empowering parents in elite sport settings – an integrative approach

**Hanspeter Gubelmann**, Babett Lobinger, Cristina Baldasarre

*<sup>1</sup>Swiss Federal Institute Of Technology, Zurich, Switzerland*

Workshop (applied) 26: Consulting/counselling,  
Hall Strassburg Nord, Juli 17, 2024, 13:30 - 14:30

This workshop follows up on the symposium “Parenting an elite sport athlete: The interconnectedness of experiences throughout career stages”. It aims to show how a socially acceptable and performance-enhancing integration of sports parents in the everyday life of youth competitive sports could be achieved. To underpin this notion, we relate equally to empirical findings and best practice experience in applied work.

Parents play a crucial role in the successful development and socialisation of their children in sport (Dorsch et al., 2022). They bear responsibility for the well-being of their protégés, take on many obligations in the sporting environment and also provide emotional support (Gubelmann et al., 2021; Lobinger et al., 2021). In youth sport, environmental approaches on talent development stress the importance of the athletic triangle of child, parents and coach. As a consequence supporting and empowering parents is an important topic for clubs and sport psychologists (Eckardt et al., 2022).

However, in the applied field, work with parents in clubs and the roles of sport parents in their children’s sports environment and the expectations associated to their commitment are often vague.

By hosting a World Café, we encourage all participants to enter conversation to work through dialogue and engagement. This easy-to-use method for creating a living network has also been used in projects to foster the conversational process for knowledge sharing among sports parents. In the second part, we will present and discuss ways in which coaches and clubs can integrate work with parents (Lautenbach & Lobinger, 2014).

Selected case studies on psychological (individual) counseling of sports parents round off the main content section (Andersen et al., 2002; Keegan et al., 2017). In the final, interactive part, two young elite athletes (Synchronized Skating and Track and Field) will comment on the key points of the workshop. The concluding discussion serves to secure knowledge and provides an outlook for further consolidation. Following this workshop, a comprehensive backup, consisting of workshop instructions, work dossiers, and a current literature overview will be provided to all participants of the workshop.

## Empowering Sport Psychologists in Addressing Interpersonal Violence

**Helena Schmitz**<sup>1</sup>, Teresa Greither<sup>2</sup>

*<sup>1</sup>German Sport University Cologne, Cologne, Germany <sup>2</sup>University Hospital Ulm, Ulm, Germany*

Workshop (applied) 27: Sexual violence, sexual harassment and sexual abuse,  
Hall Strassburg Süd, Juli 17, 2024, 13:30 - 14:30

While pursuing athletic excellence is an essential part of sport, athletes’ well-being and safety should always be considered the highest priority. Yet in recent times, numerous personal stories, news articles, and research reports emerged, that describe an elite sport environment where the personal boundaries of athletes are ignored and overstepped, sometimes culminating in prolonged periods of psychological, physical, and sexual violence at the hands of coaches or peer athletes (e.g., Rulofs et al., 2022). Despite sport psychologists being crucial support staff for athletes and coaches, the topic of interpersonal violence has been underrepresented in sport psychology, leaving many sport psychologists and experts feeling inadequately trained in this area. However, sports clubs and associations require qualified consultants who can impart knowledge and competencies, e.g., to increase coaches’ knowledge, to conduct workshops with children and adolescents on this subject, or to aid with expertise in unresolved cases. Furthermore, sport psychologists need to be equipped to navigate safeguarding processes, as athletes might confide in them. This workshop addresses the fundamental aspects of interpersonal violence by initially providing knowledge on prevalence, risk factors, preventive approaches, and possible intervention strategies. Participants engage interactively in group reflections, discussions, and experiential exercises, as well as drawing insights from, e.g., practical reports. The ultimate goal of this workshop is to shed light on the topic of interpersonal violence in elite sports environments from a sports psychologist’s perspective and to enhance practical skills in this realm.

Rulofs, B., Wahnschaffe-Waldhoff, K., Allroggen, M., Rau, T., & Mayer, S. (2022). Bericht zum Forschungsprojekt *SicherImSport: Sexualisierte Grenzverletzung, Belästigung und Gewalt im organisierten Sport*. Köln, Wuppertal & Ulm: Deutsche Sporthochschule Köln, Bergische Universität Wuppertal & Universitätsklinikum Ulm.

## Experiencing body awareness: A body-focused exploration on how we connect to ourselves and others

**Gábor Barta**<sup>1</sup>, Szabolcs Gergő Harsányi<sup>1</sup>, Szabolcs Takács<sup>1</sup>, Máté Smohai<sup>1</sup>

<sup>1</sup>Károli Gáspár University, Institute of Psychology, Budapest, Hungary

Workshop (applied) 28: Mental skills training, Juli 17, 2024, 13:30 - 14:30

We interact with our bodies every day, but are you sure that you know that body of yours? Are you fully aware of your body? Are you paying attention to its signals? Do you know where its limits are? What lies beyond those limits? By body awareness, we mean focusing our attention on our bodily states, processes and actions, and becoming aware of our internal body sensations (Mehling et al., 2009). Practices that increase body awareness can help us to perceive our bodies more positively, to feel more relaxed and more empowered, and develop a more accepting and satisfying relationship with our bodies and ourselves (Gard, 2005; Gyllensten et al., 2010). This workshop aims to get to know, observe, and understand our own body through a variety of individual and pair exercises, thereby developing our body awareness, our relationship with our body – and after all, our self-awareness. Our workshop has the influences of mindfulness, bodywork and Far Eastern martial arts, all intending to learn to turn our attention inwards, to notice and become aware of the subtle but important signals from our bodies. Our attention to our bodies is often superficial and automatic. We want to develop this mental awareness during the workshop. And after “we get to know” ourselves, we will get to know the “others” as well. Because interacting with other people also has a lot to teach us, we have a mutual influence on each other. We would like to show the participants exciting and enjoyable exercises and perspectives that can be taken home and enrich their “professional toolbox”, helping athletes to get in better touch with their bodies (and thus with themselves) and to be more attentive to their body’s signals. But first, let’s attempt this together!

Gard, G. (2005). Body awareness therapy for patients with fibromyalgia and chronic pain. *Disability and rehabilitation*, 27(12), 725-728.

Gyllensten, A. L., Skär, L., Miller, M., & Gard, G. (2010). Embodied identity—A deeper understanding of body awareness. *Physiotherapy theory and practice*, 26(7), 439-446.

Mehling, W. E., Gopisetty, V., Daubenmier, J., Price, C. J., Hecht, F. M., & Stewart, A. (2009). Body awareness: construct and self-report measures. *PloS one*, 4(5), e5614.

## Designing and implementing creative embodied activities to optimize psychological skills in high-performance contexts

**Veronique Richard**<sup>1</sup>, Christian Luthardt<sup>2</sup>

<sup>1</sup>The University Of Queensland, St Lucia, Australia <sup>2</sup>FC Bayern München AG, München, Germany

Workshop (applied) 29: Mental skills training, Hall Innsbruck, Juli 17, 2024, 13:30 - 14:30

Radical embodied cognitive science (RECS) suggests that cognition is for action, and thus, skill development is optimized when considering person-environment dynamics (Malinin, 2019). Specifically, because “perception, cognition, emotion, human relations, and behavior are grounded in our bodies” (Marmeleira & Duarte Santos, 2019, p.410), utilizing our physicality is a suitable way to achieve this dynamic and ignite personal growth (Griffith, 2021). Unfortunately, embodied practices remain relatively scarce in applied sport psychology. Therefore, the objective of this workshop is to enrich the scope of practices by exploring how psychological skills can be cultivated through the design and implementation of creative embodied activities within the realm of high-performance sports. Namely, how these activities can lead to better adaptability (Tenenbaum et al., 2015) while enhancing social and emotional learning (Brackett et al., 2019) will be scrutinized. The workshop will be structured into three phases: experimentation, theories & evidence, and design. In alignment with embodiment principles, participants will first get to experiment with various creative embodied activities. A safe and risk-friendly environment will be fostered to allow every participant to express themselves. Subsequently, the theoretical foundations underlying the design of these activities will be elucidated. Concrete examples of their implementation in high-performance contexts, along with evidence-based insights into the impact of creative embodied activities on psychological skills, will be discussed (e.g., Richard et al., 2020; Richard et al., 2017; Richard et al., 2018). Finally, a framework for designing creative embodied activities will be presented (Richard & Holder, 2023), and participants will be encouraged to collaborate in designing an activity tailored to a specific applied context. It is anticipated that this workshop will enable participants to deepen their understanding of embodiment theories and principles, thereby enhancing their confidence in designing and implementing creative embodied activities to promote the development of psychological skills.

Brackett, M. A., Bailey, C. S., Hoffmann, J. D., & Simmons, D. N. (2019). RULER: A theory-driven, systemic approach to social, emotional, and academic learning. *Educational Psychologist*, 54(3), 144-161.

Griffith, A. (2021). Embodied creativity in the fine and performing arts. *Journal of Creativity*, 31, 100010. <https://doi.org/https://doi.org/10.1016/j.yjoc.2021.100010>

Malinin, L. H. (2019). How radical is embodied creativity? Implications of 4E approaches for creativity research and teaching. *Frontiers in Psychology*, 10, 1-12. <https://doi.org/10.3389/fpsyg.2019.02372>

Marmeleira, J., & Duarte Santos, G. (2019). Do not neglect the body and action: The emergence of embodiment approaches to understanding human development. *Perceptual and Motor Skills*,

126, 410-445. <https://doi.org/10.1177/0031512519834389>

Richard, V., Ben-Zaken, S., Siekańska, M., & Tenenbaum, G. (2020). Effects of movement improvisation and aerobic dancing on motor creativity and divergent thinking. *The Journal of Creative Behavior*, 1-13. <https://doi.org/10.1002/jocb.450>

Richard, V., Halliwell, W., & Tenenbaum, G. (2017). Effects of an improvisation intervention on elite figure skaters' performance, self-esteem, creativity and mindfulness skills. *The Sport Psychologist*, 31, 275-287. <https://doi.org/10.1123/tsp.2016-0059>

Richard, V., Lebeau, J.-C., Becker, F., Inglis, E. R., & Tenenbaum, G. (2018). Do more creative people adapt better? An investigation into the association between creativity and adaptation. *Psychology of Sport and Exercise*, 38, 80-89. <https://doi.org/10.1016/j.psychsport.2018.06.001>

Tenenbaum, G., Lane, A., Razon, S., Lidor, R., & Schinke, R. (2015). Adaptation: A two-perception probabilistic conceptual framework. *Journal of Clinical Sport Psychology*, 9, 1-23. <https://doi.org/doi:10.1123/jcsp.2014-0015>

## An applied workshop on cognitive-behavioural approaches to performance under pressure.

**Martin Turner**<sup>1</sup>, Faye Didymus<sup>2</sup>, Sam Wood<sup>1</sup>, Betsy Tuffrey<sup>3</sup>, Jennifer Hobson<sup>4</sup>

<sup>1</sup>Manchester Metropolitan University, Stoke-on-Trent, United Kingdom <sup>2</sup>Leeds Beckett University, Leeds, United Kingdom <sup>3</sup>Seed Psychology, Hampshire, United Kingdom <sup>4</sup>Sheffield Hallam University, Sheffield, United Kingdom

Workshop (applied) 30: Consulting/counselling,  
Hall Strassburg Nord, Juli 17, 2024, 14:40 - 15:40

The cognitive-behavioural tradition is an integral part of professional practice and applied provision within the sport psychology discipline. Characterised chiefly by its recognition and operationalisation of the relationships between cognition, emotion, and behaviour, this tradition has instigated a wide variety of cognitive-behavioural approaches to psychotherapy (CBTs; Turner et al., 2023). The CBTs, and the ideas and techniques within them, have proliferated in sport psychology research and practice (McArdle & Moore, 2012), offering practitioners a range of strategies to help clients optimise their performance under pressure.

In this applied workshop, experienced practitioners offer applied insights across distinct CBT approaches to practice, sharing professional practice techniques through experiential learning via demonstrations, interactive activities, case-studies, and discussions with delegates. Delegates will be provided with handouts that reflect activities commonly used with athletes from each CBT. Each facilitator will share aspects of their practice, which will include acceptance and commitment therapy (ACT; Hayes et al., 2006), cognitive therapy (CT; Beck, 2005), rational emotive behaviour therapy (REBT; Ellis, 1994), and a multimodal approach (MMCBT; Hobson & Dixon, 2023). Differences between the CBTs will be fleshed out, and a critical exploration of CBTs per se as applied in sport will be undertaken.

There are various learning outcomes for delegates:

1. To learn the fundamental theory, tenets, and distinctive features of each CBT approach.
2. To gain a critical understanding of different CBTs in how they are applied in sport.
3. To learn and experience some applied techniques to incorporate into their practice when helping athletes to perform under pressure.
4. To understand the pros and cons of each approach when incorporating into practice.

Conclusions: Delegates will be encouraged to apply what they have learned within their practice, and to more deeply explore research and training in CBTs as part of meaningful continued professional development.

Beck A. T. (2005). The current state of cognitive therapy: a 40-year retrospective. *Archives of general psychiatry*, 62(9), 953-959.

Ellis A. (1994). *Reason and Emotion in Psychotherapy*. Secaucus, NJ: Bircsj Lane

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and Commitment Therapy: Model, processes and outcomes. *Behavior Research and Therapy*, 44, 1–25.

Hobson, J. A., & Dixon, J. G. (2023). Dynamic cognitive-behavioural sport psychology: taking a multi-modal approach. In M. Turner, M. Jones, & A. Wood (Eds.), *Applying cognitive behavioural therapeutic approaches in sport*. Routledge.

McArdle, S., & Moore, P. (2012). Applying evidence-based principles from CBT to sport psychology. *The Sport Psychologist*, 26(2), 299–310

Turner, M. J., Jones, M. V., & Wood, A. G. (2023) (Eds.), *Applying Cognitive Behavioural Therapeutic (CBT) Approaches in Sport*. Routledge.

## The influence of breathing techniques on sport performance

**Uirassu Borges<sup>1</sup>**, Sylvain Laborde<sup>1</sup>

<sup>1</sup>*German Sport University Cologne, Cologne, Germany*

Workshop (applied) 31: Psychophysiology,  
Hall Maximilian, Juli 17, 2024, 14:40 - 15:40

The practice of modifying breathing parameters originates in ancient Eastern traditions and has historically been used in practises such as yoga and meditation. However, the control of breathing can be isolated from other practises, to achieve desirable psychological and physiological effects. A diverse range of breathing techniques exists, such as slow-breathing techniques, usually aiming to induce relaxation, or voluntary hyperventilation, generally performed to achieve psychophysiological activation and delay fatigue. Given the proposed benefits and inexpensive equipment required for the implementation of these techniques, we offer in this workshop an introduction and practical guide for athletes and coaches to use these techniques to achieve desired sport performance, based on a recent meta-analysis on the topic (Laborde et al., 2022).

Learning objectives (for participants)

1. Learning key information about the main breathing techniques found in the literature and their associated effects. The techniques will comprise slow-paced breathing, fast-paced breathing, breath-holding, voluntary hyperventilation, alternate- and uni-nostril breathing.
2. Practising each breathing technique using video animation as a pacer as well as receiving instructions and constructive feedback about the optimal way to realize them. For example, should we use biofeedback or not?
3. Being provided with practical recommendations for applying breathing techniques in everyday life and in the sports context.

Laborde, S., Zammit, N., Iskra, M., Mosley, E., Borges, U., Allen, M. S., & Javelle, F. (2022). The influence of breathing techniques on physical sport performance: a systematic review and meta-analysis. *International Review of Sport and Exercise Psychology*, 1-56. <https://doi.org/10.1080/1750984x.2022.2145573>



## Dynamic Neuro-Cognitive Imagery for Enhancing Dance and Sports Performance

**Eric Franklin<sup>1</sup>**

<sup>1</sup>Institute for Franklin Method, Wetzikon, Switzerland

Workshop (applied) 32: Music, Dance and Performing Arts,  
Hall Grenoble, Juli 17, 2024, 14:40 - 15:40

### Dynamic Neuro-Cognitive Imagery for Enhancing Dance and Sports Performance

**Objectives** Mental imagery (MI) is becomingly an increasingly recommended tool for sports training and high-level performance. One evidence-based approach to MI is dynamic neuro-cognitive imagery (DNI), which supports motor and non-motor aspects of dance and sports performance.

**Methods:** Participants will practice DNI tools for focus of attention, mood, motivation, and efficiency to benefit dance and sports performance. Interactive discussions will address available scientific literature, including those from our research group.

**Results:** First, participants will be able to provide their clients with a set of MI tools to uplevel their performance under pressure. Second, participants will have a better understanding of the scientific background underpinning MI's usefulness in dance and sports. Participants will also receive a PDF of the workshop's contents and access to related online resources, including a DNI webinar.

**Conclusion:** This interactive workshop will equip attendees with theoretical understanding and practical tools for integrating mental imagery with sports performance. Those in attendance will expand their toolbox for optimizing their clients' athletic performance under pressure.

1. Franklin E.N. Dynamic Alignment through Imagery. 2nd edition. Human Kinetics; 2012.
2. Franklin E.N. Dance Imagery for Technique and Performance. 2nd edition. Human Kinetics; 2014.
3. Abraham A, Franklin E, Stecco C, Schleip R. Integrating mental imagery and fascial tissue: A conceptualization for research into movement and cognition. *Complementary Therapies in Clinical Practice*. 2020;40:101193. doi:10.1016/j.ctcp.2020.101193
4. Abraham A., Gose R., Schindler R., Nelson B. H. & Hackney M.E. Dynamic Neuro-Cognitive Imagery (DNITM) Improves Developpé Performance, Kinematics, and Mental Imagery Ability in University-Level Dance Students. *Front Psychol* 10, (2019).

## Visual scanning in football: From research to application

**Geir Jordet<sup>1</sup>**

<sup>1</sup>Norwegian School Of Sport Sciences, Oslo, Norway

Workshop (applied) 33: Perception & attention,  
Hall Tirol, Juli 17, 2024, 16:10 - 17:10

There is much research in sport on visual perception and performance (e.g., see review by Williams et al. 2023). Most of these studies have examined perception of video-based stimuli provided in the laboratory, to provide reliable accounts of the perception-performance relationship. However, recently, it has become popular to use video observations of players in the field to supplement our knowledge about visual perception. Specifically, scanning is an active head movement where a player's face is temporarily directed away from the ball to gather information in preparation for subsequently engaging with the ball. Studies have shown a robust, but small, positive association between scanning frequency and performance in men's professional football (Jordet et al., 2013; Jordet et al., 2020; Caso et al., 2023), women's professional football (Feist et al., 2023), and youth elite football (Aksum et al., 2021; Pokolm et al., 2022). Although some published studies also have documented the effects of training scanning (e.g., Jordet, 2005; Pocock et al., 2017), the evidence base for practice is limited. The learning objective of this workshop is for the participants to get to know the research foundations on scanning and familiarise themselves with what we know and what we do not know about training it. The majority of the examples provided will be from football, but there is also emerging research on scanning in other team sports (e.g., ice hockey), and transfer to different contexts will be discussed. Teaching will rely on practical examples with videos and photos, as well as interactive techniques such as digital polling & word clouds, buzzing/sharing in groups, and Q&A. Participants will receive physical handouts with highlights as well as detailed instructions for how to access supplementary information online.

