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Towards a new system of group hypnotherapy for adult obesity

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Towards a new system of group hypnotherapy for adult obesity.

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Thesis Abstract

This thesis is concerned with the intractability of adult obesity for hypnotherapy and is presented in two parts the first being concerned with the nature of the problem and the second with developing a solution. The thesis first considers the impact of adult obesity on the English economy and National Health Service. The limited response of the National Health Service is examined and a review of evidenced-based (non-surgical or pharmacological) interventions in obesity is carried out. The general intractability of adult obesity is investigated with regard to the misguiding influence of the energy balance equation and psychological issues including the implications of food-related attitudinal ambivalence. Determination of the nature of the problem concludes with an historical overview of hypnotherapy for adult obesity prior to an examination of the evidence for hypnotherapy in adult obesity and of factors which may diminish its effectiveness. The second part of this thesis reports the development of a system of confidential IMR based one-to-one hypnotherapy in a group setting as a means of reducing treatment costs for adult obesity for patients from lower socioeconomic groups, where the condition is most prevalent. In addition the system provides a facility to treat food-related attitudinal ambivalence which is reasoned to result in resistance to hypnotic suggestions aimed at stopping hyperphagia. Inferential analysis conducted during the empirical part of the study has shown that the new one-to-one hypnosis in a group setting is no less effective than normal group hypnosis. Further limited inferential analysis suggests that the new system of hypnotherapy was instrumental in generating improvements in a range of psychological, behavioural and biological variables associated with participants' hyperphagia. This work contributes to hypnotherapeutic knowledge and practice by the conceptualization and development of one-to-one hypnotherapy in a group setting and the facility to treat food-related attitudinal ambivalence.

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"I am enough of an artist to draw freely upon my imagination. Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world."
Albert Einstein, 1879-1955.

Chapter One

Introduction to the thesis

This thesis focuses on adult obesity, the nature and effectiveness of hypnotherapy with particular regard to adult obesity, and the design and initial development of a system to address these problems. The research described in the thesis was motivated by personal clinical experience of two issues: first the need to increase access to treatment for lower socioeconomic groups, wherein ironically obesity is most prevalent, by reducing charges, and second the poor efficacy of hypnotherapy for hyperphagia leading to obesity in adults, which seemed to concur with the low level of hypnotherapeutic efficacy apparent in the obesity literature. Patients presenting for hypnotherapy to help them control their excessive intake of fattening foods appeared attitudinally ambivalent about making positive adjustments to their diet. Whilst their desire and intent to reduce their weight seemed genuine and unequivocal, their ability to sustain positive changes to their diet usually turned out to be superficial. The use of the phrase 'food-related attitudinal ambivalence' may succinctly encapsulate the problem described. Typically patients seen seemed to be influenced by diametrically opposed motivations which functioned simultaneously: one towards slimness and the other towards maintaining their hyperphagia. Obese hyperphagic patients appeared to be resilient to hypnotic suggestions designed to curtail their ingestion of high energy foods even though they displayed the usual symptoms of being hypnotized. It was felt that this ineffectiveness might be explained by the prevailing international opinion amongst clinical hypnotists and governing bodies: that a person's free will can not be

compromised by hypnotism (e.g. Conn, 1972; Hartland, 1974; Kroger, 1977 p. 36; Waxman, 1989 p. 39; Lynn and Rhue, 1991b; Vingoe, 1995; Kirsch, *et al.*, 1999 p. 7; James, 2000 p. 51; British Psychological Society, 2001). On the basis of the observations mentioned above the following way of conceptualizing the problem was established:

> "The conventionally accepted status of free will to hypnotism negates hypnotherapy for hyperphagia leading to obesity when the obese patient is ambivalent about making positive changes to their diet."

In addition to the perceived problem of food-related attitudinal ambivalence it has been shown that in developed countries obesity is most prevalent amongst lower socio-economic groups (e.g. House of Commons, 2004; Joint Health Surveys Unit NatCen, 2003; NAO, 2001; WHO, 1998), which means that one-to-one hypnotherapy for obesity is often an unaffordable option for many people. On the surface group hypnotherapy appears to present an economical alternative to one-to-one hypnotherapy but there are ethical and practical limitations with this method. Group hypnotherapy cannot address individuals' motivations for overeating without breaching patient confidentiality. Also ideo motor response (IMR), an essential procedure in hypnotherapy for hyperphagia, cannot be closely monitored. These factors limit group hypnotherapy to providing a 'one size fits all' approach which would be inadequate. Observation of this problem led to a second conceptualization:

> "The economical advantage of group hypnotherapy for adult obesity is compromised by its ethical and practical limitations."

The conceptualization process led to the formulation of two questions which provided the fundamental impetus for the research contained in this thesis:

1. How can hypnotherapy for adult obesity be made more accessible to the less financially well off members of society for whom obesity is most prevalent?

2. If an obese patient who unequivocally wants to reduce their weight is attitudinally ambivalent about curtailing their hyperphagia how can hypnotherapy be effective if it can not compromise free will?

Subsequently the following two research aims were drawn up to answer the questions above:

1. Devise a system to facilitate confidential individual hypnotherapy with IMR procedures in a group setting.

2. Devise a facility to manage food-related attitudinal ambivalence.

Whilst working to meet the research aims three additional issues emerged which required attention. The first issue was the need to address a condition referred to as 'counter regulation' or, more informally, the 'what-the-hell effect', which commonly affects dieters and causes them to lapse from their diets and which has not been formally considered by hypnotherapists in the past. The second issue concerned the absence of any suitable means of measuring food-related attitudinal ambivalence whilst the third issue was the absence of a standard method for assessing or categorising presenting cases of obesity. Each of these extra concerns is dealt with in the final chapter of the thesis as suggestions for future research.

The problems associated with obesity in relation to the United Kingdom are usually reported separately for England, Ireland, Scotland or Wales. Unfortunately the production of official reports about the ongoing obesity situation in each of the four countries is not coordinated resulting in a significant lead and lag effect in available data. In terms of obtaining recent comprehensive information about the national effects of obesity there seems to be more availability with regard to England. Further to this

the present research is concerned with hyperphagia and the motivating factors underlying it as the clinical condition. It is considered important therefore that cultural effects undoubtedly play an influential role in the way people behave with food in different countries or regions within countries (Bell and Valentine, 1997; Sokolov, 1991). This might have a bearing on the development of a new hypnotherapeutic intervention aimed at eliminating hyperphagia. In view of these considerations it was decided to concentrate primarily on the effects of obesity in England. Given that this research was conducted at a Welsh university an opportunity sample of participants resident in Wales took part. This was not anomalous with using English data to contextualise the extent of the problem as national or cultural factors were not implicated in their participation. In addition to the global problem of adult obesity the burgeoning degree of child obesity is also fully appreciated. However being primarily concerned with intervening in hyperphagia it was felt that psychological factors underpinning the condition would most likely be different for children than adults. As such it was decided to concentrate the work on adult obesity.

The thesis has been written in two parts with the first being concerned to consider the nature and characteristics of adult obesity and to conduct an extended examination of why the intractability of the condition persists. This is followed by a review of hypnotherapy as an intervention in adult obesity and a discussion to determine what may logically be the reasons for its low clinical efficacy. The reasoning process undertaken during the first part of the thesis is taken forward into the second part in order to innovate and conceptualize solutions to the problems raised in Part 1. This was followed by a series of empirical studies to evaluate the concepts developed. There appears to be no other work in the hypnotherapy research literature which either recognises this problem or attempts to remedy it. As such this work is an attempt to provide an original approach to the problem and an innovative solution. In this way it is

hoped that the work makes a contribution to the development of knowledge and practice in the field.

Chapter Two

Adult Obesity in England

Obesity may have always been a part of human existence judging from the evidence of a variety of recovered prehistoric artefacts. A prime example is the Venus of Willendorf; a small statuette of an obese woman which dates back to about 22,000 BC. As a clinical phenomenon modern perceptions about obesity can be traced to William Banting (1796-1878) who produced the first diet book in 1863 entitled "Letter on Corpulence". Since Banting, obesity, or corpulence as it was then called, has continued to present a refractory condition for anyone trying to prevent or eliminate it.

The argument was made 46 years ago that most obese patients will not stay in treatment for obesity, of those who stay in treatment, most will not lose weight, and of those who do lose weight, most will regain it (Stunkard, 1958). The situation that motivated this depressing observation had not improved almost a quarter of a century later when an equally well-respected investigator observed "if cure from obesity is defined as reduction to ideal weight and maintenance of that weight for 5 years, a person is more likely to recover from most forms of cancer than from obesity" (Brownell, 1982 p. 820). Unfortunately Stunkard and Brownell's observations remain just as valid today. According to the World Health Organization (1998) we are currently facing an escalating 'global epidemic'. Whilst trends in the global intractability of obesity are reflected throughout the whole of the United Kingdom where some 25% of men and 20% of women are currently obese (National Diet and Nutrition Survey, 2004) this thesis focuses on the challenge it presents for England which was exemplified by a recent British parliamentary report that stated:

> *"With quite astonishing rapidity, an epidemic of obesity has swept over England. To describe what has happened as an epidemic may seem far-fetched. That word is normally applied to a contagious disease that is rapidly spreading. But the proportion of the population that is obese has grown by almost 400% in the last 25 years.*