- Aksum, K.M., Pokolm, M., Bjørndal, C.T., Rein, R., Memmert, D., & Jordet, G. (2021). Scanning activity in elite youth football players. *Journal of Sports Sciences*, 39, 2401-2410. doi:10.1080/02640414.2021.1935115.
- Caso, S., Van Der Kamp, J., Morel, P., & Savelsbergh, G. (2023). The relationship between amount and timing of visual exploratory activity and performance of elite soccer players. *International Journal of Sport Psychology*, 54, 287-304. DOI: 10.7352/IJSP.2023.54.287
- Feist, J., Datson, N., Runswick, O.R., Harkness-Armstrong, A., & Pocock, C. (2023). Visual exploratory activity in elite women's soccer: an analysis of the UEFA Women's European Championship 2022. *International Journal of Sport & Exercise Psychology*.
- Jordet, G. (2005b). Perceptual training in soccer: An imagery intervention study with elite players. *Journal of Applied Sport Psychology*, 17, 140-156.
- Jordet, G., Aksum, K. M., Pedersen, D. N., Walvekar, A., Trivedi, A., McCall, A., Ivarsson, A., & Priestley, D. (2020). Scanning, contextual factors, and association with performance in English Premier League footballers: An investigation across a season. *Frontiers in Psychology*, 11.
- Jordet, G., Bloomfield, J. & Heijmerikx, J. (2013). The hidden foundation of field vision in English Premier League (EPL) soccer players. In *Proceedings of the MIT Sloan Sports Analytics Confer-*

ence.

Pocock, C., Dicks, M., Thelwell, R. C., Chapman, M., & Barker, J. B. (2017). Using an imagery intervention to train visual exploratory activity in elite academy football players. *Journal of Applied Sport Psychology*, 1-17.

Pokolm, M., Rein, R., Müller, D., Nopp, S., Kirchhain, M., Aksum, K.M., Jordet, G., & Memmert, D. (2022). Modeling players' scanning activity in football. *Journal of Sport & Exercise Psychology*, 44, 263-271. doi: 10.1123/jsep.2020-0299. PMID: 35468590.

Williams, A.M., Thomas, J.L., Jordet, G., & Ford, P.R. (2023). Anticipation and decision making. In A.M. Williams, P.R. Ford, & B. Drust (Eds.), *Science and Soccer: Developing Elite Performers* (4th ed). New York: Routledge.

## Cognition and VR: Trends and future developments

**Tarcan Kiper<sup>1</sup>, Daniel Memmert<sup>2</sup>**

<sup>1</sup>Neo Auvra Corp., <sup>2</sup>German Sport University Cologne, Institute of Exercise Training and Sport Informatics, Germany

Workshop (applied) 34: Perception & attention,  
Hall Brüssel, Juli 17, 2024, 16:10 - 17:10

The former German national coach Joachim Löw said (from Memmert, 2019, p. 15): "When it comes to physical presence, football has its limits. In the cognitive area, however, there is endless scope." Cognition is currently an important topic in the German Bundesliga and in youth training academy worldwide. In two sports science meta-analyses (Voss, et al., 2010; Scharfen & Memmert, 2019), small to medium effects of basic cognitive performance in experts compared to novices were revealed, indicating superior (basic) cognitive abilities of elite athletes appears. How can basal cognitions be trained profitably in the laboratory and/or in the field and what role can virtual reality (VR) play in order to enable an assessment and training environment that is as ecologically realistic as possible?

This workshop pursues three goals. First, an overview of current trends in cognitive diagnostics is given. Among other things, anticipation, perception, attention, working memory, game intelligence and creativity tests are discussed (Memmert, 2019). In particular, greater consideration of ecological validity in existing test systems is addressed. Secondly, based on, among other things, this cognitive diagnostic, a novel VR environment from Neo Auvra Corp is presented. Thirdly, participants have the opportunity to get to know and try out Neo Auvra Corp's current VR diagnostic tools themselves in a real-life demo.

Overall, this workshop will clarify why VR is a useful tool for measuring and training cognitions and will highlight its advantages over other assessment and training methods.

virtual reality, cognition

## The impact of mental load on performance under pressure

**York-Peter Klöppel**<sup>1</sup>, Kate O’Keeffe<sup>3</sup>, Peter Schneider<sup>2</sup>

<sup>1</sup>Red Bull Athlete Performance Center, Thalgau, Austria <sup>2</sup>RasenBallsport Leipzig, Leipzig, Germany

Workshop (applied) 35: Psychophysiology,  
Hall Maximilian, Juli 17, 2024, 16:10 - 17:10

Mental load, a result of utilising and overusing the brain’s resources, leads to a reduced competence of the brain to undertake cognitive workloads efficiently (Borragán et al., 2017). Greater levels of mental load results in mental fatigue, mood disturbances, attentional deficits, and decreasing motivation (Marcora et al., 2009; McMorris et al., 2018). Despite this, research has largely focused on the management of physical load only (Perrey, 2022). Therefore, there is a need to discuss, evaluate and identify theory and applied solutions for monitoring and mitigating mental load in high pressure environments.

Our objectives are to:

- Introduce and expand upon the current understandings of mental load in sport.
- Identify the implications of enduring high mental load in high pressure situations.
- Consider practical and effective solutions for monitoring mental load.
- Evaluate applied solutions for mitigating the impact of mental load on performance.

The first part of this workshop will focus on defining mental load and associated concepts (i.e., mental effort, mental fatigue etc.). We will critically evaluate the most recent literature in the field of mental load and sport. Next, we will specifically explore the role of mental load in different high pressure sporting environments. For example, we will look at case examples of mental load accumulation in athletes performing in extreme environments, cognitive dominant sports and general high-pressure performance. In the final part, we will focus on the effective monitoring of mental load. Currently, there is no gold standard measure for monitoring mental load, therefore, the aim of this section is to identify what current methods exist in sport and evaluate the practicalities of subjective and objective mental load monitoring.

This workshop will allow participants to examine, discuss, and apply theoretical knowledge to explore practical solutions for monitoring and managing mental load in different high-pressure environments.

Borragán, G., Slama, H., Bartolomei, M., & Peigneux, P. (2017). Cognitive fatigue: A time-based resource-sharing account. *Cortex*, 89, 71-84.

Marcora, S. M., Staiano, W., & Manning, V. (2009). Mental fatigue impairs physical performance in humans. *Journal of applied physiology*.

McMorris, T., Barwood, M., Hale, B. J., Dicks, M., & Corbett, J. (2018). Cognitive fatigue effects on physical performance: A systematic review and meta-analysis. *Physiology & Behavior*, 188, 103-107.

Perrey, S. (2022). Training monitoring in sports: It is time to embrace cognitive demand. *Sports*, 10(4), 56.

## International Olympic Committee (IOC) CONSENSUS STATEMENT ON MENTAL ILLNESS IN ATHLETES

**Li Jing Zhu**<sup>1</sup>

<sup>1</sup>Sigmund Freud University Vienna, Vienna, Austria <sup>2</sup>Chinese University, zhu hai, China

Workshop (applied) 36: Sports psychiatry and sports psychotherapy,  
Hall Igls, Juli 17, 2024, 16:10 - 17:10

· Objectives: Athletes belong to a special population, and they are also ordinary people, and they also have various problems that normal people encounter, but because of the Olympic “higher, faster and stronger”, and athletes experience challenges beyond physical limits and beyond psychological extreme. Athlete suicide is a growing problem, so there are a lot of psychological issues that are completely tied to athletic training.

· Methods: Action plan and curriculum development

· Results: In this international and Olympic situation, it is fortunate that they made a decision at the World Psychiatric Conference in Prague in 2012 that “scholars should go to the field of Olympic practice”.

Consequent intensive work, International Olympic Committee held “2018 IOC Consensus meeting on mental illness in elite athletes” in IOC Headquarters, Lausanne, Swiss, in November 2018, the panel members are 20 professionals.

In May 2019, this public statement was published in the *British Journal of Sports Medicine*. After that, IOC took a series of actions.

· Conclusions: We must say, this is a milestone. Protecting the physical and mental health of athletes is not only the responsibility of International Olympic Committee, but also the duty of every National Olympic Committee.

Mental health in elite athletes: International Olympic Committee consensus statement (2019)

## The Improv Self-Efficacy and Skills Programme - A Practical Workshop for Public Speaking Anxiety Reduction

**Alexander McWilliam**<sup>1</sup>, Stuart Beattie<sup>1</sup>, Nichola Callow<sup>1</sup>

<sup>1</sup>Bangor University, Reading, United Kingdom

Workshop (applied) 37: Music, Dance and Performing Arts,  
Hall Grenoble, Juli 17, 2024, 16:10 - 17:10

Public speaking anxiety is commonplace both in occupational and educational settings. Although numerous treatments are available to reduce anxiety (e.g., exposure therapy and cognitive modification), the problem persists, particularly in university environments. Previous research has demonstrated theatrical improvisation's potential to reduce the negative impact of anxiety on performance; however, further research is needed. Actor and improvisation theatre training involves the development of verbal and non-verbal communication and performance skills, along with the regular exposure to social performance situations in a graded format. It is a combination of exposure- and skills-based treatments.

In 2022 the authors explored the effectiveness of the Improv Self-Efficacy and Skills Programme (ISESP), an innovative intervention rooted in the principles of acting and improvisational theatre training on university students. 22 students were recruited from a UK university (Mage = 26.55 years, SD = 7.50 years; n = 12 Female, n = 10 Male). The experimental group (n = 11) received six, 2-hour workshops, conducted bi-weekly over three weeks. Each workshop began with a warm-up before working through a series of solo, pair, and group acting and improvisation exercises. Exercises aimed to not only develop the skills necessary for effective public speaking (e.g., vocal, physical, storytelling, and adaptability), but also the reduction that influential threatening stimuli have on the individual. After the 6-month follow-up, the wait-list control group (n = 11) were offered a ½ day condensed version of the programme (3 hours).

Results indicated that participation in the 12-hour ISESP led to statistically significant reductions in public speaking anxiety, discomfort, and public speaking threats, and increases in self-efficacy and speech duration. Results were maintained at 6-month follow-up. Although this study focused primarily on public speaking situations, the ISESP has potential applications to other performance domains (e.g., sport, military, business).

The purpose of this workshop is to provide participants with a taster version of the ISESP. This is also an ideal workshop for delegates who are anxious about public speaking. Participants will work through a series of solo, pair, and group acting, and improvisation exercises. While participation in every exercise is encouraged, if any exercise is too overwhelming or too difficult for an individual, the difficulty will either be reduced, or the person can stop. Group discussion and reflection will occur after each exercise to reflect on experienced feelings and insights.

## Multi-Modal REBT and Self-Compassion Intervention for Performing Under Pressure

**Katie Sparks**<sup>1</sup>, Paul Mansell<sup>1</sup>, Andrew Wilkinson<sup>1</sup>

<sup>1</sup>Staffordshire University, Shrewsbury, United Kingdom

Workshop (applied) 38: Mental skills training,  
Hall Brüssel, Juli 18, 2024, 11:00 - 12:00

We experience many stressors such as interviews, sporting trials and exams, all with a commonality of the pressure to perform leading to a stress response (Selye, 1936). The dominant cultural perspective of stress equates to distress; therefore, we believe we must try to avoid, reduce, or eliminate it (Brooks, 2014). Numerous interventions have been developed to reduce stress, mostly having the desired but short-term effect (Zhou et al., 2020). Consequently, there is demand for interventions that have a permanent change such as those that target our mindsets rather than just our mental state (Crum et al., 2013). One successful approach is to change an individual's mindset through altering their beliefs (Molden & Dweck, 2006). Rational Emotive Behaviour Therapy (REBT) have been found to be effective in transforming irrational into rational beliefs leading to more functional behaviour and emotional consequences (Ellis, 1957). Using the REBT approach, we combined traditional disputation techniques with self-compassion to develop a novel multi-modal intervention to help individuals harness stress to aid mental wellbeing and performance (Mansell et al., 2023). This workshop aims to provide participants an insight into the implementation of a combined REBT and Self-compassion intervention to provide an understanding of the beneficial effects for wellbeing and performance of changing stress mindset. Participants will be introduced to the stress-mindset theory through key literature, and interactive activities. They will also learn the psychophysiological impact of developing a stress-mindset and how to measure this. Following this, we will guide the audience through our insights in running the multi-modal intervention with adolescents (students & academy players). Focusing on how these strategies helped form a stress-mindset and aid wellbeing & performance. We will also provide the audience the chance to try several of our strategies and open the floor for Q&A.

Brooks A. W. (2014). Get excited: reappraising pre-performance anxiety as excitement. *Journal of experimental psychology. General*, 143(3), 1144–1158. <https://doi.org/10.1037/a0035325>

Crum, A. J., Salovey, P., & Achor, S. (2013). Rethinking stress: the role of mindsets in determining the stress response. *Journal of personality and social psychology*, 104(4), 716.

Ellis, A. (1957). Rational psychotherapy and individual psychology. *Journal of Individual Psychology*, 13, 38–44.

Selye, H. (1936). The stress syndrome was subsequently called the general adaptation syndrome by Selye. This syndrome proceeds three stages;(i) the alarm reaction,(ii) the stage of resistance, and (iii) the stage of exhaustion. *Nature*, 138, 32.

Mansell, P., Sparks, K., Wright, J., Roe, L., Carrington, S., Lock, J., & Slater, M. (2023). "Mindset: performing under pressure"—a multimodal cognitive-behavioural intervention to enhance the well-being and performance of young athletes. *Journal of Applied Sport Psychology*, 1-20.

Molden, D. C., & Dweck, C. S. (2006). Finding "meaning" in psychology: a lay theories approach to self-regulation, social perception, and social development. *American psychologist*, 61(3), 192.

Zhou, X., Guo, J., Lu, G., Chen, C., Xie, Z., Liu, J., & Zhang, C. (2020). Effects of mindfulness-based stress reduction on anxiety symptoms in young people: A systematic review and meta-analysis. *Psychiatry Research*, 289, 113002.

## Psychological Effects of LGBTI Discrimination in Sport

**David Smith<sup>1</sup>**

<sup>1</sup>*German Sports University Cologne, Cologne, Germany*

Workshop (applied) 39: Social and cultural diversity (e.g. migration: ethnicity),  
Hall New Orleans, Juli 18, 2024, 11:00 - 12:00

Discrimination in sport has been a major problem that has pervaded and perpetuated sport culture for generations, leading many athletes to lose motivation and quit the sport altogether (Denison & Kitchen, 2015). It has also made sport inaccessible to many youths and adults, robbing them of the physical, mental, and social benefits from participating in sport (Denison, & Kitchen, 2015; Menzel, Braumüller & Hartmann-Tews, 2019). A recent study by Menzel, Braumüller, and Hartmann-Tews (2019) found that, out of 5524 people who identified as LGBTI who participated in the study, 90% of them considered LGBTI discrimination in sport to be a problem with 20% refraining from participating in sports due to their sexual orientation/gender identity and 16% having direct "negative experiences" of discrimination in a sport context. In a call for a renewed LGBTI inclusion in sport psychology practice, Krane and Waldron (2021) cited a need to embrace and integrate cultural diversity, create resources to train practitioners on cultural competency/humility, and develop organizational infrastructures to address LGBTI discrimination. Thus, the purpose of this presentation is to analyze the underlying mechanisms of how discrimination affects athlete's mental health and motivation to participate in sport that ultimately drive them to quit. Audience members will leave the presentation with an increased awareness and understanding of different constructs and mechanisms of how athletes are psychologically affected by discrimination. This will help applied practitioners to better take action to combat discrimination within their own teams and help inspire researchers to pursue more in-depth research into this topic.

Denison, E., & Kitchen, A. (2015). Out on the Fields: The first international study on homophobia in sport. Nielsen, Bingham Cup Sydney 2014, Australian Sports Commission, Federation of Gay Games. Federation of gay games.

Menzel, T., Braumüller, B., & Hartmann-Tews, I. (2019). The relevance of sexual orientation and gender identity in sport in Europe: Findings from the outsport survey.

Krane, V., & Waldron, J. J. (2021). A renewed call to queer sport psychology. *Journal of Applied Sport Psychology*, 33(5), 469-490.



## Accelerated learning strategies for optimizing performance under pressure: An evidence-based applied workshop on police training

**Judith P. Andersen**<sup>1,2</sup>, Vana Hutter<sup>3,4,5</sup>

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Workshop (applied) 40: 44 Military, police and tactical populations, Hall Innsbruck, Juli 18, 2024, 11:00 - 12:00

Police officers are routinely exposed to high-threat encounters that elicit physiological stress responses that impact health, performance, and safety. Police training often fails to provide officers with skill-based learning opportunities for performance under pressure and stress modulation strategies to optimize effectiveness. This two-part workshop demonstrates the design and delivery of evidence-based learning opportunities in these domains.

Part 1: Participants will engage with the design of reality-based practice situations, making use of contemporary theories and evidence on motor learning and performance under pressure (e.g., Hutter et al., 2023).

Part 2: Participants will learn and practice how to integrate stress modulation techniques into operational police training in an accelerated format. The training is derived from the International Performance and Efficiency Program (iPREP), based on 10 years of empirical research (e.g., Andersen et al., 2018; 2024). Throughout the workshop, presenters share lessons learned from bringing an evidence base to police practice.

Learning objectives; participants will

- Apply theories of motor learning and performance under pressure to training of perceptual motor skills to be executed under pressure
- Gain competency in systematic design of learning activities, following a design protocol.
- Gain competency in skill execution and adapting learning activities accordingly
- Apply theory to real-time practice (e.g., use app and heart monitor) to modulate stress response physiology
- Gain competency in training and observing the physiological impact of a behavioral intervention to manage acute stress (Reset Breath)
- Gain competency in training and observing a physiological pattern that underlies a behavioral intervention to manage chronic stress (Recovery Breathing)
- Gain insight into the practical challenges with designing, implementing, and studying evidence-based interventions in applied settings

Teaching methods used in the workshop are presentation, demonstration, co-design, discussion, and experiential learning. Participants will receive a hand-out with materials and links.