Around two-thirds of the population are now overweight or obese. On present trends, obesity will soon surpass smoking as the greatest cause of premature loss of life. It will bring levels of sickness that will put enormous strains on the health service, perhaps even making publicly funded health service unsustainable."
The United Kingdom Parliament Select Committee on Health (Third report 10 May 2004)

2.1The nature of adult obesity

Obesity is an excess of body fat and is defined currently as a body mass index (BMI) greater than 30. BMI can be calculated from the equation:

$$BMI = Weight\ (kg) \div Height\ (m)^2$$

A person is considered to be: underweight if their BMI is less than 18.5 kg/m², normal weight when their BMI is between 18.5 and 24.9 kg/m², overweight when their BMI is between 25 and 29.9 kg/m², and obese when their BMI exceeds 30 kg/m² (e.g. WHO, 1998). In contrast to viewing overweight and obesity as distinct clinical domains it has been shown that adopting a more unified nosological approach by classifying body fatness into three clinical grades of obesity provides for a better perspective on the health risks of obesity (Garrow, 1981). It is evident that a significant negative effect on longevity begins somewhere in the BMI range 25 to 30 kg/m² which has been classified as Grade 1 Obesity. A classification of Grade 2 Obesity is applied above BMI 30 kg/m² and Grade 3 Obesity when BMI is above 40 kg/m² (British Nutrition Foundation, 1999). In addition to the relationship that exists between degree of obesity and ill health, regional fat distribution is also important in determining the risks of obesity to health. Bjorntorp (2002) suggests it is important to distinguish the subgroups of central, abdominal, or visceral obesity from peripheral, gluteofemoral obesity as visceral obesity is associated with most of the established risk factors for cardiovascular disease, Type 2 diabetes mellitus, and stroke. Regional fat distribution has been noted to have implications for the development of serious diseases by other researchers in

the field (e.g. Garrow, 1999; Blumenkrantz, 1999; Folsom, *et al.,* 1993; Kissebah & Peiris, 1989; Gillum, 1987a, 1987b; Welin, *et al.,* 1987; Evans, 1984; Krotkiewski, *et al.,* 1983).

The most frequently used methods of obesity related anthropometry are body mass Index (BMI: Keys, *et al.,* 1972), waist to hip ratio (WHR: Kissebah, *et al.,* 1982) and waist circumference (Han, *et al.,* 1997a, 1997b; Lean, *et al.,* 1995, 1998). It is widely accepted that BMI, WHR and waist circumference can be used to indicate fatness and are effective predictors for the health risks posed by obesity. Whilst the usefulness of BMI is supported by many epidemiological studies its clinical value in delineating fatness is limited. Excess weight does not necessarily mean excess fat and as such a well-muscled athlete might, according to their BMI, be classed as obese. It should also be noted that BMI is an indicator of total body fat but is not an indicator of the anatomical distribution of body fat with its subsequent implications for morbidity and mortality but WHR has been developed as a measure of regional fat distribution (Kissebah, *et al.,* 1982). WHR is calculated, with the patient usually lying supine, by measuring the circumference of the waist mid way between the lower costal margin and the iliac crest and dividing this by the circumference of the hips measured in similar fashion over the widest part of the gluteal region. Population cut off points are different between cultures but it is accepted that 1.0 and 0.85 are borderlines for men and women respectively amongst Caucasians (Bjorntorp, 2002). Although WHR can provide clinicians with crucial prognostic evidence it should be noted that WHR taken at face value could be misleading. During the weight gaining process fat deposition might occur to a greater extent in the gluteal region than around the waist, which would reduce WHR thereby providing an erroneous indication of reduced risk. This anomaly raises concerns about the clinical efficacy of the "waist to hip ratio" as a monitor and supports findings presented by Seidell (1989) which shows that a high waist-hip ratio reflects small hips as well as large waist. It should also be noted that when

contemplating the value of WHR this method cannot distinguish between sub-cutaneous fat and intra-abdominal fat which, as previously mentioned, is thought to be more relevant to cardiovascular disease, Type 2 diabetes mellitus and stroke. Hans *et al.* (1997a) have shown that waist circumference alone may be a more reliable indicator of intra-abdominal fat deposition and in particular measurement of the abdominal sagital diameter, although there is as yet insufficient data to substantiate this reliably (Garrow, 2002). The World Health Organization has decreed that men risk obesity-associated metabolic complications if they have a waist circumference ≥ 94cm and that women experience this risk if their waist measurement is ≥ 88cm.