Hutter, R. I., Renden, P. G., Kok, M., Oudejans, R., Koedijk, M., & Kleygrewe, L. (2023). Criteria for the High Quality Training of Police Officers. In *Police Conflict Management, Volume II: Training and Education* (pp. 7-32). Cham: Springer International Publishing.

Kleygrewe, L., Oudejans, R. R., Koedijk, M., & Hutter, R. I. (2022). Police training in practice: Organization and delivery according to European law enforcement agencies. *Frontiers in psychology*, 12, 798067.

Andersen, JP, Arpaia, J, Gustafsberg, H., Poplawski, S., \*Di Nota, PM. (under review, 2024). The International Performance, Resilience and Efficiency Program Protocol For the Application of HRV Biofeedback in Applied Law Enforcement Settings. *Journal of Applied Psychophysiology and Biofeedback*. Submission ID 2edd19fa-a8f3-45b8-90d2-57e3f784a830

Arpaia, J. & Andersen, J. P. (2019). The Unease Modulation Model: An experiential model of stress with implications for health, stress-management, and public policy. *Frontiers in Psychiatry*, 10, 379. doi: <https://doi.org/10.3389/fpsy.2019.00379>

Andersen, J. P., \*Di Nota, P., Beston, B., Boychuk, E. C., Gustafsberg, H., Poplawski, S., & Arpaia, J. (2018). Reducing lethal force errors by modulating police physiology. *Journal of Occupational and Environmental Medicine*: 6(10). Pg. 867-874. doi: 10.1097/JOM.0000000000001401

Lehrer, P., Vaschillo, B., Zucker, T., Graves, J., Katsamanis, M., Aviles, M., & Wamboldt, F. (2013). Protocol for heart rate variability biofeedback training. *Biofeedback*, 41(3).

Huey L, Andersen J, Bennell C, Ann Campbell M, Koziarski J, and Vaughan AD. (2021). Caught in the currents: evaluating the evidence for common downstream police response interventions in calls involving persons with mental illness. *FACETS* 6: 1409-1445. doi:10.1139/facets-2021-0055

## The best ability is availability – An interdisciplinary approach to injury prevention and rehabilitation in elite sport

**York-Peter Klöppel**<sup>1</sup>, Irene Oyang<sup>2</sup>, Paul Miller<sup>1</sup>

<sup>1</sup>Red Bull Athlete Performance Center, Salzburg, Austria <sup>2</sup>Red Bull Athlete Performance Center, Santa Monica, LA, United States

Workshop (applied) 41: Sports injury, prevention and rehabilitation, Hall Freiburg, Juli 18, 2024, 11:00 - 12:00

The objective of this workshop is to present our applied approach to injury prevention and rehabilitation in elite sport, encourage participants to think beyond the traditional scope of sport psychology and critically reflect on some real cases.

The first part of the workshop focuses on injury prevention. Drawing on the assumption that the human is a bio-psycho-social unit, the workshop examines the complex interaction of biological, psychological, sociocultural factors, and the physical environment (Brewer et al., 2002). Stress is commonly reported to be the most common psychological predictor of sport injuries (Brewer, 2007) and interventions to manage stress are therefore most promising to reduce the risk of injuries. However, it is our belief that interventions to reduce stress are not limited to the sport psychologist. Our approach emphasizes the capacity of every member of staff in supporting the athlete in stress management.

The second part discusses the role of the sport psychologist and the support of other disciplines during different phases of rehabilitation (based on a five-phase model). We highlight the variability in psychological responses to injury, shaped by individual and situational factors, and their different impacts on the rehabilitation process. We propose an interdisciplinary model for supporting the psychological aspects of rehabilitation.

In the third part of the workshop, participants will engage in hands-on group activities, using theoretical framework to conceptualize and develop intervention plans adapted from real cases. Participants will be provided case information from multiple disciplines. Further, they will encounter setbacks throughout the activity that they will have to adapt and adjust to with their intervention plans.

The workshop allows participants to examine, discuss, and apply theoretical knowledge to practical scenarios to help foster a deeper understanding and develop practical strategies in navigating the complexities in injury prevention and rehabilitation.

Brewer, B., Andersen, M., Van Raalte, J., Mostofsky, D. L., & Zaichkowsky, L. D. (2002). Medical and psychological aspects of sport and exercise.

Brewer, B.W. (2007) . " Psychology of sport injury rehabilitation " . In Handbook of sport psychology, 3rd ed, Edited by: Tenenbaum, G. and Eklund, R.C. 404 – 424 . New York : Wiley .

## Three Psychodynamic Concepts: Applicability for the Sport Psychologist

**Ohad Nahum**<sup>1</sup>

<sup>1</sup>The Academic College of Tel Aviv-Yaffo, Tel-aviv, Israel

Workshop (applied) 42: Psychodynamic, systemic and hypnotherapeutic issues, Hall Brüssel, Juli 18, 2024, 13:30 - 14:30

Overview: While often overlooked, the psychodynamic perspective holds immense potential for enhancing the effectiveness of sport psychology consultations. By delving into three fundamental psychodynamic concepts—countertransference, psychological defense mechanisms, and case formulation—this workshop aims to illuminate their relevance and practical application in understanding athletes and fostering their performance and well-being. Countertransference provides valuable insights into the dynamics of athlete-consultant relationships while understanding psychological defense mechanisms offers additional perspectives on athletes' behaviors. Furthermore, case formulation enables consultants to craft empathic narratives and promote a stronger alliance with the athlete.

Workshop Approach: Through critically examining the underrepresentation of psychodynamic approaches in sport psychology, this workshop will highlight their complementary value to the field. Participants will gain practical insights into each concept using short clinical examples, equipping them with the skills to integrate psychodynamic concepts into their consultations.

Learning Objectives:

- (1) Learn the complementary value of incorporating psychodynamic thinking into sport psychology consultations.
- (2) Gain insight into three core psychodynamic concepts: countertransference, psychological defense mechanisms, and case formulation.
- (3) Learn to apply these concepts to support athletes holistically and effectively.

Summary: This workshop aims to empower sport psychology consultants to integrate psychodynamic concepts into their work with athletes. Participants will receive summaries of each concept and references of additional resources for continued exploration and implementation.

Free, M. (2008). Psychoanalytic perspectives on sport: a critical review. *International journal of applied psychoanalytic studies*, 5(4), 273-296.

Strean, W. B., & Strean, H. S. (1998). Applying psychodynamic concepts to sport psychology practice. *The Sport Psychologist*, 12(2), 208-22.

## Good is Good Enough: A Peer Led Cognitive Dissonance Intervention for Athletes (The PLIP Project).

**Tracy Donachie**<sup>1</sup>

<sup>1</sup>Newcastle University, Newcastle, United Kingdom

Workshop (applied) 43: Personality,  
Hall Maximilian, Juli 18, 2024, 13:30 - 14:30

The escalating prevalence of mental health challenges among athletes underscores the urgency of addressing contributing factors, with perfectionism emerging as a characteristic linked to such difficulties. Perfectionism is the relentless pursuit of exceptionally high standards coupled with self-critical tendencies (Frost, 1990). Athletes higher in perfectionism may be at heightened risk of burnout, anxiety, and depression (e.g., Jensen et al., 2018, Olsson et al., 2022, Smith et al., 2018). While psychoeducation, self-compassion interventions, and acceptance commitment therapy have shown promise in reducing athletes' perfectionism (Donachie & Hill, 2020; Mosewich et al., 2013; Watson et al., 2023), existing interventions predominantly focus on individuals. Furthermore, the limited group-based programs available outside of sport which have proven effective in reducing anxiety, depression, and perfectionism require significant time commitments and have primarily been evaluated in small samples from the US, Canada, and Australia (see Lloyd et al., 2015). This workshop introduces a novel approach to reducing perfectionism in athletes: a two session, peer-led (athlete-led) cognitive dissonance perfectionism programme. The programme has demonstrated effectiveness in reducing perfectionism levels among students and athletes. Therefore, the workshop will provide a condensed preview of the sessions. Participants of the workshop will gain insights into the strategies employed in the peer-led programme, equipping them with practical tools to address perfectionism.

Donachie, T. C., & Hill, A. P. (2022). Helping soccer players help themselves: Effectiveness of a psychoeducational book in reducing perfectionism. *Journal of Applied Sport Psychology*, 34(3), 564-584. <https://doi.org/10.1080/10413200.2020.1819472>

Frost, R. O., & Marten, P. A. (1990). Perfectionism and evaluative threat. *Cognitive Therapy and Research*, 14, 559-572. <https://doi.org/10.1007/BF01173364>

Jensen, S. N., Ivarsson, A., Fallby, J., Dankers, S., & Elbe, A. M. (2018). Depression in Danish and Swedish elite football players and its relation to perfectionism and anxiety. *Psychology of Sport and Exercise*, 36, 147-155. <https://doi.org/10.1016/j.psychsport.2018.02.008>

Lloyd, S., Schmidt, U., Khondoker, M., & Tchanturia, K. (2015). Can psychological interventions reduce perfectionism? A systematic review and meta-analysis. *Behavioural and Cognitive Psychotherapy*, 43(6), 705-731. DOI: 10.1017/S1352465814000162

Mosewich, A. D., Crocker, P. R., Kowalski, K. C., & DeLongis, A. (2013). Applying self-compassion in sport: An intervention with women athletes. *Journal of Sport and Exercise Psychology*, 35(5), 514-524. DOI: 10.1123/jsep.35.5.514

Olsson, L. F., Madigan, D. J., Hill, A. P., & Grugan, M. C. (2022). Do athlete and coach performance perfectionism predict athlete burnout?. *European Journal of Sport Science*, 22(7), 1073-1084. DOI: 10.1080/17461391.2021.1916080

Smith, E. P., Hill, A. P., & Hall, H. K. (2018). Perfectionism, burnout, and depression in youth soccer players: A longitudinal study. *Journal of Clinical Sport Psychology*, 12(2), 179-200. <https://doi.org/10.1123/jcsp.2017-0015>

Watson, D. R., Hill, A. P., Madigan, D. J., & Donachie, T. C. (2024). Effectiveness of an online acceptance and commitment therapy programme for perfectionism in soccer players: A randomized control trial. *Sport, Exercise, and Performance Psychology*, 13(1), 5-22. <https://doi.org/10.1037/spy0000333>

## Developing and delivering evidence-based, context specific, performance psychology programmes for military populations

**Stewart Cotterill<sup>1</sup>**

<sup>1</sup>Aecc University College, Bournemouth, United Kingdom

Workshop (applied) 44: Military, police and tactical populations,  
Hall Innsbruck, Juli 18, 2024, 13:30 - 14:30

In recent years there has been an increased focus on applying performance psychology principles and techniques with military populations. A range of military services across a diverse range of countries globally have been developing military-specific programmes both in regular and specialist military units.

However, the security challenges that exist around many of these programmes has historically made the sharing of details of programme design, composition, and best practice difficult. There has also been an increasing use of sport psychology-trained practitioners in military contexts that has raised questions about how effective approaches that are successful in sport can be when applied with military personnel. Especially when compared to approaches developed specifically for a military population. Understanding the operational needs of these differing military populations is crucial for effective programme design, buy-in, and ultimately practitioner acceptance in these environments.

The aim of this workshop is through reflection, discussion, and co-creation to share experiences of developing performance psychology programmes for military populations. In addition, contemporary evidence and examples will be shared and participants will be encouraged through group discussion and debate to consider the application of this knowledge to practice across military contexts.

This workshop will consider the different approaches to programme design and delivery that are being utilized to deliver performance psychology with military populations and seek to better understand the impact and measurement of impact with these populations.

Participants will also reflect upon their own knowledge and expertise in developing and delivering performance psychology programmes and services with military populations. On conclusion of the workshop it is expected that participants will have a more in-depth understanding of different approaches to performance psychology delivery and will of shared their own experiences of working with military populations; participants will also better understand contemporary research and the implications for their professional practice.

## “Critical life event - sports injury”- How sportspsychologists can influence, rehabilitation and recovery programs of athletes in high elite sports

**Mag. Andrea Keplinger<sup>1</sup>**

<sup>1</sup>Praxis Für Sport- und Gesundheitspsychologie bzw. Berufsverband Österr. PsychologInnen (BÖP), Mils Bei Imst, Austria

Workshop (applied) 46: Sports injury, prevention and rehabilitation,  
Hall Freiburg, Juli 18, 2024, 13:30 - 14:30

Main goal of this applied workshop is to make it more common to get help from psychological professionals and to open the mind for the power of mental strategies during injuries and rehabilitation not only in high elite sports, but also in other fields.

The different phases of the recovery process are presented, including the best practice strategies, like mental healing imageries, the use of protocols, goal setting, self-talk, relaxation exercises, visualization of technical movements etc., to help the athlete to recover in the best and shortest way possible, to feel control and improve resilience.

Beside these practical used strategies, scientific methods, studies and results of e.g. mental healing processes are shown to underline the applied use of the methods.

Another part of this workshop is not to just speak about the sports comeback, but also different challenging outcomes, like anxiety, post- traumatic stress disorders or the possible end of the carrier.

On the one hand this workshop should help, to limit the number of high sport performers who are getting dropped out after this critical life event and on the other hand to increase the number of high elite athletes who are coming back after an injury.

Not just coming back, but coming back physically and mentally stronger.

- Current concepts and practical applications for recovery, growth, and peak performance following significant athletic injury

Toby J. Brooks, Tyler C. Bradstreet and Julie A. Partridge (2022)

- Sport Participation and Psychosocial Factors Which Influence Athletic Identity in Youth Athletes With Anterior Cruciate Ligament Injury

James McGinley, Emily Stapleton, Hannah Worrall, Henry B. Ellis, Philip L. Wilson and Sophia Ulman (2022)

- Die psychologische Betreuung nach

Sportverletzungen – eine retrospektive Befragung der Teilnehmer am Projekt COMEBACK. Marcolli, C. Sportmedizin und Sporttraumatologie (2002)

- Meyer S, 4- Phasen Rehabilitationskonzept (unveröffentlicht) adaptiert nach Balyi I, Way R. Long- Term Planning of Athlete Development. B. C. Coach, (1995)

- Erfolgreich aus der sportlichen Krise. Mentales Bewältigen von Formtiefs, Erfolgsdruck, Teamkonflikten und Verletzungen. Kleinert, J. (2003). BLV Verlagsgesellschaft mbH. München.

- Long-Term Athlete Development. Champaign: Human Kinetics Balyi, I., Way, R., Higgs, C. (2013).
- Managing the health of the elite athlete: A new integrated performance health management and coaching model. Br J Sports Med. Dijkstra, HP, Pollock, N., Chakraverty, R. et al (2014).

## Adopting the Scientist-Practitioner Model - What does it actually mean?

**Nico W. Van Yperen**

*<sup>1</sup>University Of Groningen, Groningen, Netherlands*

Workshop (applied) 48: Best practice,  
Hall Grenoble, Juli 19, 2024, 11:00 - 12:30

In this proposed workshop, we will discuss the Scientist-Practitioner (S-P) Model, which emphasizes the integration of science and practice, and in particular, what adoption of the S-P model actually means. Sport and performance psychologists have an ethical and professional responsibility to adopt an evidence-based practice (EBP) such that they use the best available, current, valid, and relevant evidence to make informed decisions about what, when, and how to teach performers mental skills necessary to realize their greatest potential, to perform consistently, and to enhance their well-being. The question is, however, whether the current body of data provides sufficient empirical evidence to sufficiently support claims that particular interventions or strategies 'work', that is, improve athletes' psychological skills, performance, or well-being.

In this workshop, we will interactively discuss what the implications are for sport and performance psychology professionals' desire and intention to adopt the S-P Model. The discussion will be initiated by a short introduction on EBP and the available research evidence in the field, illustrated by main stream topics, including achievement goals and self-regulation. It will be argued and demonstrated that adopting the S-P Model obviously involves the use of evidence-based approaches, methods, and interventions, acknowledging its limited availability. But working as a S-P psychologist also includes, among other things, clear operationalizations and communication of the target concepts that are used, and consideration, explanation, and illustration of underlying psychological processes and the conditions that makes particular (causal) relationships between target variables more, of less, likely.

Speaker and presenter is Nico W. Van Yperen, prof of Sport and Performance Psychology and founder, developer, and content director of the postgraduate program 'Sport and Performance Psychology' (see [www.ispp.nl](http://www.ispp.nl)). In this program, students who already completed a relevant MSc program, are trained to further specialize as science-practitioners in the field of sport and performance psychology.

Berk, M. & Miles, L. J. (1999). Evidence-based psychiatric practice: Doctrine or trap? Journal of Evaluation in Clinical Practice, 52, 149-152.

Gardner, F. L. & Moore, Z. E. (2006). Clinical sport psychology. Human Kinetics.

Hill, Y., Meijer, R. R., Van Yperen, N. W., Michelakis, G., Barisch, S., & Den Hartigh, R. J. R. (2021). Nonergodicity in protective factors of resilience in athletes. Sport, Exercise, and Performance Psychology, 10(2), 217-223.

Keegan, R. (2016). Being a sport psychologist. Palgrave

Neumann, N. D., Van Yperen, N. W., Brauers, J. J., Frencken, W., Brink, M. S., Lemmink, K. A. P. M., Meerhoff, L. A., & Den Hartigh, R. J. R. (2022). Nonergodicity in Load and Recovery: Group Results Do Not Generalize to Individuals. International Journal of Sports Physiology and Performance, 17, 391-399.

Van Yperen, N.W. (2021). Achievement goals and self-regulation in the sport context. In: Van Lange, P. A. M., Higgins, E. T., & Kruglanski, A. W. (Eds). Social Psychology: Handbook of Basic Principles, third edition (pp. 589-606). Guilford.



## “You are what you repeatedly do”: Supporting habit formation and disruption in sport and exercise settings

**Laura Gördes**<sup>1,2</sup>, Sylvain Laborde<sup>2</sup>

<sup>1</sup>University of Bern, Bern, Switzerland <sup>2</sup>German Sport University Cologne, Cologne, Germany

Workshop (applied) 50: Daily life,  
Hall Maximilian, Juli 19, 2024, 13:30 - 14:30

“You are what you repeatedly do. Excellence, then, is not an act but a habit.” (Aristotle)

Habits are cue-behavior associations learned through repeated performance. As they do largely rely on unconscious processes, habits may be a good way to initiate and maintain sustainable behavior change and have been shown to reliably predict exercise and nutrition behaviors.

Implementing or disrupting a habit takes time, while trajectories are highly individual.

In this applied workshop, participants will learn about the key characteristics of habits, how they work on a neuropsychological level, and different approaches to measure habit strength. They will get an idea of what needs to be considered when developing effective interventions and receive valuable tips on how to develop personalized strategies for creating and maintaining, or disrupting, habits that enhance performance and well-being. Lastly, we will critically discuss the potential of habit apps to support this process, reviewing the main functions of existing apps.