Generally in terms of the way fat is distributed around the body two main types of obesity have been recognised: Android Obesity and Gynoid Obesity. The former type is likened to the shape of an apple and the latter to the shape of a pear. In Android Obesity the shoulders, face, arms, neck, chest and upper portion of the abdomen will be bloated and the stomach, arms shoulders and breast will give a stiff appearance. The back will seem to be erect but the neck will be compressed and the chest will protrude due to the bulk of the stomach. In comparison to the upper body the hips, thighs and legs will be thinner beyond proportion. In Android Obesity the vital organs most likely to be affected are the heart, liver, kidneys and lungs. Although this type of obesity is found more in males it is common in females too. Gynoid Obesity is also common to both sexes with females being most usually affected. In this type of obesity excess flesh is distributed on the lower part of the body. The flesh is somewhat flabby in the abdomen, thighs buttocks and legs. The face and neck mostly give a normal appearance and in some persons the cheeks may even be drawn. Usually as these persons grow old the whole figure assumes a stooping posture and the spine is never erect due to the heaviness of the hips and thighs. In Gynoid Obesity the vital organs most affected are the kidneys, uterus, intestines, bladder and bowels which all may also affect the heart (Hashmi International, 2005).

Whilst the fundamental reason for obesity is yet to be discovered it is broadly accepted to be a complex syndrome with multifactorial origins involving interactions between a susceptible genotype and an adverse obesogenic environment (e.g. Prentice, 1999; National Heart Lung and Blood Institute, 2000). Prentice (1999) refers to the energy balance equation as the basis for obesity and observes:

> *"One of the few statements about obesity that can be made with absolute certainty is that obesity can only occur when energy intake remains higher than energy expenditure, for an extended period of time. This is usually stated as a chronic displacement of the energy balance equation:*
>
> *Energy intake – Energy expenditure = Change in body energy stores*
>
> *This is the incontrovertible foundation stone upon which any theories of obesity must be built. All putative mechanisms must ultimately act through increasing energy intake, decreasing energy expenditure or both."*
>
> *Obesity: A report by the British Nutrition Foundation Task Force, (1999, p.37).*

2.2The impact of adult obesity in England

Prevalence

The National Audit Office (NAO) in their report entitled 'Tackling Obesity in England' (2001) indicated that over half of women and two thirds of men in England were either overweight or obese. In England, the prevalence of obesity has continued to climb unremittingly in line with similar trends across the rest of the U.K. (Ogden, 2000). In 1980, 6% of men and 8% of women in England were thought to be obese which rose to 13% and 16% respectively by 1993 (Gregory *et al*, 1990; Breeze *et al*, 1994; Bennett *et al*, 1995). By 1998, levels of obesity in England had risen to 17% of men and 21% of women (DoH 1999). This suggested that, should the average rate of increase in the prevalence of obesity between 1980 and 1998 continue, about 20% of men and 25% of

women in England would be obese by 2005 and over a quarter of the adult population of England by 2010. However the Health Survey for England (2003) carried out by the National Centre for Social Research at University College London suggests these figures must be adjusted upwards. According to this later work the differential between male and female prevalence rates in England, which has been in evidence since 1980, has almost closed with 22.9% of males and 23.4% of females being obese. Across Britain as a whole this alteration in gender prevalence rates in England is even more marked where males have overtaken females to the extent that 25% of men and 20% of women are seen as obese (National Diet and Nutrition Survey, 2004).

There are indications that the rise in the prevalence of obesity in England is steeper than in Europe generally even though lifestyles and cultures are comparable. Whereas European prevalence rates, which were thought generally between 1983 and 1986 to be in the region of 15% for men and 22% for women (WHO, 1998), have been shown to have risen between 10 and 40% between the late 1980s and late 1990s (Brown, 2000), rates in England have nearly doubled. England is now near the top of the European obesity table. If this trend continues, England's obesity problem will soon match that of the U.S.A. where prevalence rates for obesity are now running at about 30% (NCCDPHP, 2005).

Financial Cost

The NAO report showed that the costs to the National Health Service (NHS) alone generated by obesity in England were in the order of £0.5 billion for 1998. This amounted to 1.5% of the total NHS expenditure for that year and comprised costs of £9.5 million attributable mainly to GP consultations directly associated with obesity, whilst the bulk of expenditure was taken up with treating conditions related to obesity. The three major obesity-related cost drivers identified by the NAO were hypertension,

coronary heart disease and Type 2 diabetes, which in 1998 accounted for £368 million, whilst osteoarthritis and stroke accounted for a further £52 million of costs. The NAO made it clear in their report that the actual cost to the NHS of treating obesity in England was likely to be in excess of their figures in that some aspects of obesity-related costs were difficult to assess reliably and had therefore been omitted. As an example, they referred to the potentially high cost of treating obesity-related depression and hyper-lipidemia, which had both been omitted from the report because there was inadequate data on relative risk. With the cost of anti-depressants standing at £279 million per year and lipid regulating drugs costing £190 million per year, the NAO suggested that, should even a small proportion of this cumulative £469 million annual expenditure be attributable to obesity, the cost of treating obesity in England would rise considerably. In other countries where the prevalence of obesity was similar to that in England, the direct costs of treating obesity was significantly higher, accounting for between 2% and 6% of national health care budgets (Rissanen, 1996). If Rissanen's fiscal proportions were shown to be more appropriate, it would mean that the cost of treating obesity in England in 1998 would have risen for the NHS to between £0.7 billion and £2.1 billion.