Our focus is to support and empower participants in (1) effectively forming or disrupting habits in both their personal and professional lives, as well as (2) to teach them to help others in doing so.

## An introduction to Compassion-Focused Therapy in elite sport.

**Courtney Walton**<sup>1</sup>, Karin Hägglund<sup>2</sup>

<sup>1</sup>The University Of Melbourne, Melbourne, Australia <sup>2</sup>The Swedish School of Sport and Health Sciences, Stockholm, Sweden

Workshop (applied) 51: Sports psychiatry and sports psychotherapy,  
Hall Freiburg, Juli 19, 2024, 13:30 - 14:30

Background: Elite athletes and high-performance coaches are faced with many stressors which can negatively impact mental health and performance. Growing research has focused on the role of self-compassion in sport, and this has identified that self-compassion is associated with important positive indicators of health and performance (Cormier et al., 2023). However, very little work has explored how to develop compassion, and compassion-based intervention remains poorly understood within elite sport. In the broader literature, Compassion-Focused Therapy (CFT) is a well-established and highly evidence-based intervention (Gilbert, 2014; Gilbert & Simos, 2022), which is well placed to tackle many of the stressors inherent to elite sport such as shame and self-criticism. However, studies exploring CFT within sport and performance settings remain limited (Walton et al., 2022). In this workshop, facilitators will introduce key underlying theories, principles, and exercises from CFT to help practitioners better understand how to implement this approach with athletes and coaches.

Learning Objectives: 1) To understand introductory concepts underlying CFT; 2) To understand the role of CFT in sport and performance settings; 3) To learn techniques for increasing self-compassion; 4) To understand how to progress knowledge and application of CFT through external resources.

Teaching Methods: This workshop will be made up a combination of the following methods: 1) didactic lecturing on critical theoretical concepts and content; 2) practice of introductory self-compassion-based interventions and exercises; and 3) small- and larger-group discussion on key concepts/topics/exercises.

Techniques used: Following the presentation of introductory theory, the facilitators will guide small and larger group discussions around key questions and sticky points regarding using CFT in sport. Throughout, facilitators will introduce key introductory self-compassion exercises, and facilitate practicing and debriefing these with participants.

Materials shared: Participants will be provided with handouts covering the main points, key exercises and where to access external resources.

Cormier, D. L., Kowalski, K. C., Ferguson, L. J., Mosewich, A. D., McHugh, T.-L. F., & Röthlin, P. (2023). Self-compassion in sport: A scoping review. *International Review of Sport and Exercise Psychology*, (Ahead of Print), 1–40.

Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology*, 53(1), 6–41.

Gilbert, P., & Simos, G. (2022). Compassion focused therapy: Clinical practice and applications.

Routledge.

Walton, C. C., Osborne, M. S., Gilbert, P., & Kirby, J. (2022). Nurturing self-compassionate performers. *Australian Psychologist*, 57(2), 77–85.

## Helping NCAA Student Athletes Perform Under Pressure: Insights From Within an Athletics Department Consisting of 17 Teams and 300 Athletes

**Jacob Jensen**<sup>1</sup>, Mark Otten<sup>1</sup>

<sup>1</sup>California State University, Northridge, Simi Valley, United States <sup>2</sup>California State University, Northridge, Northridge, CA, United States

Workshop (applied) 52: Best practice,  
Hall Grenoble, Juli 19, 2024, 14:40 - 15:40

This workshop will focus on using the MARS© approach—with its focus on mindfulness, accountability, resiliency, and self-care—to help both teams and individual athletes perform under pressure. Based off of research and extensive applied experience, the presenting author, who works in an NCAA athletics department covering 17 athletic teams and 300 student athletes, will discuss how the MARS© approach is used when working with student athletes in both group and individual sessions. This workshop will provide participants with detailed information and practical examples of how the MARS© approach can be used to help high-level collegiate athletes develop mindfulness techniques, be more accountable and resilient, and build a structure of support and self-care to excel under the high-performance and pressure demands of being a student athlete.

The teaching methods used in the workshop will include a presentation and discussion of research and applied work using the MARS© approach, as well as hands-on practice using techniques that can be used with a variety of athletes from both individual and team sports. The workshop will include demonstrations of how to tailor mindfulness and mental training practices to teams through various team building activities, as well as creating useful tools for athletes to use in order to better handle performance pressure.

As part of the workshop, attendees will create a guided imagery/meditation script and record it during the session for an athlete that they are currently working with, or one for a hypothetical athlete/team. The presenting author will also share some of the mental training techniques, sessions, and tools created specifically for a diverse range of student athletes and teams, both those from individual sports as well as team sports.

## Rediscovering behaviour in sport psychology

**Geir Jordet**<sup>1</sup>

<sup>1</sup>Norwegian School Of Sport Sciences, Oslo, Norway

Workshop (research) 04: Other topics,  
Hall Grenoble, Juli 15, 2024, 13:30 - 14:30

In the last decades, there has been a notable decline in psychological research's focus on actual behaviour, where intentions, cognitions, emotions, and various mental states have caught substantially more interest than physical actions. This has been documented in both social psychology (Baumeister et al., 2007; Dolinski, 2018) and organisational psychology/leadership research (Banks et al., 2021). Similarly, publications in sport psychology have been found to rely substantially more on indirect accounts about behaviour (e.g., from questionnaires and interviews) and more rarely on direct observation of athletes' real on-field behaviour (Andersen et al., 2007). In this workshop, this bias in the research will be critically assessed, and three of the workshop organiser's research programs will be presented and discussed, to illustrate ways to rediscover behaviour observation in sport psychology. These three programs are: 1) scanning behaviours in football players, 2) pre-shot behaviours during football penalty shootouts, 3) nonverbal behaviour during football matches. Behaviour observation research has some benefits with respect to directly capturing events that indeed take place in the contexts of interest (e.g., elite sport), which makes research easy to relate to for athletes and coaches. However, there are some equally clear limitations with respect to interpreting what behaviours mean and what the underlying psychological processes are. The learning objective is that the participants will be familiarised with the strengths and limitations of systematic behavioural observation in sport, which will support people to conduct their own studies with observation and/or to better assess the value of other's observation research. Teaching will rely on practical examples with plenty of videos and photos, as well as interactive techniques such as digital polling & word clouds, buzzing/sharing in groups, and Q&A. Participants will receive physical handouts with highlights as well as detailed instructions for how to access supplementary information online.

Andersen, M.B., McCullagh, P., & Wilson, G. (2007). But what do the numbers really tell us? Arbitrary measures and effect size reporting in sport psychology research. *Journal of Sport & Exercise Psychology*, 29, 664–672. doi: 10.1123/jsep.29.5.664.

Banks, G.C., Woorznyj, H.M., & Mansfield, C.A. (2023). Where is behaviour in organizational behaviour? A call for a revolution in leadership research and beyond. *The Leadership Quarterly*, 34, 101581.

Baumeister, R. F., Vohs, K. D., & Funder, D. C. (2007). Psychology as the science of self-reports and finger movements: Whatever happened to actual behavior? *Perspectives on Psychological Science*, 2, 396–403. <https://doi.org/10.1111/j.1745-6916.2007.00051.x>

Doliński, D. (2018). Is psychology still a science of behaviour? *Social Psychological Bulletin*, 13. <https://doi.org/10.5964/spb.v13i2.25025>

## Unlocking Subgroup Secrets with LPA: A Hands-On Workshop on Mixture Model Analysis with Exercise Psychology data

**Whitney Moore**<sup>1</sup>, Alessandro Quartiroli<sup>2,3</sup>

<sup>1</sup>East Carolina University, Greenville, United States <sup>2</sup>University of Wisconsin – La Crosse, La Crosse, United States <sup>3</sup>University of Portsmouth, Portsmouth, United Kingdom

Workshop (research) 07: Research methods (incl. qualitative & quantitative), Hall Grenoble, Juli 15, 2024, 14:40 - 15:40

Finite mixture model analyses such as latent profile analysis (LPA) identify subgroups by the response patterns of participants. Then based on the similarity between the subgroup's prototypical responses and the participants' unique responses, the participants' probable membership in each latent subgroup is estimated (Moore & Little, 2024). LPA is a better fit for many constructs and theories in sport, exercise, and performance psychology than latent class analysis (LCA), because LPA uses continuous indicators (e.g., scores of items, sub-scales, scales) which can enable identifying and examining latent profiles defined by responses representing complex, multidimensional concepts. This workshop will integrate a review of the steps involved in an LPA modeling approach from research question to interpretation of results while walking through an exercise psychology-based data example run in Mplus. The syntax and data will be available for attendees to walk through the steps with the presenters to see behind the current of the decision-making process that goes on conducting a mixture model. To illustrate when analysis facilitates appropriate theory representation, we will model participants' goal orientation profiles to explore how their group fitness enjoyment and boredom differ by their profile membership aligning with Achievement Goal Perspective Theory (Nicholls, 1989; Duda & Nicolls, 1992; Lockbaum et al, 2016). Our workshop will start with a brief conceptual introduction to finite mixture models, and LPA specifically, followed by 1) appropriate research question and hypothesis development; 2) model convergence and profile enumeration steps, including the different profile measurement variance-covariance structures to sequentially test with accompanying Mplus syntax so attendees may run these models with the free demonstration version of Mplus; 3) assessment of model classification quality, plus profile homogeneity and separation; 4) inclusion of covariates for testing profile validity (including Mplus syntax walkthrough).

Duda, J. L., & Nicholls, J. G. (1992). Dimensions of achievement motivation in schoolwork and sport. *Journal of Educational Psychology*, 84(3), 290.

Lochbaum, M., Kazak Çetinkalp, Z., Graham, K. A., Wright, T., & Zazo, R. (2016). Task and ego goal orientations in competitive sport: A quantitative review of the literature from 1989 to 2016. *Kinesiology*, 48(1), 3-29.

Moore, E. W. G., & Little, T. D. (2024). Finite mixture model chapter. In T. D. Little (Ed.), *Longitudinal Structural Equation Modeling*. (pp. 419-503) Guilford Press.

Nicholls, J. G. (1989). *The competitive ethos and democratic education*. Harvard University Press.

## How to collect and analyze athletes' data to uncover their resilience

**Ruud Den Hartigh**<sup>1</sup>, Michel Brink<sup>2</sup>, MSc. Niklas Neumann<sup>1</sup>

<sup>1</sup>Department of Psychology, University Of Groningen, Groningen, Netherlands <sup>2</sup>Department of Human Movement Sciences, University Medical Center Groningen, Groningen, Netherlands

Workshop (research) 10: Research methods (incl. qualitative & quantitative), Hall Grenoble, Juli 15, 2024, 16:10 - 17:10

In this workshop, we will interactively explore ways to analyze and visualize resilience, based on data collected in the sports field. The session will be led by experts on psychological and physiological resilience, who have collaborated on a large research project with professional football clubs (see [www.project-ris.nl](http://www.project-ris.nl)). The first two contributors will outline the theoretical perspective on psychological resilience, its relation with load and recovery, and discuss their implications for the way data should be collected (Brink et al., 2010; Den Hartigh et al., 2022; Neumann et al., 2021). The third contributor will demonstrate a tailor-made application to collect daily psychological and physiological data, and discuss novel analytic methods to assess athletes' resilience in science and practice (Baretta et al., 2022; Hasselman, 2022; Neumann et al., 2023; Robertson et al., 2017). The analytic scripts will be shared with the participants after the session, and opportunities for sport psychology practitioners will be discussed.

Learning Objectives:

1. Understand the theoretical underpinnings of resilience, and its relation with load and recovery.
2. Gain insights into the practical aspects of collecting daily psychological and physiological data for a comprehensive understanding of athlete resilience.
3. Engage in interactive discussions to apply analytic methods for assessing resilience in research and practice.
4. Describe opportunities for sport psychology practitioners to improve resilience.

Teaching Methods and Techniques: The workshop uses an interactive format, combining discussions, demonstrations of real-world data, and analytic scripts to actively engage participants. The contributors will use case studies and examples from talented football players to facilitate understanding, and encourage audience participation throughout the session.

Materials and Resources: Participants will receive access to relevant materials, analytic scripts, research findings, and practical guidelines for implementing the discussed methods. The workshop will provide a platform for collaborative learning and networking among sports psychology researchers and practitioners.

Baretta, D., Koch, S., Cobo, I., Castaño-Vinyals, G., de Cid, R., Carreras, A., Buekers, J., Garcia-Aymerich, J., Inauen, J., & Chevance, G. (2023). Resilience characterized and quantified from physical activity data: A tutorial in R. *Psychology of sport and exercise*, 65, 102361. <https://doi.org/10.1016/j.psychsport.2022.102361>

Brink, M. S., Nederhof, E., Visscher, C., Schmikili, S. L., & Lemmink, K. A. P. M. (2010). Monitoring load, recovery, and performance in young elite soccer players. *Journal of Strength and Conditioning Research*, 24(3), 597–603. <https://doi.org/10.1519/JSC.0b013e3181c4d38b>

Den Hartigh, R. J. R., Meerhoff, L. R. A., Van Yperen, N. W., Neumann, N. D., Brauers, J. J., Frencken, W. G. P., Emerencia, A., Hill, Y., Platvoet, S., Atzmueller, M., Lemmink, K. A. P. M., & Brink, M. S. (2022). Resilience in Sports: A Multidisciplinary, Dynamic, and Personalized Perspective. *International Review of Sport and Exercise Psychology*. <https://doi.org/https://doi.org/10.1080/1750984X.2022.2039749>

Hasselmann, F. (2022). Early warning signals in phase space : Geometric resilience loss indicators from multiplex cumulative recurrence networks. *Frontiers in Physiology*, 13, 859127. <https://doi.org/10.3389/fphys.2022.859127>

Neumann, N. D., Brauers, J. J., Van Yperen, N. W., Hasselman, F., & Den Hartigh, R. J. R. (2023). Detecting early warning signals of injuries and health problems in elite youth soccer players. *North American Society for the Psychology of Sport and Exercise*, 45, S99. <https://doi.org/10.1123/jsep.2023-0077>

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Robertson, S., Bartlett, J. D., & Gastin, P. B. (2017). Red, amber, or green ? Athlete monitoring in team sport: The need for decision-support systems. *International Journal of Sports Physiology and Performance*, 12(s2), 73–79. <https://doi.org/https://doi.org/10.1123/ijssp.2016-0541>

## Understanding the game of publishing in peer-reviewed journals: Strategies and writing skills

**Xavier Sanchez<sup>1</sup>**

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Workshop (research) 14: Best practice,  
Hall Maximilian, Juli 16, 2024, 11:00 - 12:00

Publishing internationally is not a luxury activity of just a few but a must-do for all those who aim to disseminate their research findings and share knowledge. Whether one seeks to further knowledge in their field, scholarly recognition, a pay-rise or external funding, such a time-consuming activity must be done as efficiently and successfully as possible, with a view to maximise effort and possibility of publication. Success when submitting a manuscript for publication depends, ultimately, upon the originality, the quality and the strength of the work submitted.

Nevertheless, one can improve his/her chances of publishing by targeting appropriate journals, following journal guidelines carefully, developing original study rationales and purposes, ensuring designs and methods are fit for purpose, taking good care with the manuscript presentation, responding appropriately and in detail to comments made by reviewers and editors, etc.

The present workshop provides to early-career researchers and postgraduates with an overview of the publication process, and tips on how best to prepare research to be submitted for publication. To that end, throughout the workshop we (a) discuss some of the typical problems early-career researchers and postgraduate students face when preparing manuscripts for publication, and (b) practice thoroughly how to submit best manuscripts for publication in peer-reviewed journals.

Delegates will have the opportunity to engage in a series of hands-on case-examples (abstracts) that support the session's theoretical components. Different abstracts at different stages of completion will be used to address different strategies to improve/optimize academic writing. The workshop encourages active participation amongst delegates throughout; experiences, does and don'ts will be addressed, too. Lastly, the opportunity for delegates to ask questions about the "publishing process" will be provided; from first submission to final manuscript publication.

All workshop material is provided to delegates on-site.

## Working Memory and Sport: a systematic review

**Dolores González Fernández**<sup>1</sup>, Pilar Vieiro Iglesias<sup>1</sup>, Concepción Bao Fente<sup>1</sup>, Ana López-Cortón-Facal<sup>1</sup>

<sup>1</sup>A Coruña University, A Coruña, Spain

Workshop (research) 18: Cognition,  
Hall Maximilian, Juli 16, 2024, 13:30 - 14:30

Optimal performance in sports requires superior executive functions, including Working Memory. Although research has been carried out on Working Memory in sport, a systematic review study is needed to clearly understand its contribution to sports performance. Therefore, the aim of this paper is to clarify the current state of the idea, to know the predominant theoretical frameworks and to identify the empirical results in this regard.

A systematic review was carried out using the Web of Science (WoS), SCOPUS and Scholar Google databases, limiting the search period between January 2003 and December 2023 with the keywords working memory, sport and attention. To narrow the search, a series of inclusion and exclusion criteria were established. The results show a better understanding of how Working Memory interacts with sports performance and the importance of mental training in sport. To narrow the search, a series of inclusion and exclusion criteria were established. Research has shown that participants with higher working memory capacity were better at maintaining attention and avoiding distraction. However differences exist when exploring the relationship between domain-general working memory capacity and domain-specific working memory capacity among players from different sports, level experience and competition.

## Sport injury and psychological traumata in winter sports

**Li Jing Zhu**<sup>1</sup>

<sup>1</sup>Sigmund Freud University, Vienna, Austria

Workshop (research) 45: Clinical sport psychology, clinical issues in sport and physical activity,  
Hall Aalborg, Juli 18, 2024, 13:30 - 14:30

Among our winter sports, it includes many various sports. Winter sports: divided into seven major sports. Austria's strong strength is also winter sports.

So in winter sports, especially the sports injuries caused by these sports, we must pay attention to them. After research, several sports have huge psychological traumata even psychiatric disorders on the clinical level. In addition to ski jumping, there are many winter sports events which may have significant high risk on psychological traumata to athletes. We have listed them down and will report them at this conference. We will report the development of this new international academic discipline, and our innovative research of International Clinical sports Psychology Association in the past twenty years.