In addition to the financial pressure on national health services, obesity exerts further pressure on industry and commerce through lost working days attributable to obesity-related illnesses. According to the NAO, in England alone, obesity accounted for at least 18 million days of sickness absence in 1998. The calculated effects of obesity on working days lost were probably higher than the NAO report suggests, as estimates did not take into account self-certified and uncertified absenteeism due to sickness. There was also likely to have been a grey area in which absences occurred due to obesity-related illnesses but for which proportional attributions cannot be clearly quantified. For instance, back pain, often associated with obesity and one of the commonest causes of work absenteeism, was excluded by the NAO report, but which, if included, would likely

have increased totals substantially. The impact of obesity on the U.K. economy increases remorselessly when associations are made with death rates. The NAO calculated that in 1998 nine thousand people died of obesity-related illnesses in England before the state retirement age, which they determined was a loss of forty thousand work years. Overall, thirty thousand deaths attributable to obesity were recorded in England in 1998, which represented 6% of the total U.K. deaths for that year. The NAO interpretation of this death rate was that two hundred and seventy five thousand years of life were lost to obesity in England in 1998 or 9 years of life for each person who succumbed to obesity-related death. The NAO estimated the indirect costs of obesity through related lost workdays and pre-retirement death rates was £2.1 billion, of which £1.3 billion or 61% was due to sickness absenteeism related to obesity and the remainder £0.8 billion due to premature mortality. In concluding their report on the estimated costs of obesity in England, the NAO proposed that when combining the direct and indirect costs of obesity, the cumulative figure was in the region of £2.6 billion. They further proposed that if the upward trend in the prevalence of obesity continued at a similar rate until 2010, the cumulative cost of obesity in England would reach £3.6 billion.

The NAO's financial figures for 1998 were recalculated by The Clerk's Department for the House of Commons Select Committee during preparation of their Third Report on Health (May 2004). The recalculation showed the overall cost of obesity had risen to between £3.3 and £3.7 billion. This is £0.7 - £1.1 billion (27% – 42%) more than the NAO's estimate for 1998. The report suggests this figure should still be regarded as an underestimate. They note that their recalculation is for the 20% of the adult population who are already obese but that if those who are overweight were to be included the cost may double to £6.6 - £7.4 billion per year.

2.3 NHS response to adult obesity in England

In addition to providing data about the prevalence and costs of obesity in England, the NAO report detailed the strategic focus of English health authorities and considered the extent to which local health care providers were tackling obesity at the primary, secondary and tertiary levels. The NAO conducted a postal survey in 1999 to establish the views and positions of the 100 health authorities in England regarding their commitment to tackling obesity. The survey generated a 94% response rate and the results indicated that 32 health authorities had identified obesity as a local priority, of which 26 had taken action to address it. Of these, 13 had put in place a dedicated strategy to prevent and treat obesity whilst the other 13 had incorporated action to treat obesity into broader strategies addressing associated diseases. The NAO also found that 14 health authorities were in the process of developing strategies to tackle obesity whilst 48 others did not intend to develop an obesity strategy as they felt they had more urgent priorities. It appeared that about half of the 48 health authorities who demonstrated a lack of intent sought to qualify their response by insisting that they addressed obesity implicitly by encouraging physical activity or healthy eating as part of their coronary heart programmes. In summary, the NAO report indicated the number of health authorities in England taking direct action against obesity in 1999 was fewer than 14%.

During the summer of 1999 the NAO also conducted a postal survey of 1200 general practices in England. A questionnaire was sent to both a named doctor and a practice nurse at each location. The NAO estimated the likely response rate for the survey would be 30%, which they suggested was ambitious for G.P. surveys, and they expressed their satisfaction with the outcome of 36% of doctors (428) and 52% of practice nurses (627). Responses indicated that general practitioners and practice nurses were unsure about what constituted best practice in treating and managing