Heil, J (1993), Psychology of sport injury

Zhu, L.J. et al, (2018). sport psychiatry



PERFORMANCE UNDER PRESSURE IN SPORTS,  
MILITARY/POLICE, PERFORMING ARTS, MEDICINE,  
BUSINESS AND DAILY LIFE

# **WORKSHOPS ALL IN ONE**

## Unlocking Subgroup Secrets with LPA: A Hands-On Workshop on Mixture Model Analysis with Exercise Psychology data

Whitney Moore<sup>1</sup>, Alessandro Quartiroli<sup>2,3</sup>

<sup>1</sup>East Carolina University, Greenville, United States, <sup>2</sup>University of Wisconsin – La Crosse, La Crosse, United States, <sup>3</sup>University of Portsmouth, Portsmouth, United Kingdom

Workshop (research) 07: Research methods (incl. qualitative & quantitative), Hall Grenoble, Juli 15, 2024, 14:40 - 15:40

Unlocking Subgroup Secrets with LPA: A Hands-On Workshop on Mixture Model Analysis with Exercise Psychology data

Moore has taught how to conduct LPA models for nearly 5 years and recently published a book chapter on finite mixture models. She also conducts Achievement Goal Perspective Theory based research. Quartiroli is a sport psychology researcher who has started using LPA models in his quantitative research the last couple years. We will co-present to provide both technical and practical insights into using LPA models for audience members regardless of their experience with LPA models.

### Overview of Workshop

Finite mixture modeling (e.g., latent profile analysis (LPA)) is an analysis technique that continues to evolve; therefore, providing researchers with best practice recommendations and explanations for both people conducting as well as reading/reviewing LPA models. Furthermore, few institutions offer LPA classes or workshops to help individuals learn and understand the nuances of LPA models. The proposed presentation will: 1) introduce LPA conceptually including discussing the strengths and weaknesses of LPA and the questions it is most appropriate to answer and 2) illustrate an LPA conducted with exercise psychology variables following current best practice recommendations. Importantly, the data and syntax files used to conduct the basic steps of the LPA analyses will be provided in addition to going over tables and figures for reporting LPA results following best practices.

First, we will provide a conceptual introduction to LPA models. This introduction will start with a brief introduction to the family of mixture models to ground readers in the distinctions between different types (e.g., data used, research questions addressed), such as latent class analysis, growth mixture modeling, latent transition analysis, and LPA. This will include emphasizing the assumption made when selecting to conduct a finite mixture model that the data is not from a single, homogenous or slightly heterogenous population, but that rather the population is comprised of at least two homogeneous subpopulations which are heterogenous from each other. We will also cover how an LPA can be more appropriate for answering certain research questions. Then, as many readers will be familiar with cluster analysis, scaffolding off that analysis, we will introduce the benefits gained from conducting an LPA rather than a cluster analysis. This comparison will highlight that one of the variance-covariance structure that should be tested when conducting an LPA is the same structure as assumed in cluster analysis. However, rather than assuming this structure is the best structure, the solutions from that structure are compared

to three other structures (discussed below) to find the best structure and number of profiles for representing the data. Furthermore, LPA includes assignment error to the different profiles, rather than “hard” or “perfect” assignment as is done with cluster analysis. By not accounting for profile assignment error, the cluster analysis approach has the weakness similar to assignment to groups based on artificially defined cut-points, including decreased ability to find differences in standing on outcomes between groups (i.e., profiles, clusters).

Second, using a concrete example with goal orientation data we will explain and illustrate the analysis steps of the LPA: 1) enumeration steps with different variance-covariance structures tested following best practices, 2) decision making and reporting of enumeration, profile classification quality, homogeneity, and separation with tables and profile plot figures, and 3) inclusion of covariates (i.e., gender identity, enjoyment, boredom, and empowerment) to test for differences in by profile membership. For steps 1 and 2, we review the process and decisions made based on the model results. For each of the steps above, we will start with using the variables for the model to explain the concept and purpose behind each of the steps. Following this explanation, we will present the results from the described steps. Using this format can reduce barriers by presenting the information with variables and relationships more accessible than describing this information generically with X's and Y's.

### Concrete Example

In the presentation, we will introduce LPA conceptually by referencing a concrete example to juxtapose results from analyses of exercisers adoption of task and ego goal orientations in relation to enjoyment and boredom from the class experience. The exercise psychology data example we will use to concretely illustrate the steps of the LPA is comprised of the task ( $M = 6.07$ ) and ego ( $M = 3.12$ ) goal orientations (strongly disagree (1) to strongly agree (7)) reported by 697 participants (39.9% men) in 47 college group fitness classes (e.g., yoga, weightlifting, kickboxing, basketball) at the middle of the semester for the profiles (Figure 1A). The participants' reported gender identity was used as a predictor of profile membership. The students' PE enjoyment and boredom at the end of the semester were tested for significant differences as outcomes of profile membership.

According to achievement goal perspective theory (Nicholls, 1989), task and ego goal orientations are orthogonal constructs, so how much one holds a task goal orientation does not relate significantly to how much they hold an ego goal orientation. Despite this, task and ego goal orientations are typically analyzed as two constructs within a linear regression model; we get results such as individuals' grit increases with their task orientation and ego orientation has no relationship with grit (Albert et al., 2021); intrinsic motivation and adaptive success factors have a moderate to large, positive relationship with people's task orientation and low, positive relationships their ego orientation (Lochbaum et al., 2016). However, these are independent relationships, which do not properly represent how people's standing on both orientations simultaneously affects outcomes. Those non-significant and low magnitude relationships with ego orientation may reflect a protective effect for those who also have high task goal orientations, however, this cannot be teased out through typical regression analyses. Interaction terms do not properly represent this effect. Divid-

ing participants into artificial categories (e.g., low and high or low, moderate, and high) for each orientation to create unique combinations can be difficult to define, which also reduces the replication and generalizability of these results. Furthermore, the sample size is often reduced due to these artificially defined break points for the groupings. For example, after making 9 goal orientation groups (ego and task orientations classified as low, moderate, high to make the group categories), 128 of the 440 study participants (29%) did not fall into any of the nine categories (Alvarez et al., 2014). However, by using a LPA, the composition of the goal orientation profiles is informed by the data rather than artificially (e.g.,  $\pm$ SD), which also means all participants are kept in the model. Plus, how well an individual fits into their most likely profile is modeled rather than treating everyone as a perfect fit to their most likely profile. Thus, profile differences can more appropriately be tested, as those who provided prototypical profile responses are weighted more than those who provided responses similar to, but not prototypical of the profile. As replication has been a challenge with mixture models generally, it has been recommended researchers build validity evidence within their study by implement the k-fold technique (Grimm et al., 2017) or split sample technique (Masyn, 2013) depending on the sample size.

Alvarez, A. L., Moore, E. W. G., & Fry, M. D. (2014). *PE goal orientation profiles predict students' perceived PE autonomy and competence*. Paper presented at Association for Applied Sport Psychology Annual Conference, Las Vega, NV.

Grimm, K. J., Mazza, G. L., & Davoudzadeh, P. (2017). Model selection in finite mixture models: A k-fold cross-validation approach. *Structural Equation Modeling: A Multidisciplinary Journal*, 24(2), 246-256.

Masyn, Katherine E. (2013) 'Latent Class Analysis and Finite Mixture Modeling', in Todd D. Little (ed.), *The Oxford Handbook of Quantitative Methods in Psychology: Vol. 2: Statistical Analysis*, Oxford Library of Psychology, <https://doi.org/10.1093/oxfordhb/9780199934898.013.0025>.

Moore, E. W. G. & Little, T. D. (2024). Finite Mixture Modeling, in Todd D. Little (ed.) *Structural Equation Modeling 2<sup>nd</sup> Edition*. New York: Guilford Press.

## How to collect and analyze athletes' data to uncover their resilience

**Ruud Den Hartigh**<sup>1</sup>, Michel Brink<sup>2</sup>, Niklas Neumann<sup>1</sup>

<sup>1</sup>Department of Psychology, University Of Groningen, Groningen, Netherlands, <sup>2</sup>Department of Human Movement Sciences, University Medical Center Groningen, Groningen, Netherlands

Workshop (research) 10: Research methods (incl. qualitative & quantitative), Hall Grenoble, Juli 15, 2024, 16:10 - 17:10

In this workshop, we will interactively explore ways to analyze and visualize resilience, based on data collected in the sports field. The session will be led by experts on psychological and physiological resilience, who have collaborated on a large research project with professional football clubs (see [www.project-ris.nl](http://www.project-ris.nl)). The first two contributors will outline the theoretical perspective on psychological resilience, its relation with load and recovery, and discuss their implications for the way data should be collected (Brink et al., 2010; Den Hartigh et al., 2022; Neumann et al., 2021). The third contributor will demonstrate a tailor-made application to collect daily psychological and physiological data, and discuss novel analytic methods to assess athletes' resilience in science and practice (Baretta et al., 2022; Hasselman, 2022; Neumann et al., 2023; Robertson et al., 2017). The analytic scripts will be shared with the participants after the session, and opportunities for sport psychology practitioners will be discussed.

Learning Objectives: Understand the theoretical underpinnings of resilience, and its relation with load and recovery.

Gain insights into the practical aspects of collecting daily psychological and physiological data for a comprehensive understanding of athlete resilience.

Engage in interactive discussions to apply analytic methods for assessing resilience in research and practice.

Describe opportunities for sport psychology practitioners to improve resilience.

Teaching Methods and Techniques: The workshop uses an interactive format, combining discussions, demonstrations of real-world data, and analytic scripts to actively engage participants. The contributors will use case studies and examples from talented football players to facilitate understanding, and encourage audience participation throughout the session.

Materials and Resources: Participants will receive access to relevant materials, analytic scripts, research findings, and practical guidelines for implementing the discussed methods. The workshop will provide a platform for collaborative learning and networking among sports psychology researchers and practitioners.

### Part 1: The theory behind resilience as a dynamic and multidisciplinary process

Ruud den Hartigh

Department of Psychology, Faculty of Behavioural and Social Sciences, University of Groningen, Groningen, The Netherlands

Athletes encounter various stressors on a daily basis, such as high training loads, losing a match, or life events outside the sport setting. To maintain good performance and wellbeing, it is important that athletes quickly bounce back from the stressors. This resilience process is dynamic by definition (Den Hartigh et al., 2022; Hill et al., 2018). That is, it always takes time to bounce back from the impact of a stressor. This poses a challenge for the way data is collected and analyzed, as we will discuss in the first part of the workshop. While researchers in psychology often use questionnaires in which athletes respond to items on resilience correlates, or protective factors, such as “snap-shot” scores do not inform about the actual process of resilience (Den Hartigh & Hill, 2022). Therefore, to capture resilience in athletes, we should move to a methodology that allows the collection of stressors and recovery processes over time on a psychological and physiological level (Den Hartigh et al., 2022). In turn, if such resilience processes can be visualized for, and interpreted by, embedded sport scientists and coaches, strides can be made in improving resilience of the athletes. For some sports, football in particular, daily measurements of athletes have become common practice already, although this is typically less focused on psychological processes. That said, football research on load and recovery – a process close to resilience – provides a good starting point to advance scientific and practical insights. The second contribution by Michel Brink will further elaborate on this.

**Part 2: Load and recovery in team sports: a sport science perspective.**

Michel Brink

*Department of Human Movement Sciences, University of Groningen, University Medical Center Groningen, The Netherlands*

The topic of load and recovery has a long tradition in sport science and has most often been studied in endurance sport. Theoretical models assume that homeostasis is disturbed as a result of training, and leads to improved performance after sufficient recovery. Since the early 2000s, the models were also applied in team sports such as rugby (Coutts et al., 2007) and football (Brink et al., 2010). As with psychological resilience, load and recovery research requires a study of stressors (training load) and subsequent recovery, as measured over the course of training days, or weeks, in a season. Yet, contrary to the domain of sport and exercise psychology, many studies on load and recovery in sports sciences already collected quantitative data across time. In early studies we have conducted, we collected and analyzed both physical and psychosocial load and recovery data. Later, we captured stressors through sensor data, and used global positioning systems (GPS). Such systems can provide insights into external load information like distance covered, durations above certain speed thresholds, and so forth (Jaspers et al., 2018). Research using such measures has suggested, for instance, that changes in load and recovery may be indicative of a resilience loss (i.e. not bouncing back to the previous level) and precede an injury or performance decrement. Importantly, however, the majority of research ignored individual, temporal processes by reporting relations between load and recovery aggregated across time and athletes. An individual approach is, however, theoretically and practically necessary within the framework of resilience as a multidisciplinary,

dynamic, and personalized process (Den Hartigh et al. 2022). After discussing the key ingredients for such an approach in this part of the workshop, concrete cases, analytic strategies, and feedback dashboards for practitioners will be discussed in the last part led by Niklas Neumann.

**Part 3: A Monitoring System for Athletes’ Resilience: Data Analysis, Visualization, and Interpretation**

Niklas D. Neumann

*Department of Psychology, Faculty of Behavioural and Social Sciences, University of Groningen, Groningen, The Netherlands*

Despite the advances in athlete monitoring systems (Robertson et al., 2017; Thornton et al., 2019), challenges persist in identifying pertinent variables, integrating psychological and physiological measures, selecting appropriate analytical methods, and deriving actionable insights. In this last part of the workshop presentation, I will present an expansive toolkit of time series analysis and visualizations using the R programming language. First, together with the participants we will explore, and work with, a cutting-edge application employed by professional football clubs in the Netherlands to gauge athlete resilience on a daily basis, enabling timely, targeted, and person-specific interventions. Second, we will discuss various analyses to uncover athlete resilience, encompassing deviations from normal states as quantified by z-scores (Robertson et al., 2017), identification of instability periods preceding injuries through a ‘dynamic complexity’ algorithm (Neumann et al., 2023), and examination of interrelationships between psychological and physiological variables using network analysis (Hasselmann, 2022; Neumann et al., 2024). Third, and last, participants will engage in interpreting results from selected case studies, fostering discussions on potential interventions tailored to individual needs. By the conclusion of the workshop, attendees will have a nuanced understanding of the diverse methodologies available to analyse, visualize, and interpret athlete resilience based on both psychological and physiological time series. This workshop thereby aims to empower researchers and practitioners with tools for meaningful data-driven decision-making in athlete support and performance enhancement contexts.

## Unlocking Performance Potential: Integrating Existential Psychology into Elite Sports at the Olympic Center Vorarlberg

**Daniel Rähse**<sup>1</sup>, Simon Nußbaumer<sup>1</sup>

<sup>1</sup>Olympiazentrum Vorarlberg GmbH, Dornbirn, Austria, <sup>2</sup>German Sport University Cologne, Cologne, Germany

Workshop (applied) 11: Elite sports and expertise,  
Hall Innsbruck, Juli 15, 2024, 16:10 - 17:10

How can performance potentials be raised in the quickly developing world of elite sports? Perhaps by putting the person in the center. Classical sport psychological methods, such as mental skills training, work in improving skills in athletes, whereas existential psychology could be the missing bridge to the person per se and, help to create a sense of purpose and authenticity. Existential psychology is not a unified school of thought, but it was formed by its philosophical underpinnings and shaped as a psychological framework over decades, for example, by publications of Frankl (1984), Längle (2014), or, in the context of sport, by Ronkainen (2015) or Nesti (2006).

Therefore, at the Olympic Center Vorarlberg, an existential project for the entourage of athletes called "Success is a Mindset" (SIAM) was created. Making use of existential themes, like self-responsibility, courage, and will, to support the creation of a person-centered approach in sports and raise performance. Moreover, the sport psychological concept for athletes at the Olympic Center Vorarlberg is rooted in an existential framework, and thereby every offer from counseling to diagnostics is colored by an existential point of view. The presentation of existential psychology in sport and the entourage and athletes' concepts should permit the participants to gain a basic understanding and build the foundation for the interactive part of the workshop.

Through participative group work and discussions about the implementation of an existential framework in the counseling of athletes and sport psychological offers (mindfulness, emotion regulation, etc.), the transfer in the applied work of the participants should be facilitated. Moreover, participants will have the opportunity to share and discuss their own intervention ideas. To facilitate the remembrance of the gained insights, participants will receive documents about SIAM, the sport psychological concept of the Olympic Center Vorarlberg, and the elaborated interventions in the workshop.

## Helping Teams performing under pressure – practical guidelines based on the five core competences of successful teams

**Carl Vincent Mohr**<sup>1</sup>, Thomas Kayer<sup>1</sup>, Christian Marko<sup>1</sup>, Ann-Kristin Reuter<sup>1</sup>

<sup>1</sup>Groundwork, Graz, Austria

Workshop (applied) 12: Group dynamics and team sports,  
Hall Aalborg, Juli 15, 2024, 16:10 - 17:10

### Sharing Vulnerability as a fundamental element for enhancing team performance in high pressure situations

Carl Vincent Mohr

In this workshop, participants will get an idea of the powerful concept of sharing vulnerability to amplify team performance, especially in high-pressure environments. Based on Daniel Coyle's work on team performance in 2018, the session will provide both theoretical insights and hands-on exercises to cultivate a culture of trust, collaboration, and resilience within teams.

The workshop begins with a short exploration of the theoretical framework behind sharing vulnerability, drawing from Coyle's research on successful group dynamics. Participants will get an overview of how vulnerability fosters psychological safety, strengthens bonds, and unleashes creativity within teams. Through case studies and real-world examples, attendees will grasp the transformative impact of vulnerability on team cohesion and performance.

Moving from theory to practice, the workshop offers a series of interactive exercises designed to cultivate vulnerability and trust among participants. Through guided discussions, role-playing scenarios, and reflective exercises, attendees will learn practical strategies for fostering open communication, empathy, and mutual support within their teams. These exercises will equip participants with tangible tools to navigate challenges, build resilience, and harness the collective intelligence of their teams.

Moreover, the workshop will provide a platform for participants to share their experiences and insights, facilitating peer learning and collaboration. By engaging in authentic conversations and exchanging best practices, attendees will leave the workshop with actionable strategies to implement in their own professional contexts.

Overall, this workshop offers a holistic approach to enhancing team performance through sharing vulnerability, combining theory with practical exercises to empower participants to create cultures of trust, resilience, and innovation within their teams. Whether facing high-pressure situations or striving for continuous improvement, the principles explored in this workshop will equip teams with the mindset and skills to thrive in today's dynamic work environments.



### **Fostering Team Culture in Sports and Business: Create Belonging**

Thomas Kayer

In the realm of sports and business, the cultivation of a cohesive team culture is paramount to achieving collective success. This workshop delves into the fundamental principles of building a sense of belonging, instilling commitment, and enhancing team dynamics within teams. With a focus on creating an inclusive and supportive environment, this workshop aims to equip coaches, athletes, and team leaders with the tools necessary to foster a strong sense of unity and purpose.

Central to the workshop is the concept of creating belonging within the team framework. Participants will explore strategies for fostering inclusivity and embracing diversity, thereby ensuring that every team member feels valued and accepted. By nurturing a culture of belonging, teams can cultivate trust and camaraderie, laying the foundation for sustained success both on and off the field.

Furthermore, the workshop focuses on the intricacies of team culture and its profound impact on individual and collective performance. Through interactive discussions and practical exercises, participants will gain insights into the dynamics of team cohesion and the role it plays in driving motivation, resilience, and shared goals. By focusing on a positive team culture, teams can unlock their full potential and achieve extraordinary results.