obesity, including the use of drug therapy. The NAO survey indicated the proportion of general practitioners who were prescribing anti-obesity drugs to be 40%. During follow-up interviews, that were conducted amongst 20 responding general practitioners and associated practice nurses, a majority of doctors felt that drug therapy was a useful aid in accelerating weight reduction for a minority of patients. However, most felt that they lacked the skills necessary to determine if patients were motivated enough to benefit from such therapy by maintaining a calorie controlled diet. This was and continues to be a recommended condition of supplying Orlistat; one of the new generations of anti-obesity drugs, first licensed in Europe in 1998. The survey revealed that at primary care level obesity was usually treated by the application of 'in-house' weight management programmes consisting of diets with weight monitoring and advice about appropriate life styles including physical exercise. About half of general practices appeared to make available unsolicited information about food and nutrition in the form of leaflets and wall-mounted posters placed in surgery waiting areas. The survey identified that specialist expertise, often necessary in the treatment of obese patients, was normally found outside general practice and it was acknowledged that patients' access to suitable obesity treatments often depended on their ability to pay for their own treatment. The survey indicated that general practitioners lacked confidence when seeking to refer patients for specialised obesity treatment because they felt uninformed about the degree of clinical efficacy of available treatment options. They also made it clear that they were unhappy with the scope of available referral options, which highlighted further the uncertainty surrounding obesity, which seemed prevalent in general practice medicine. The NAO listed the 6 most commonly used options for G.P. referral of patients in order of highest use to be: 1) state-registered dietician, 2) private sector slimming organisation, 3) physician, 4) community-based programme/self help group, 5) trained exercise specialist and 6) surgeon.

Patients seeking treatment for obesity or related conditions were likely to receive a level and quality of care that fluctuated not only between general practices but also between individual doctors and practice nurses within surgeries.

The NAO report indicated there was very little obesity-related activity within the NHS at the secondary and tertiary care levels. An unpublished survey carried out by the NHS Clinical Obesity Group in May 1998 identified 12 obesity clinics in England, 8 of which were run by physicians and 4 by surgeons. Additionally the survey revealed that there were 4 physicians and 28 surgeons in England seeing patients for their obesity outside NHS obesity clinics. Whilst surgery could carry a high degree of clinical efficacy, the NAO reports that it was used rarely with about 200 operations being performed in England each year, usually only on the most severe cases of obesity and often funded privately. The rate of surgery performed within the NHS, where the primary diagnosis was obesity, has risen year on year with 538 operations being carried out in the year 2002-03 (H. M. Government, 2004). Overall, the NAO report conveyed a sense that NHS hospital-based services apparently are missing the intrinsic characteristics of obesity by concentrating on its confounding contribution toward the aetiology of other diseases such as Type 2 diabetes, hypertension and stroke.

In contemplating the NAO report it would be difficult to adopt a positive attitude about the future. There is apparently nothing on the horizon to stop the cumulative obesity rate in England from exceeding the estimated 25% by 2010 and nothing to check the burgeoning drain on the economy, which now seems almost inestimable. The differences in the overall percentage costs of obesity (Rissanen, 1996) between England and other comparable countries may indicate that the NAO may have been over-cautious in their assessment of the costs of treating obesity in England or it may have indicated that other countries had been over-zealous in calculating theirs. Alternatively the differentials illustrated by Rissanen (1996) may have been indicative

of NHS under-funding of obesity treatment in England depending on whether one adopts a reactive or pro-active view. A lack of universal procedural standards for treating and managing obesity has been evident at the primary care level despite GPs and practice nurses appearing keen to deal with obesity *per se* unlike their hospital-based contemporaries who have seemed more concerned with associated illnesses. They have also displayed a positive attitude towards education and training in the areas of obesity treatment and management practices. However, in epistemological terms, given the current unreliability of clinical efficacy in obesity treatments, it is difficult to envisage which knowledge base might be used to underpin such training.

The Parliamentary Select Committee on Health in its Third Report (2004) was severely critical of the inadequate response by the NHS to obesity in the United Kingdom. Paragraphs 393 and 394 of the report stated:

> *The evidence we received during the course of this inquiry has convinced us that despite its overwhelming importance, obesity remains a low priority for the majority of service commissioners and providers in the NHS. The National Health Service has a responsibility both to take strategic action to prevent obesity, as part of its public health remit, and to provide adequate treatment for those already suffering from overweight or obesity, as it would for those suffering from any other medical condition. It appears to us to be failing in both of these areas, and this needs to change as a matter of urgency, (Para 393).*
>
> *We are fully aware that obesity is mentioned in existing National Service Frameworks, but we believe that these scant mentions are woefully inadequate to provide a strategic framework through which to tackle what has been described as 'the biggest public health threat of the twenty-first century'. We also understand that a public health White Paper will be published in the summer, but again we fear that the extent and seriousness of the obesity problem will be lost by including obesity only as part of a wider umbrella of general public health initiatives, (Para 394).*
>
> *The United Kingdom Parliament Select Committee on Health (Third report 10 May 2004)*