Moreover, the workshop addresses the crucial element of commitment within the team environment. Participants will explore strategies for inspiring dedication and accountability among team members, thereby fostering a culture of excellence and continuous improvement. By cultivating a shared commitment to the team's mission and values, individuals can transcend personal interests and work collaboratively towards common objectives.

Drawing upon real-world examples and best practices from the world of sports and business, this workshop offers actionable insights and practical guidance for enhancing team dynamics and performance. Through case studies and group activities, participants will have the opportunity to identify key areas for improvement within their own teams and develop tailored strategies for fostering a culture of belonging and commitment.

In conclusion, this workshop serves as a roadmap for cultivating a positive and inclusive team culture that drives success in sports & business. By embracing the principles of belonging, commitment, and collaboration, teams can forge strong bonds, overcome challenges, and achieve extraordinary results both on and off the field.

### **Uniting Purpose: Bridging the Worlds of Sports and Business through Team Mission and Motivation**

Thomas Kayer

In today's dynamic landscape, the convergence of sports and business underscores the importance of establishing a clear sense of purpose within teams. This workshop explores the fundamental principles of defining mission-driven objectives, understanding the 'why' behind team endeavors, and leveraging motivation to propel collective success in both sports and business domains.

Central to the workshop is the concept of establishing purpose within teams. Participants will delve into the intricacies of crafting a compelling team mission that encapsulates core values, aspirations, and shared goals. By defining a clear purpose, teams can align efforts, foster cohesion, and inspire collective action, transcending individual objectives to achieve greater synergy and impact. Drawing parallels between the realms of sports and business, this workshop highlights the transformative power of purpose-driven leadership. Through interactive discussions and case studies, participants will explore how renowned sports teams and successful businesses leverage their mission as a guiding force, driving innovation, resilience, and sustained performance.

Moreover, the workshop will elucidate the intrinsic link between purpose and motivation within the team dynamic. Participants will examine strategies for tapping into intrinsic drivers, igniting passion, and facilitating a culture of engagement and excellence. By understanding the 'why' behind their endeavors, team members can cultivate a profound sense of meaning and fulfillment, fueling sustained commitment and resilience in the face of challenges.

Furthermore, the workshop emphasizes the role of effective communication and alignment in reinforcing team purpose. Participants will explore techniques for articulating the team mission in a compelling and authentic manner, promoting buy-in and accountability across all levels of the organization. By fostering a shared understanding of purpose, teams can nurture trust, collaboration, and collective ownership, laying the groundwork for sustained success.

Through a mix of experiential learning and practical insights, this workshop equips participants with the tools and strategies necessary to unite purpose across the domains of sports and business. By embracing the principles of mission-driven leadership and motivation, teams can unlock their full potential, inspire innovation, and achieve extraordinary results in pursuit of their shared vision.

In conclusion, this workshop serves as a catalyst for transforming teams into high-performing units, fueled by a shared sense of purpose and motivation. By aligning values, mission, and aspirations, teams can transcend boundaries, seize opportunities, and create enduring impact in the ever-evolving landscapes of sports and business.

### **Unleashing Creativity: the hardly known one**

Christian Marko

In rapidly evolving times like these, creativity has become the cornerstone of success for high-performing teams. The ability to generate innovative ideas, solve complex problems, and adapt to change is crucial for staying ahead of the curve. But how can teams consistently tap into their creative potential and foster a culture of innovation when one the other dealing with high-pressure situations?

In this workshop, “Unleashing Creativity,” we will take a deeper look into the core competency of stimulating creativity within high-successful teams. Through a dynamic and interactive format, participants will explore proven strategies, techniques, and mindset shifts to ignite creativity and drive innovation within their teams. The use of business learning games will be one element “playing around” with this core competency. Furthermore, personal experiences from high-sports-teams will be included.

In order to keep and raise motivation and prepare for the unknown, cultivating a creative culture is essential. Furthermore, members feel empowered to share ideas, take risks, and embrace experimentation.

Additionally, the workshop will focus on identifying common barriers to creativity and discovering practical strategies for overcoming them. The workshop ends with addressing on how to ensure sustaining creativity over time.

Participants will leave the workshop equipped with practical tools, actionable insights, and a renewed sense of creativity to drive innovation within their teams and organizations.

### **Build Safety in Strengthening Team Culture in Sports and Business: A Key Foundation**

Ann-Kristin Reuter

Every team faces its share of hurdles and moments of pressure and stress. Especially during these challenges, it is important that teams effectively work together. One of the fundamental characteristics of optimal team performance in high-pressure situations is psychological safety. In this workshop, we will focus on the critical importance of establishing psychological safety in team environments in sports and business. Participants will get an idea on how to build an atmosphere where every team member feels valued and free to speak up, ultimately driving success and fulfillment across organizational and sporting contexts.

The key elements of psychological safety include expressing opinions openly, ensuring equal participation, viewing mistakes as learning opportunities, and valuing and utilizing each team member’s talents and abilities (Gollner & Laufer, 2018; Edmondson, 2014).

The aim of this workshop is to create an understanding of the concepts and benefits of psychological safety, while interactively learning strategies on implementing this vital skill. This is sought to be achieved by a combination of theoretical inputs and case studies. We will dive into these core elements and create a greater understanding for these concepts among participants. Also, we will discuss the significant impact that psychological safety has on team performance, engagement (Kahn, 1990; May et al., 2004) and innovation (Beck et al., 2001; Goller & Bessant, 2017) and how this can help in high-pressure situations. Furthermore, strategies and tools, how psychological safety can be achieved in teams will interactively be explored in group discussions and exercises.

Additionally, participants will receive a wealth of recommended further reading and a detailed guide on enhancing team performance.

## Applying the 5Cs Framework in Youth Sport: Strategies and Tools for Enhancing Your Practice

**Chris Harwood**<sup>1</sup>, Dadi Rafnsson<sup>2</sup>

<sup>1</sup>Nottingham Trent University, Nottingham, United Kingdom, <sup>2</sup>Reykjavik University, Reykjavik, Iceland

Workshop (applied) 16: Youth,  
Hall Strassburg Süd, Juli 16, 2024, 13:30 - 14:30

Youth sports represent a rich opportunity for enabling significant psychological growth and development in young people. Practitioners play a key role in integrating and embedding psychological concepts into such environments in cooperation with coaches and parents. This workshop offers students of sports psychology and practitioners insights into the processes, tools, and strategies underpinning the effective delivery of the 5Cs Framework (Harwood, 2008; Harwood & Anderson, 2015; Harwood et al., 2015) – one of the most popular frameworks for integrating sport psychology in UK youth academies. Based on his framework, the lead presenter will outline the principles and aims of the 5C's Framework (commitment, communication, concentration, control, confidence and provide practitioners with detailed insights into the key processes underpinning an embedded program of psychological training and support with athletes, coaches, and parents.

The second presenter will introduce the application of the 5Cs 'action' and 'discussion' cards as behavioural priming, education and conversation tools. These cards were designed through his work as a coach and educator in Icelandic sports and as part of an EU Erasmus+ strategic partnerships project. Their purpose is to facilitate awareness of psychosocial factors through an accessible tool. They have since been used by coaches working with kids from age ten in various sports clubs and teachers in upper-secondary dual-career sports programs. Workshop attendees will engage in interactive exercises with the cards to illustrate their utility value to young people.

Based on these insights, attendees will share their ideas and reflections for advancements in applying the 5Cs framework for psychosocial development and well-being within the sports in which they work. In conclusion, participants will gain a greater professional awareness of the strategies and methods they can apply when attempting to systematically develop psychosocial competencies in athletes.

## The 5Cs Framework: An Accessible Methodology for the Psychosocial Development of Young People through Sport

Abstract Presenter 1

In the first part of this workshop, the lead presenter will outline the 5Cs Framework (Harwood, 2008; Harwood & Anderson, 2015; Harwood et al., 2015) and introduce the target behaviours underpinning each 'C' that inform the support of coaches and parents towards the development of youth athletes. He will offer workshop attendees insights into the processes, tools, and strategies that have represented the delivery of the 5Cs (commitment, communication, concentration, control, confidence)-related practitioner work in competitive youth sport environments. Particular focus will be given to how practitioners can build relationships with coaches and parents through the utility of the framework. Finally, in a closing section after presenter 2, attendees will be invited to debate and discuss the application of the 5Cs in their own contexts.

### The 5Cs Action and Discussion cards:

#### Enabling a Common Language and Cooperation in Athlete Psychosocial Development

Abstract Presenter 2

Sport psychology practitioners emphasize training psychological skills within a multi-and interdisciplinary context (Steptoe et al., 2019), and that enhancing communication between parents, coaches and athletes can better aid athletic development (Kramers et al., 2022). The 5Cs 'action' and 'discussion' cards serve as priming, education and response tools designed to facilitate awareness and knowledge around psychosocial factors in youth athletes. The cards are based on the 5Cs framework (Harwood & Anderson, 2015) posing questions and setting challenges around athlete behaviours associated with commitment, communication, concentration, control, and confidence. The cards enable athletes, coaches and parents to discuss the 5Cs and consider opportunities to promote psychosocial behaviours in the contexts that align with their own environment. Making reference to a specific school project in Iceland, coaches and teachers have used the cards in training and classes, prompting discussions and action planning around their athletes' engagement with the Cs. Athletes receive a deck as a take-home gift, and parents are encouraged to participate in the delivery of psychosocial factors through a common language. In this workshop, the presenter will share his experience of developing and using the cards and then engage workshop attendees in interactive exercises to illustrate their utility value.

## A Holistic Approach to Career Transitions for Elite Athletes

**Wanda Schapendonk**<sup>1</sup>, Hardy Menkehorst<sup>1</sup>

<sup>1</sup>NOC\*NSF, Utrecht, Netherlands, <sup>2</sup>Team NL Centrum Noord, Heerenveen, Netherlands

Workshop (applied) 17: Transitions in and out of sport/dual career,  
Hall Brüssel, Juli 16, 2024, 13:30 - 14:30

In the high-stakes world of elite sports, transitions in and out of a sporting career present unique challenges that demand specialized attention.

Goals : This workshop is designed to provide practitioners with valuable insights and practical strategies to support elite athletes in balancing sports and study, facilitating a seamless transition to the professional world.

Methods: The session commences with an overview of the TeamNL@work project, fostering synergy between elite sports and academic pursuits since 2017. This initiative not only aids athletes in managing dual careers but also equips them with the necessary skills for a smooth transition into the professional world beyond sports.

Participants are encouraged to share their professional practices and strategies based on the experiences of the 720 elite athletes who have participated in TeamNL@work. Interactive discussions and knowledge exchange foster a comprehensive understanding of the challenges elite athletes face during career transitions.

The workshop introduces a holistic model encompassing psychological, educational, and career-related aspects, allowing participants to explore a well-rounded approach to athlete development. Through case studies and collaborative problem-solving, participants learn from successful interventions that have facilitated smooth transitions for elite athletes.

Conclusion: By the end of this 60-minute workshop, participants will have gained valuable insights to more effectively support elite athletes facing the pressures and challenges of transitions within and beyond their sports careers.

### Presenters

Wanda Schapendonk is the coordinator of the dual career services for elite athletes in the Netherlands. Wanda is employed in the Netherlands by the Dutch Olympic Committee. Within the Team Athlete Services she is project manager of the project "TeamNL@work". She conceptualized and executed this project in the Netherlands, focusing on facilitating the integration of elite sports and academic pursuits. Simultaneously, the project aims to assist athletes in preparing for the labor market. Wanda's academic background includes a Master's degree in Psychology with a specialization in Neuro and Biopsychology, along with a European Master's degree in Sports and Exercise. With over two decades of experience, she has worked as a sport psychologist and consultant, collaborating with numerous elite athletes from TeamNL to navigate challenges associated with sports career retirement and transitions.

Hardy Menkehorst has a professional background in Social Psychology and Psychophysiology. He was an invited professor at the University of Twente and the VU University in Amsterdam where he teaches Sport Psychology and Team-development. He is head of the Mental Training & Coaching Centre (MTCC) since 1986, a private practice which delivers sport psychology services to

athletes and coaches all around the Netherlands. MTCC is aimed at developing and supporting elite athletes in their endeavor to be the world's best. He is an embedded sport psychologist at a center for education and development of talented young athletes (TeamNL- Noord). Currently he is the president of VSPN (the Dutch Association for Sport Psychology). He also is a member of FAST (the Forum of Applied Sport psychologists in Topsport) and an invited professor at INSEP (the National Institute of Sport, Expertise and Performance) in Paris. He has worked with Olympic gold winners in volleyball, field hockey, swimming, gymnastics, sailing and cycling. Hardy was the on-site sport psychologist of the Dutch Paralympic Team for the National Olympic Committee in London 2012. In 1997 he started focusing on the effects of leaving the elite sport. This transition from athlete to 'normal citizen' has his focus ever since.

## The Human behind big spotlights, high pressure situations and perfectionism – Ways to improve sense of coherence, self-compassion and self-confidence

**Carl Vincent Mohr**<sup>1</sup>, Thomas Kayer<sup>1</sup>, Ann-Kristin Reuter<sup>1</sup>

<sup>1</sup>Groundwork, Graz, Austria

Workshop (applied) 21: Best practice,  
Hall Innsbruck, Juli 16, 2024, 14:40 - 15:40

### Self-Compassion as a Potential Resource for High-Performing Athletes: How Self-Kindness and Mindful Approaches Can Help Fulfill One's Highest Potential

Carl Vincent Mohr

According to Gunther Schmid, a German psychiatrist, in his 2018 book, people usually tend to think of situations and life as “either ... or”. In the context of sports this could look as follows: “Either you score this point or you will be a failure”, “Either you are self-compassionate and risk to be mediocre or you are never satisfied because this is the only way to greatness”. But Schmid (2018) also says that there exists something called “as well as – logic”. This could mean that an athlete is self-compassionate in critical situations and satisfied with his progress as well as hungry for more and never stop wanting to get better. These attitudes are not mutually exclusive.

In this conceptualization self-compassion could be seen as a potential mechanism that stands beside and on the same level with the classic views of “being tough on oneself”, “no mistakes allowed” and “never be satisfied”. This may help athletes cope with adversity, stick to their (performance)-goals, and see themselves in a more positive light in general.

Therefore, the aim of this workshop is to provide a short theoretical overview of self-compassion in general (Neff, 2003b) and the specific implications of self-compassion in sport (Mosewich, 2020; Mosewich et al., 2014, 2019), present practical tools that can be applied by practitioners and discuss the role of self-compassion in the future of elite-sports.

To achieve this aim, the practical tools will be presented based on the three main-constructs of self-compassion by Neff (2003b):

Self-kindness

Common humanity

Mindfulness

And will be specifically tailored to the context of elite sports in combination with existing literature (Mosewich et al., 2013; Rodriguez & Ebbeck, 2015) and the presenter's personal experience.

Each practical tool should be discussed with participants to evaluate its value and potential integration for working with athletes, particularly male athletes. This is pertinent given the observed tendency for more research on self-compassion in female athletes (Mosewich, 2020).

### Nurturing Mental Resilience in Sports: Understanding the Interplay Between Performance Enhancement and Mental Well-Being

Thomas Kayer

In the realm of sports psychology, fostering a sense of coherence emerges as a pivotal factor in achieving optimal performance while safeguarding mental well-being. This workshop offers a comprehensive exploration of the intricate dynamics between performance enhancement and mental well-being within sporting environments. Through the lens of case studies and empirical research, participants will gain insights into navigating the complexities of the sports landscape while prioritizing the holistic development of athletes.

Central to the workshop is the concept of sense of coherence (SOC) – a framework that encompasses comprehensibility, manageability, and meaningfulness. Participants will delve into the role of SOC in shaping athletes' perceptions of their sporting experiences and their ability to effectively cope with challenges. By cultivating a strong sense of coherence, athletes can harness their mental resources, navigate adversity, and sustain optimal performance amidst pressure and uncertainty.

Furthermore, the workshop examines the delicate balance between performance enhancement and mental well-being within sporting environments. Through real-world case studies, participants will explore the multifaceted nature of athlete development, acknowledging the inherent tension between pursuing excellence and safeguarding well-being. By fostering open dialogue and awareness, coaches, parents, and stakeholders can create supportive environments that prioritize athletes' mental health while promoting sustainable performance outcomes.

Moreover, the workshop addresses the pivotal role of the sporting environment – including coaches, parents, and media – in shaping athletes' mental resilience and well-being. Participants will examine strategies for fostering positive relationships, promoting psychological safety, and mitigating the adverse effects of external pressures. By fostering a culture of support and understanding, stakeholders can empower athletes to thrive both on and off the field, nurturing their long-term development and success.

Drawing upon insights from sports psychology research and best practices in athlete care, this workshop equips participants with practical tools and strategies for promoting mental resilience and well-being in sporting contexts. Through interactive discussions and experiential learning activities, participants will explore avenues for integrating performance enhancement with mental health support, fostering a holistic approach to athlete development.



In conclusion, this workshop serves as a catalyst for fostering a culture of mental resilience and well-being within the realm of sports. By embracing the principles of sense of coherence and prioritizing athlete-centered care, stakeholders can cultivate environments that optimize performance outcomes while safeguarding the holistic well-being of athletes. Together, we can create a future where athletes thrive both as competitors and as individuals, empowered to navigate the complexities of the sporting journey with confidence and resilience.

**Boosting Confidence Under Pressure: “Mastering Self-Confidence for Competitive Excellence”**

Ann-Kristin-Reuter

In competitive sports, there is a variety of situations which demand the display of self-confidence and assurance. Especially in stressful situations, believing in your own strengths and abilities is essential for optimal performance. However, it is precisely these high-pressure situations that can affect our self-confidence massively.

In this workshop, we will focus on the role of self-confidence in high-pressure situations, particularly in competitive sports. The aim of this workshop is to teach participants methods and strategies on how to effectively strengthen their self-confidence while performing under pressure.

Starting off with a case study, various situations will be demonstrated in which a reduction in self-confidence can occur and provide insights on factors which can debilitate self-confidence (Hays et al., 2009). Additionally, the relationship between self-confidence and performance will be discussed, as investigated in studies by Lochbaum et al. (2022b), and Woodman and Hardy (2003b). Various methods to increase self-confidence will be introduced in shape of a practical case study, which will be easy and effective to apply. These methods focus on highlighting the power of personal strengths and the strategic use of resources to navigate challenges confidently. During an interactive mental journey, participants have the opportunity to explore and recognize the method which they can relate with most. This allows participants to achieve a deeper personal engagement with these strategies.

Furthermore, participants will be provided with a comprehensive method sheet, summarizing all discussed strategies for a quick reference to the various techniques explored during the workshop.

**Leadership development for Bachelor students: A Martial Arts and Performing Arts Approach to thriving under pressure**

**Janneke de Noord<sup>1</sup>**, Daniel de Bruin<sup>1</sup>

<sup>1</sup>*Amsterdam University of Applied Sciences, Amsterdam, Netherlands*

Workshop (applied) 22: Leadership,  
Hall Aalborg, Juli 16, 2024, 14:40 - 15:40

“The safe environment really made me step out of my comfort zone”

“I learned to trust myself under pressure”

“Martial Arts taught me resilience, Performing Arts taught me vulnerability”

“I learned the importance of leading both with courage and compassion”

(Bachelor students, Amsterdam University of Applied Sciences)

Introduction: The ability to perform under pressure is necessary to achieve goals in various domains of life. Developing coping strategies and interventions aimed at improving performance under pressure can lead to significant improvements (Kent et. al, 2018).

This workshop (applied) will demonstrate how Martial Arts and Performing Arts at the Amsterdam University of Applied Sciences (AUAS) are excellent instruments in educating future managers and leaders in the world of sports about performing under pressure and leadership skills. Martial Arts and Performing Arts are tools to create an embodied learning experience (Stolz, 2015). The synergy between these two modalities is so powerful because they both in essence create opportunities to get out of our comfort zones. It is precisely at the boundary, where resistance increases, that necessary discomfort for growth arises (Biesta, 2012).

During an eight-week long course, called Sport & Life skills, scenarios are crafted to highlight patterns that emerge during performance under pressure. Students are guided to reflect on these patterns by the use of the reflective ALACT model by Korthagen. The ALACT model creates a basis for meaningful self-evaluation and increased competency and confidence. The model comprises of five steps, starting with a (1) concrete experience, followed by (2) observing and reflecting, after which (3) abstract concepts and generalizations about the experience are formed. These are used to (4) create an action plan that is then (5) executed, forming the new experience from which the cycle repeats (Korthagen & Vasalos, 2005).

To create the appropriate conditions for students to grow, the challenge-support matrix for developing resilience is utilized. We strive for both high challenge and high support, in order to encourage pushing boundaries and developing new skills or competencies, and to ensure individuals feel safe and supported when taking risks (Sarkar, 2022). To create psychological safety the lecturers, establish expectations, encourage openness about failures, invite active participation, and foster an environment that emphasizes continuous learning, personal growth, and mutual trust among students (Dweck, 2006; Edmonson, 2018). Students are invited to em-

brace vulnerability fostering trust and authenticity among members of the group by challenging them to show up, be seen, take risks, and openly discuss failures and uncertainties (Brown, 2018).

During the learning process strategies are developed to thrive under pressure. To develop these strategies, several methods and theories are being used during the course. For example: emotion regulation, self-knowledge, focus of attention, breathing, muscle relaxation, grit and growth mindset (Albertella, 2023; Balk et. al, 2013; Duckworth, 2016; Dweck, 2006; Hardy, 2018).

At the end of the course, students have to complete two challenges:

1. Students engage in a boxing match with entrance music, flashing lights, their own coach, a referee, cheering spectators and ultimately one person whose hand will be raised to be crowned the winner.
2. Students engage solo in an authentic performance on stage with an audience in a self chosen discipline which is personally challenging, out of their comfort zone and shows vulnerability in dancing, acting, singing, rap, spoken word or stand-up comedy.

Workshop learning objectives: Participants will gain insight into how the integration of Martial Arts and Performing Arts at the AUAS serves as effective tools for educating future managers and leaders in the world of sports on performing under pressure and developing leadership skills.

Participants will experience a short demonstration of the course and engage in playful Martial Arts and Performing Arts exercises. Through guided activities, participants will reflect on their automatic reactions and patterns during these exercises.

Participants will explore practical ways to apply the insights gained from the workshop to their work context.

The workshop will be facilitated by a duo of lecturers, Janneke de Noord and Daniel de Bruin, of the AUAS with backgrounds in physical education, professional Performing Arts, MMA, philosophical and coaching expertise.

Specifics on the (interactive, hands-on) teaching methods & techniques used to achieve these learning objectives

In the workshop the course Sport & Life skills will be presented, student reflections of the course will be illustrated (McDonald, 2012), and participants will be invited in a safe environment to experience the application of Martial Arts and Performing Arts in Performing under pressure. Unique about this workshop is the combination of Martial Arts and Performing Arts as tools to create an embodied learning experience (Stolz, 2015).

Following the explicit establishment of the necessary psychological safety, Martial Arts serves as an excellent means to assist workshop participants in becoming embodied. Various playful physical activities are offered in order to establish contact with oneself and others. This is the starting point for participants to explore their boundaries with each other. Participants will be encouraged and guided to discover their reactions when pressure is increased, leveraging the power of direct sensing, experiencing, and reflecting together to uncover what is happening.

Subsequently, we transition to a Performing Arts activity.

Participants will be invited to silently write down, within seven minutes, what they have learned about their initial reactions, automatic mechanisms, and patterns during these Martial Arts exercises. The goal is to uncover and articulate what is happening internally. Participants will then be encouraged to present their reflection in small groups with other participants. Here, we gratefully leverage the psychological safety established from the outset, allowing participants to experience how expressing what is happening internally is inherently vulnerable and therefore, inherently challenging. Participants will be supported in this challenge with the use of techniques used in the course Sport & Life skills.

Towards the end, we will guide participants towards closure. Together, we will explore what they take with them into their professional settings and invite them to translate the insights from this workshop into their practice.

Details on materials that will be shared with the workshop participants on-site or following the session

We will compile the ideas and exercises used into a clear handout to be provided to participants.

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## Stress-is-Beneficial Mindset: A Workshop for Creating a Stress-is-Beneficial Mindset using Growth Mindset, REBT, SMART Goals, Fortune Lines and Imagery Scripts.

**Darrell Phillips**<sup>1</sup>, Bailey Gilbert<sup>1</sup>

<sup>1</sup>University of Kansas, Lawrence, Kansas, United States

Workshop (applied) 25: Mental skills training,  
Hall Igls, Juli 17, 2024, 11:00 - 12:00

Stress is ubiquitous in human performance and may be generated by individual or vicarious perceptions in sport, music performance, injury rehabilitation, tactical operations, or general life events (Arnold et al., 2017; Crum et al., 2017). Sport Psychology professionals, coaches, athletes, and other performers pursue multiple avenues to address the symptoms and results of perceived performance stress and equally are apt to identify a need to address the sources of the stress. Alternatively, the objectives of this workshop will include providing attendees with a method of training and teaching performers how to acquire a Stress-is-Beneficial (SiB) mindset (Crum, et al., 2017; 2013). Attendees will learn how identifying growth mindset skills and growth mindset barriers (Buzzetto-Hollywood et al, 2019) can assist in the adoption of SiB Mindset. Hands on activities include the practice and application of how to dispute irrational beliefs related to growth mindset barriers (Jordana et al., 2023), the development of SMART goals, and writing Fortune Lines (White & Gunstone, 1992). Workshop attendees will learn and practice the acquisition of skills, specifically how these skills will be collectively integrated into the creation of SiB verbal and mental rehearsal scripts. Attendees will engage in the application & development of personal schema SiB Mindsets as well as how to implement SiB mental skills training for performers.

Presenter 1: Workshop attendees will assist in the identification and initial procedures required to introduce the relationships among growth mindset, growth mindset barriers, the disputing of related responses to irrational beliefs, and to describe how these constructs from the foundation for adopting a Stress-is-Beneficial (SiB) mindset. (Crum et al., 2013). Specifically, attendees will learn how to measure growth mindset and barriers to growth mindset, measure irrational beliefs and how to dispute irrational beliefs. Hands on activities will include self-administered measures for growth mindset, identification of irrational beliefs, as well as how to use the ABCDE's of Rational Emotive Behavior Therapy as it may relate to perceived stress in athletes/performers (Turner, 2016). Attendees will also learn about and actively identify actionable steps toward building SMART goals with the purpose of writing Fortune Lines (Özarlan, & Çetin, 2014) , and creating self-guided imagery rehearsal scripts (Dweck & Yeager, 2019, Jordana et at., 2023; Turner et al., 2018; White and Gunsotne, 1992).

Presenter 2. Workshop attendees will learn how to analyze measurements from growth mindset schemas, identity of barriers to growth mindset, the strategies to dispute irrational beliefs related to stress perceptions, with the purpose of develop-

ing smart goals, Fortune Lines, and imagery rehearsal scripts for the adoption of a stress-is-beneficial mindset. Attendees will analyze and develop self-created SiB smart goals and apply the goals toward the self-defined features of Fortune Lines (Holloway, 2020; White and Gunstone, 1992). Workshop attendees will practice the application of individually specific goal preferences to personalize Fortune Lines, written in the present tense. Additionally, workshop attendees will apply the collective characteristics of Smart goals and Fortune Lines for the purpose of developing personal guided imagery scripts with the intention and purpose of acquiring a stress-is-beneficial mindset. Strategies for integrating all components of the Stress-is-Beneficial (SiB) mindsets for performers workshop will be described and discussed with methods for addressing various types of perceived stress in a variety of performance venues (Holloway, 2020; Vealey & Wright, 2023). Workshop attendees will receive assessment worksheets, protocols, and topic handouts.

## An applied workshop on cognitive-behavioural approaches to performance under pressure.

**Martin Turner**<sup>1</sup>, Faye Didymus<sup>2</sup>, Sam Wood<sup>1</sup>, Betsy Tuffrey<sup>3</sup>, Jennifer Hobson<sup>4</sup>

<sup>1</sup>Manchester Metropolitan University, Stoke-on-Trent, United Kingdom, <sup>2</sup>Leeds Beckett University, Leeds, United Kingdom, <sup>3</sup>Seed Psychology, Hampshire, United Kingdom, <sup>4</sup>Sheffield Hallam University, Sheffield, United Kingdom

Workshop (applied) 30: Consulting/counselling,  
Hall Strassburg Nord, Juli 17, 2024, 14:40 - 15:40

The cognitive-behavioural tradition is an integral part of professional practice and applied provision within the sport psychology discipline. Characterised chiefly by its recognition and operationalisation of the relationships between cognition, emotion, and behaviour, this tradition has instigated a wide variety of cognitive-behavioural approaches to psychotherapy (CBTs; Turner et al., 2023). The CBTs, and the ideas and techniques within them, have proliferated in sport psychology research and practice (McArdle & Moore, 2012), offering practitioners a range of strategies to help clients optimise their performance under pressure.

In this applied workshop, experienced practitioners offer applied insights across distinct CBT approaches to practice, sharing professional practice techniques through experiential learning via demonstrations, interactive activities, case-studies, and discussions with delegates. Delegates will be provided with handouts that reflect activities commonly used with athletes from each CBT. Each facilitator will share aspects of their practice, which will include acceptance and commitment therapy (ACT; Hayes et al., 2006), cognitive therapy (CT; Beck, 2005), rational emotive behaviour therapy (REBT; Ellis, 1994), and a multimodal approach (MMCBT; Hobson & Dixon, 2023). Differences between the CBTs will be fleshed out, and a critical exploration of CBTs per se as applied in sport will be undertaken.

There are various learning outcomes for delegates:

To learn the fundamental theory, tenets, and distinctive features of each CBT approach.

To gain a critical understanding of different CBTs in how they are applied in sport.

To learn and experience some applied techniques to incorporate into their practice when helping athletes to perform under pressure.

To understand the pros and cons of each approach when incorporating into practice.

Conclusions: Delegates will be encouraged to apply what they have learned within their practice, and to more deeply explore research and training in CBTs as part of meaningful continued professional development.

## Cognitive Therapy (CT)

Faye F. Didymus

*Carnegie School of Sport, Leeds Beckett University, United Kingdom*

Introduction: Cognitive Therapy (CT; Beck, 1967) is a structured, short-term, present-orientated approach that focuses on changing cognition to bring about subsequent helpful changes in emotions and behaviors (Beck et al., 1979). To achieve such change, CT incorporates a variety of techniques that assume that negative thoughts are the result of underlying schemas and dysfunctional beliefs (e.g., Beck, 2011). Aspects of CT have been applied by sport psychology practitioners to various athletic populations.

Problem statement: CT based one-to-one work with athletes and coaches is often time- and resource-intensive. A challenge facing practitioners in sport is the adaptation of CT techniques to facilitate change in a more efficient way.

Theoretical framework: The theoretical underpinning of CT is such that what we think (cognitions), what we feel (emotions), and what we do (behavior) interact and create a subjective perception of the world; a world we mediate cognitively (Didymus & McCarthy, 2023).

Methods: Via demonstration, an interactive activity, and discussion, this part of the workshop will immerse delegates in the address of their own thoughts and inferences about the self and others to experientially learn about the application of CT in a time-efficient manner. We will explore the value of the therapeutic alliance, the importance of a thorough and iterative formulation of the psychological factors that develop and maintain psychological disturbances, and the power of clients' independent learning during homework activities, which are an important pillar of applied work using CT.

Summary and implications: Following an immersive learning experience, delegates will be equipped to reflect on the invisible forces (i.e., thoughts, memories, and experiences) that mold their behavior. This, in turn, will inform delegates' practice with athletes and other stakeholders in sport by refreshing, refining, and developing their applied skills.

## Acceptance and Commitment Therapy (ACT)

Sam Wood

*Institute of Sport, Manchester Metropolitan University*

Introduction: Acceptance and Commitment Therapy (ACT) is a third-wave approach to cognitive behavioural therapy (CBT). The application of acceptance-based methods to enhance performance in sport is growing (see Olusoga & Yousuf, 2023), with detailed portrayals for its usage available in the extant literature (e.g., Price et al., 2022; Wood & Turner, 2023).

Problem statement: ACT uses some abstract concepts, delivered through a series of abstract metaphors that can be confusing for some individuals, and may present a

barrier to applying ACT. The presenter breaks these concepts down clearly for delegates.

Theoretical framework: ACT is underpinned by relational frame theory and functional contextualism, and encourages athletes to accept, rather than fight against, their unhelpful thoughts. The focus is on switching the athlete's attention to the relevant task, framed as values-driven, committed action, versus internal states (e.g., anxiety or frustration). This helps athletes to notice their thoughts non-judgementally, increasing the workability of their thoughts (i.e., "Will focusing on these thoughts take you closer to the athlete you want to be?"), to help them move towards the athlete they want to be (Harris, 2019).

Methods: The presenter draws upon his experiences working as a sport psychologist applying ACT with athletes, coaches, and parents. Delegates will learn how to use strategies to address some of the core therapeutic processes that underpin ACT. The presenter will cover the six core therapeutic processes, which can be grouped into three functional units: openness to internal experiences (contacting with the present moment and self-as-context); awareness of what is happening is happening in ana around you (contacting with the present moment and self-as-context); engagement in your chosen activity (being clear on values and acting on them through committed action).

Summary and implications: Through experiential learning and critical analysis, delegates will be equipped to translate ACT techniques into their practice.

### **Rational Emotive Behaviour Therapy (REBT)**

Betsy Tuffrey

*Seed Psychology LTD*

Introduction: The reported use of Rational Emotive Behaviour Therapy (REBT; Ellis, 1994) in sport and exercise psychology has grown markedly over the last decade (Jordana et al., 2023). Research indicates that REBT can be effective in helping athletes manage their emotions (Turner et al., 2020), develop self-determined motivation (Davis & Turner, 2020) and self-efficacy (Chrysidis et al., 2020), and perform under pressure (Nejati et al., 2022).

Problem statement: Athletes, like all human beings, frequently think and behave in way that are counter to their wellbeing and goal attainment. In REBT, practitioners help athletes to understand deep rooted beliefs that serve to underpin their efforts to attain their goals, and to help them instantiate more healthy and helpful beliefs (Turner, 2023).

Theoretical framework: REBT's chief propositions are that, in response to adversity (A) that thwarts our goals (G), our emotions and behaviours (C) are informed in a meaningful way by our beliefs (B) about ourselves, others, and the world. This GABC framework drives client assessment and also inform intervention work, whereby irrational beliefs (iBs) are disputed (D) and rational beliefs (rBs) are promoted (E), thus creating a GABCDE framework that underpins REBT work (Turner, 2023).

Methods: The presenter will take the audience through case study examples within sport to really bring to life the use of REBT in applied sport psychology practice. The presenter will cover methods such as the 'badness scale' and other practical activities that are effective in helping athletes achieve rational alignment and real change.

Summary and implications: The presenter aims to showcase REBT as a methodology not only for effectiveness in the 'live work' with a practitioner, but also how this form of CBT can leave athletes with a sense that they themselves have a renewed, systematic way to problem solve their own future barriers.

### **Multimodal CBT (MMCBT) Approach**

Jennifer Hobson

*Academy of Sport and Physical Activity, Sheffield Hallam University*

Introduction: One aim of sport psychology work is to support individuals to adapt their behaviour to meet situational demands (Mennin et al., 2013). Rather than being wedded to a single CBT approach to achieve this, it is possible to synthesise various CBTs to offer a multimodal CBT (MMCBT) approach to practice, to offer a broad and adaptive framework from which to help athletes (Hobson & Dixon, 2023).

Problem statement: Sport psychologists immersed within sporting organisations face many challenges, including a lack of time and opportunity for 1-to-1 support (as per "typical" CBT approaches). Thus, supporting athletes via alternative and more efficient methods (i.e., multi-modally) represents a solution to this challenge. It is possible to work multi-modally whilst staying true to cognitive behavioural principles, for example by using the revised theory of challenge and threat states in athletes (TCTSA-R; Meijen et al., 2020).

Theoretical framework: The TCTSA-R is a cognitive behavioural theory of emotion. In the TCTSA-R, when perceived personal resources meet or exceed perceived situational demands (challenge state), athletes observe performance benefits relative to those whose perceived demands exceed their personal resources (threat state). Sport psychologists may use a range of CBT techniques to help increase an athlete's perceived resources.

Methods: The presenter will draw upon her experiences working as a sport psychologist within both male (academy level) and female (national team level) youth football in England, applying the TCTSA-R within that work. Practical examples of this work will be provided, and practical activities will illustrate how CBT techniques can support TCTSA-R application.

Summary and implications: Delegates will learn how the TCTSA-R could be used to underpin a programme of support delivered to players, coaches, and parents, as well as more broadly how the theory could be used as a framework to guide multi-disciplinary working within high level youth sport.



## Multi-Modal REBT and Self-Compassion Intervention for Performing Under Pressure

**Katie Sparks**<sup>1</sup>, Paul Mansell<sup>1</sup>, Andrew Wilkinson<sup>1</sup>

<sup>1</sup>Staffordshire University, Shrewsbury, United Kingdom

Workshop (applied) 38: Mental skills training,  
Hall Brüssel, Juli 18, 2024, 11:00 - 12:00

Katie Sparks

**Brief introduction:** Utilising Self-Compassion to influence mental wellbeing and performance under pressure, as part of the multi-model intervention.