A recent study by the Counterweight programme (2004) has demonstrated the validity of the concerns expressed by the Parliamentary Select Committee that the response to obesity by the medical establishment particularly at the primary care level continues to

be woefully inadequate. This study concluded that obesity is under-reported and under-recognised in primary care. The impression one gets from the trends associated with obesity in England, similarly to the rest of Britain and to other countries, is that little actual progress has been achieved in halting the intractability of adult obesity during the past half century. Subsequently, it seems that at a national and international level the battle against obesity is at present being lost. It is hoped that the conversion of the English health authorities into an array of twenty-eight Strategic Health Authorities (StHAs) in 2002 will in some way eventually result in at least a more co-ordinated response to the problem of obesity in England.

In answer to the criticisms and recommendations made by the Parliamentary Health Select Committee the Government issued a White Paper in December 2004 entitled "Choosing Health: Making Healthy Choices Easier". The paper covers a wide range of health related issues presently under Department of Health scrutiny with a view to improving health services to the public. The White Paper proposes that the National Institute for Health and Clinical Excellence (NICE) should prepare definitive guidance on the prevention, identification, management and treatment of obesity by 2007. Until this guidance is available the guidelines issued by the Scottish Intercollegiate Guidelines Network (SIGN) in 1996 entitled "Obesity in Scotland: Integrating Prevention with Weight Management" may continue to set the standard for obesity management in primary care in England. In addition to the SIGN guidance other influential guidance is available from the U.K. based National Obesity Forum and from the joint American agencies: National Heart, Lung and Blood Institute and North American Association for the Study of Obesity.

2.4 Evidence based (non-surgical or pharmacological) interventions in adult Obesity

Opinion about the effectiveness of weight reducing treatments varies considerably. Kramer *et al.* (1999) have found longitudinally that only 1% of men and 5% of women succeeded in maintaining a stable weight reduction at a four year follow-up. These findings concur with previous arguments that less than 5% of patients maintain weight reduction (Stunkard, 1958) and that post-diet subjects are likely to regain all of their weight and, in some cases, more besides (e.g. Brownell, 1982; Dubbert & Wilson, 1983; Foreyt, *et al.*, 1981; Jeffery, *et al.*, 1978; Stunkard & Penick, 1979). More recently Wilson (2002) showed that two-thirds of dieters maintained significant weight reductions in the short term but according to long term (5-year) data almost everyone regained their baseline weights at least. However despite criticisms some recent studies have supported the effectiveness of the dieting strategy. McGuire *et al.* (1999) claim that 21% of a community sample of five hundred people maintained a weight reduction of 10% at one year. And the American based National Weight Control Register (NWCR) indicates that in 2002 there were 3000 registrants who had reduced by on average 66 pounds, and maintained the reduction for 6 years (Wing and Klem, 2002).

The Health Development Agency (HDA) in the United Kingdom published an evidence briefing document in October 2003 entitled "The Management of Obesity and Overweight: An Analysis of Reviews of Diet, Physical Activity and Behavioural Approaches". In the document the HDA, which amalgamated with the National Institute for Clinical Excellence (NICE) in April 2005, presented the current evidence from selected good quality systematic reviews and meta-analyses published since 1996. The HDA described their briefing document as a review of reviews which aims to identify diet, physical activity and behavioural interventions shown to be effective in the

management of obesity and overweight. The purpose of the review is stated as being to inform policy and decision makers, NHS providers, public health physicians and other public health practitioners in the widest sense. The review, which is presently available through the NICE website, identified 13 systematic reviews and meta-analyses which met the stringent criteria necessary to be included on the HDA evidence base. Seven out of the 13 reviews were concerned with children whilst 10 focused on adult obesity thereby making them relevant to this thesis. In terms of the present work the review drew conclusions about the effectiveness of: 1) prevention of obesity and overweight in adults, 2) treatment of obesity and overweight in adults, 3) maintenance of weight loss in adults, 4) comprehensive interventions in adults and 5) settings. The conclusions drawn by the HDA for each of the aspects listed are presented verbatim below.

(N.B. The term 'limited evidence' is arbitrarily defined as three studies or less.)

Prevention of obesity and overweight in adults

- There is inconclusive evidence regarding the effectiveness of community based interventions (for example, seminars, mailed educational packages and mass media participation).

Treatment of obesity and overweight in adults

Diet

There is evidence to:

- Support the effectiveness of low calorie diets (1000-1,500 Kilocalories per day).
- Suggest that clinically prescribed very low calorie diets (400-500 kilocalories per day) are more effective for acute weight loss than low calorie diets. However there is conflicting evidence regarding the relative effectiveness of

very low calorie diets versus low calorie diets over the long term (greater than one year).