**Problem Statement:** Mental health is a course for concern between the ages of 16-18 students, they have a substantial period of assessment which plays a significant role in their future. No longer are they dealing with just normative but also exam-related stressors (Pascoe et al., 2019), these have been identified as an additive risk factor to wellbeing (Ma et al., 2020). Furthermore, those who are student-athletes have the added pressure of performing in competition and the risk of being deselected. However, it is possible to change the way we think about stress and demanding situations, through altering our mindsets.

**Theoretical framework and Methodology:** One way of changing an individual's mindset is through altering their beliefs (Molden & Dweck, 2006), REBT is an approach that focuses on changing irrational into rational beliefs to lead to functional behaviour and emotional consequences (Ellis, 1957). We decided to include self-compassion as disputation technique. Self-compassion is consistent with one of the main assumptions of REBT, unconditional self-acceptance (Ellis, 1994), therefore it was sound fit. It is part of this process that enables us to have self-acceptance, especially in potential failure (Stephenson et al., 2018).

Athletes/students were taught about their cognition and brain development in relation to self-criticism and how we need to teach ourselves to be self-compassionate. We taught self-compassion through various techniques, such as the fear wall (mindful awareness & common humanity) and being our best support coach (self-kindness).

**Summary and implications of the result:** Results demonstrated adaptive changes in mental wellbeing, perceived performance, stress-mindset following the intervention. Additionally, there was encouraging feedback for this session, with adolescents reporting they enjoyed and are utilising self-kindness.

Paul Mansell

**Brief introduction:** Introducing stress mindset, it's relevance and contribution towards wellbeing and performance, and how it may be altered using education about stress.

**Problem Statement:** Adolescents experience stress daily and coping adaptively with these stressful situations is an important determinant of their wellbeing and performance. Rather than seeking to change the often-unavoidable stressful situations, it is possible to change the way in which we think about stress.

**Theoretical framework and Methodology:** Demonstrating the possibility of altering trait beliefs, studies have also shown that an individual's stress mindset can be changed via education about stress (Crum et al., 2013; Mansell et al., 2023). Consequently, education about stress is a component of a strategy to enhance athletes' stress mindset, psychological wellbeing, and performance. As most individuals possess negative beliefs about the nature of stress, we aimed to move individuals along a continuum towards seeing stress in a more balanced and helpful way. Initially, highlighting the importance of mindsets in influencing thoughts, feelings and behaviours were deployed, before utilising a short video to promote the upsides of stress. Through the medium of the 'Stress Helpfulness Scale' task (Mansell et al., 2023), athletes were then tasked to reflect on the extent to which various stress responses could be helpful to their performance.

**Summary and implications of the results:** As part of a multimodal intervention, results demonstrate that the intervention was successful at enhancing stress mindset and reducing negative affect in athletes. In support of other previous studies, stress mindset can be altered quickly, and the study by Mansell et al. (2023) is one of the first to demonstrate such changes in athletes specifically. Findings offer support for targeting stress mindset to enhance young athletes' wellbeing, and novel strategies through which this may be possible (e.g., the 'Stress Helpfulness Scale' task).

Andrew Wilkinson

Brief introduction, problem statement, and theoretical framework: Stress mindsets are linked to how we appraise the demands of a situation, whether as a challenge or a threat (Mansell, 2021). Theory of Challenge and Threat States in Athletes (TCT-SA) suggests that the way in which athletes appraise a competitive situation will determine whether they experience facilitative (challenge) or detrimental (threat) psychological and physiological responses (Jones et al., 2009). Challenge and threat states have been found to predict competitive performance outcomes in an array of settings (Behnke & Kaczmarek, 2018). Mansell (2021) found that a greater stress-is-enhancing mindset was positively related to challenge appraisal tendencies, and therefore better performance but also wellbeing.

Methodology: The measurement of psychophysiological stress responses could further consolidate the stress-mindset theory, we will be investigating this in our upcoming study in the paramedic context. We will therefore discuss the different types of measurements that could be collected to help aid an athletes or individuals understanding of their own physiology under stress and demonstrate how this may reveal whether they are in a challenge or threat state.

Summary and Implications: Discuss the difference in vascular and cardiac markers of challenge states, and how these predict performance under conditions of high-pressure compared to low-pressure. Explore how the multi-modal intervention that target an athlete's/individual's approach to a demanding situation, rather than an intervention that just targets negative consequences of this approach (e.g., psychological skills training), may be most effective. We will offer all of this in-light of our upcoming psychophysiological study investigating the multi-modal intervention within the paramedic environment on their performance, stress physiology and wellbeing.

## Psychological Effects of LGBTI Discrimination in Sport

**David Smith<sup>1</sup>**

<sup>1</sup>German Sports University Cologne, Cologne, Germany

Workshop (applied) 39: Social and cultural diversity (e.g. migration: ethnicity),  
Hall New Orleans, Juli 18, 2024, 11:00 - 12:00

Discrimination in sport has been a major problem that has pervaded and perpetuated sport culture for generations, leading many athletes to lose motivation and quit the sport altogether (Denison, E., Kitchen, A., 2015). It has also made sport inaccessible to many youths and adults, robbing them of the physical, mental, and social benefits from participating in sport (Denison, E., Kitchen, A., 2015; Menzel, Braumüller & Hartmann-Tews, 2019). A recent study by Menzel, Braumüller & Hartmann-Tews (2019) found that, out of 5524 people who identified as LGBTI who participated in the study, 90% of them considered LGBTI discrimination in sport to be a problem with 20% refraining from participating in sports due to their sexual orientation/gender identity and 16% having direct "negative experiences" of discrimination in a sport context. In a call for a renewed LGBTI inclusion in sport psychology practice, Krane and Waldron (2021) cited a need to embrace and integrate cultural diversity, create resources to train practitioners on cultural competency/humility, and develop organizational infrastructures to address LGBTI discrimination. Thus, the purpose of this presentation is to analyze the underlying mechanisms of how discrimination affects athlete's mental health and motivation to participate in sport that ultimately drive them to quit. Audience members will leave the presentation with an increased awareness and understanding of different constructs and mechanisms of how athletes are psychologically affected by discrimination. This will help applied practitioners to better take action to combat discrimination within their own teams and help inspire researchers to pursue more in-depth research into this topic.

## Accelerated learning strategies for optimizing performance under pressure: An evidence-based applied workshop on police training

Judith P. Andersen<sup>1,2</sup>, Vana Hutter<sup>3,4,5</sup>

<sup>1</sup>University of Toronto, Department of Psychology, Mississauga, Canada, <sup>2</sup>Temerty Faculty of Medicine, University of Toronto, Canada, <sup>3</sup>Department of Human Movement Sciences, Faculty of Behavioural and Movement Sciences, Vrije Universiteit Amsterdam, Netherlands, <sup>4</sup>Institute of Brain and Behaviour Amsterdam, Amsterdam, Netherlands, <sup>5</sup>Netherlands Institute for the Study of Crime and Law Enforcement (Nederlands Studiecentrum Criminaliteit en Rechtshandhaving; NSCR), Amsterdam, Netherlands

Workshop (applied) 40: 44 Military, police and tactical populations, Hall Innsbruck, Juli 18, 2024, 11:00 - 12:00

### Individual abstract 1

#### Using theories on motor learning and performing under pressure to design learning activities for police training

R.I. (Vana) Hutter

Introduction and problem statement: Police officers need to be able to perform under pressure. Officers need to act proportionally and legitimately, and execute skills such as restraining a suspect, using a taser, or seeking cover adequately during extreme stress and life-threatening situations. Despite the knowledge that there are high demands of police officers' skills to perform under pressure, and evidence that indicates performance becomes more difficult during stress, the amount of training time available to police officers is scarce (Kleygrewe et al., 2022).

Theoretical framework: We recently formulated seven didactical principles to squeeze as much learning as possible out of the limited available training time officers receive (Hutter et al., 2023). These criteria are based on research on skill acquisition, motor learning, performing under pressure, and motivation. The criteria integrate different contemporary theories of learning (non-linear pedagogy, ecological dynamics, representative learning design, etcetera) and answer the call for more andragogic, learner-centered practices in police training.

Brief description of methodology: In this workshop, parts of the didactical principles will be applied by the participants, with a particular focus on how to design a high-quality training activity. The participants will be taken through a stepwise protocol to design a learning activity for perceptual motor skills (police related or chosen otherwise). Dutch police instructors were trained with this protocol during their continued professional development training, and examples from that course will also be shared and used.

Summary and implications: In the workshop participants gain experience in designing learning activities for perceptual motor skills that need to be performed under pressure.

### Individual abstract 2

#### The International Performance, Resilience and Efficiency Program (iPREP) for the Application of HRV Biofeedback in Applied Law Enforcement Settings

Judith P. Andersen

Introduction and problem statement: Operational policing includes threatening, uncertain and potentially conflictual interactions, all of which increase unease. Unease is a state governed by internal physiological processes that direct cognition and behavior and can interfere with operational effectiveness (Arpaia & Andersen, 2019). Police training in North America focuses primarily on external factors (e.g., time, tools) and technical skills (e.g., weapons and tactics) and lacks standardized education on the internal factors of stress awareness and modulation (Huey et al., 2021). Unease is not ameliorated by telling officers to 'calm down' 'show no weakness, or 'embrace the suck', which are commonplace directives in police culture and training (Rawski & Workman-Stark, 2018). The good news is that heart-rate-variability-biofeedback (HRVB) addresses the above gap in police training along with many additional benefits, including being non-invasive, low cost, straightforward to administer and has been met with high buy-in from police.

Theoretical framework: This workshop introduces the HRVB core competencies trained in the International Performance and Efficiency Program (iPREP). The iPREP program was developed by researchers, police practitioners, and physicians and it addresses occupational-specific stressors and the practical realities of training and resource availability in operational law enforcement settings. Supported by 10 years of empirical research (Andersen et al., 2023) iPREP pioneered the translation of theoretical and methodological techniques drawn from clinical and sports science to improve police performance and health (Lehrer et al., 2013).

Brief description of methodology: This workshop provides instruction on how to conduct parts of a five-module heart rate variability biofeedback (HRVB) protocol tailored for delivery in applied law enforcement settings. By combining best practices in clinical HRVB with police-specific pedagogical frameworks, workshop attendees will learn how to deliver accelerated and job-relevant training to help officers adaptively modulate autonomic responses to acute and chronic stress. Presenters will utilize basic field technology (i.e., a heart monitor and phone app) to demonstrate how to train participants. Specific areas to be highlighted in the workshop: Training officers' ability to modulate stress physiology during threat exposures at the speed of operation; ability to rapidly recover from stressors between calls to manage ongoing operational demands; ability to recover following operational demands to avoid the accumulation of physiological wear and tear.

Summary and implications: Participants from a variety of backgrounds will gain valuable insight on how our health and performance intervention leverages ambulatory HRVBF technology, providing evidence-based and actionable solutions for (police) training and education.

## Three Psychodynamic Concepts: Applicability for the Sport Psychologist

**Ohad Nahum<sup>1</sup>**

<sup>1</sup>The Academic College of Tel Aviv-Yaffo, Tel-aviv, Israel

Workshop (applied) 42: Psychodynamic, systemic and hypnotherapeutic issues,  
Hall Brüssel, Juli 18, 2024, 13:30 - 14:30

Overview: While often overlooked, the psychodynamic perspective holds immense potential for enhancing the effectiveness of sport psychology consultations. By delving into three fundamental psychodynamic concepts—countertransference, psychological defense mechanisms, and case formulation—this workshop aims to illuminate their relevance and practical application in understanding athletes and fostering their performance and well-being. Countertransference provides valuable insights into the dynamics of athlete-consultant relationships while understanding psychological defense mechanisms offers additional perspectives on athletes' behaviors. Furthermore, case formulation enables consultants to craft empathic narratives and promote a stronger alliance with the athlete.

Workshop Approach: Through critically examining the underrepresentation of psychodynamic approaches in sport psychology, this workshop will highlight their complementary value to the field. Participants will gain practical insights into each concept using short clinical examples, equipping them with the skills to integrate psychodynamic concepts into their consultations.

### Learning Objectives

- (1) Learn the complementary potential of incorporating psychodynamic thinking into sport psychology consultations.
- (2) Gain insight into three core psychodynamic concepts: countertransference, psychological defense mechanisms, and case formulation.
- (3) Learn to apply these concepts to support athletes holistically and effectively.

Summary: This workshop aims to empower sport psychology consultants to integrate psychodynamic concepts into their work with athletes. Participants will receive summaries of each concept and references of additional resources for continued exploration and implementation.

Free, M. (2008). Psychoanalytic perspectives on sport: a critical review. *International journal of applied psychoanalytic studies*, 5(4), 273-296.

Strean, W. B., & Strean, H. S. (1998). Applying psychodynamic concepts to sport psychology practice. *The Sport Psychologist*, 12(2), 208-222.

## Adopting the Scientist-Practitioner Model - What does it actually mean?

**Nico W. Van Yperen**

<sup>1</sup>University Of Groningen, Groningen, Netherlands

Workshop (applied) 48: Best practice,  
Hall Grenoble, Juli 19, 2024, 11:00 - 12:30

In this proposed workshop, we will discuss the Scientist-Practitioner (S-P) Model, which emphasizes the integration of science and practice, and in particular, what adoption of the S-P model actually means. Sport and performance psychologists have an ethical and professional responsibility to adopt an evidence-based practice (EBP) such that they use the best available, current, valid, and relevant evidence to make informed decisions about what, when, and how to teach performers mental skills necessary to realize their greatest potential, to perform consistently, and to enhance their well-being (cf., Gardner & Moore, 2006; Keegan, 2016).

The question is, however, whether the current body of data provides sufficient empirical evidence to sufficiently support claims that particular interventions or strategies 'work', that is, improve athletes' psychological skills, performance, or well-being (cf., Berk & Miles, 1999). For example, in a recent review of reviews on Psychological Skills Training (PST), Lange-Smith et al. (2023) rated 97% of the included reviews as critically low in quality. Hence, they concluded that practitioners must be cautious when making claims about the review-level evidence for their PST interventions. Furthermore, in peer-reviewed journals, research findings are typically reported on the group level, whereas practitioners are often interested in applications at the individual level. Transferring group-based outcomes (and interpretations) to the individual level is often inaccurate, which is referred to as 'the ergodicity issue' (e.g., Hill et al., 2021; Neumann et al., 2022). Another issue that may question the usefulness of research findings in the field of sport and performance psychology, is that professionals often work with elite performers, or 'outliers'. Their special needs, goals, and challenges imply that – for example – existing and broadly tested interventions are not interesting or relevant for them.

In this workshop, we will interactively discuss what the implications are for sport and performance psychology professionals' desire and intention to adopt the S-P Model. The discussion will be initiated by a short introduction on EBP and the available research evidence in the field, illustrated by main stream topics, including achievement goals and self-regulation (Van Yperen, 2021).

It will be argued and demonstrated that adopting the S-P Model obviously involves the use of evidence-based approaches, methods, and interventions, acknowledging its limited availability. But working as a S-P psychologist also includes, among other things, clear operationalizations and communication of the target concepts that are used, for example, motivation (e.g., intrinsic, extrinsic, autonomous, controlled, needs, goals), self-efficacy (e.g., level, strength, generality), and commitment (e.g., affective, normative, continuous, individual, team, club, organization). Moreover, the

S-P model requires consideration, explanation, and illustration of underlying psychological processes ('mediators') and the conditions ('moderators') that makes particular (causal) relationships between target variables more, of less, likely. For example: Why is low self-efficacy related to easy goals or excessively difficult goals? Why are specific and difficult goals related to better performance, and under what conditions? Why do strong self-efficacy beliefs create new 'wish-have' discrepancies?

Learning Objectives: Sharing experiences of our MSc program, and in particular, our postgraduate program 'Sport and Performance Psychology' (the only one in the Netherlands, see [www.ispp.nl](http://www.ispp.nl)) aimed at students who already completed a relevant MSc program and want to specialize as a science-practitioner in the field of sport and performance psychology.

Understanding that adopting a S-P model requires current, valid, and relevant empirical evidence which is often not available, particularly when considering the specific context of the individual (elite) performer, team, or organization.

Understanding that adopting a S-P model also includes clear operationalizations and communication of the target concepts and scholarly (and preferably empirically based) thoughts and ideas about underlying psychological processes and conditions that likely facilitate or inhibit these processes.

Stimulating participants' reflection and critical thinking on adopting a S-P model, and strengthening their belief that effective and best practice in the field of sport and performance psychology requires a 'scientifically sound mindset'.

Speaker/presenter:

Nico W. Van Yperen, professor of Sport and Performance Psychology at the University of Groningen and founder, developer, and content director of the postgraduate program 'Sport & Performance Psychology' (the only one in the Netherlands, see [www.ispp.nl](http://www.ispp.nl)). In this program, students who already completed a relevant MSc program, are trained to specialize as scientist-practitioners in the field of sport and performance psychology.

Teaching Methods and Techniques: The workshop involves active participation through interactive discussions, demonstrations, and experiential learning. We kick off with a brief, plenary introduction the S-P model and EBP, illustrated by research and interventions on achievement goals and self-regulation (Van Yperen, 2021). Participation will be encouraged by questions and brief assignments throughout the session (e.g., about conceptualizations, psychological processes, and participants' own experiences).

Materials and Resources: We will present multimedia materials, examples, research findings, and practical guidelines for effectively implementing EBP. Digital handouts (+ references) will be provided afterwards.

Berk, M. & Miles, L. J. (1999). Evidence-based psychiatric practice: Doctrine or trap? *Journal of Evaluation in Clinical Practice*, 52, 149-152.

Gardner, F. L. & Moore, Z. E. (2006). *Clinical sport psychology*. Human Kinetics.

Hill, Y., Meijer, R. R., Van Yperen, N. W., Michelakis, G., Barisch, S., & Den Hartigh, R. J. R. (2021).

Nonergodicity in protective factors of resilience in athletes. *Sport, Exercise, and Performance Psychology*, 10(2), 217-223.

Keegan, R. (2016). *Being a sport psychologist*. Palgrave

Neumann, N. D., Van Yperen, N. W., Brauers, J. J., Frencken, W., Brink, M. S., Lemmink, K. A. P. M., Meerhoff, L. A., & Den Hartigh, R. J. R. (2022). Nonergodicity in Load and Recovery: Group Results Do Not Generalize to Individuals. *International Journal of Sports Physiology and Performance*, 17, 391-399.

Van Yperen, N.W. (2021). Achievement goals and self-regulation in the sport context. In: Van Lange, P. A. M., Higgins, E. T., & Kruglanski, A. W. (Eds). *Social Psychology: Handbook of Basic Principles*, third edition (pp. 589-606). Guilford.



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