- Support the effectiveness of low fat and low energy diets combined with energy restriction, and low fat diets alone (where 30% or less of total daily energy is derived from fat). However there is conflicting evidence regarding their relative effectiveness.

There is conflicting evidence regarding the effectiveness of increased fibre intake.

Physical activity

There is evidence that:

- Increased physical activity is effective in producing a modest total weight loss. However diet alone was more effective than exercise alone.
- Physical activity alone, diet alone, and physical activity and diet combined are effective interventions.

There is conflicting evidence regarding the relative effectiveness of physical activity combined with diet versus diet alone or physical activity alone.

Behavioural and/or cognitive therapy techniques

There is evidence that:

- A combination of behavioural therapy techniques in conjunction with other weight loss approaches is effective for the treatment of adult obesity over a one year period.

Currently there is limited evidence of the effectiveness that supports:

- Extending the length of behavioural therapy.
- Group behaviour therapy.
- Correspondence courses.

- Provision of structured meal plans and grocery lists.
- The cognitive therapy technique of cue avoidance (individuals are asked to reduce their exposure to certain foods by making various changes to their habits).
- Cognitive rehearsal (rehearsing one's thoughts and behaviours prior to a potentially difficult situation, and planning healthy adaptive responses).

There is conflicting evidence on the effectiveness of involving spouses.

Intra-abdominal fat

- There is evidence that low calorie diets are effective in decreasing intra-abdominal fat. The intra-abdominal fat loss occurs as part of total weight loss and is not a site specific benefit.
- Currently there is limited evidence that increased physical activity is effective in reducing intra-abdominal fat in adults.

Maintenance of weight loss in adults

Currently there is limited evidence on the positive effects of:

- Self-help peer groups with therapist-led booster sessions on weight loss maintenance.
- Daily weight charting on weight loss maintenance.

There is conflicting or inconclusive evidence regarding the effectiveness of:

- Formula diet preparations in the maintenance weight loss.
- Standard or pre-packaged foods in the maintenance of weight loss.
- Increased physical activity (1,500-2,000 kilocalories per week) for weight loss maintenance.

- Continued therapist contact for weight loss maintenance.

Currently there is a lack of evidence for the effectiveness of weight focus and skills focus programmes for the maintenance of weight loss. These consisted of monthly meetings providing training in dietary and exercise behaviours compatible with maintaining weight loss (skills focus), or discussing weight loss maintenance progress and addressing difficulties using non-specific problem solving strategy (weight focus).

Comprehensive interventions in adults

Currently there is limited evidence to support the following strategies for weight treatment and maintenance:

- Continued therapist contact when combined with behavioural therapy and relapse prevention training.
- Continued therapist contact by mail and telephone.

There is inconclusive evidence about the effectiveness of involving spouses. Currently, there is a lack of evidence to support the use of spaced versus massed booster sessions.

Settings

Worksite health promotion programmes

- There is evidence to support the use of worksite health promotion programmes for the treatment of obesity and overweight in adults. Positive programme factors include regular participation, intensity of the intervention, associated dieting, supervision of exercise programme with outreach, personal counselling and plant reorganisation.

Health care settings and the role of health professionals

There is evidence to support improving the role of health professionals in the management of obesity and overweight, in particular by:

- Reminders to GPs to prescribe diets.
- A brief educational training intervention on obesity management delivered by behavioural psychologists to GPs.
- Encouraging shared care between GPs and a hospital service.
- Use of inpatient obesity treatment services.
- Training for both health professional and leaders of self-help weight loss clinics.

The aspects of the HDA review which are of particular interest to the present study are those of a psychological nature. The review supports the effectiveness of behavioural therapeutic techniques when they are used as an adjunct to other weight loss approaches for a treatment period of one year. Unfortunately no indication is given about the format of such beneficial therapeutic amalgamations which makes it difficult to gain practical insight. Four behaviour modification techniques are considered by the HDA review: behavioural therapy, cognitive rehearsal, cognitive therapy and cue avoidance. Behavioural therapy is described as any method to generate change in eating habits or lifestyle, including formal cognitive behaviour modification and training in behavioural skills for the management of obesity and overweight. Behavioural therapy of some form is always used with dietary therapy, but specific methods are seldom described. Cognitive rehearsal is described as making positive self-statements about a situation that is causing food temptation. This is followed by an adaptive behaviour such as walking away from the food temptation. Finally individuals are encouraged to reward themselves for doing well using positive statements or material rewards. The idea is to rehearse one's thoughts and behaviours before entering the potentially difficult situation, and to plan healthy adaptive responses. Closely linked and often used in synergy with cognitive rehearsal, cognitive therapy is also concerned with modification of behaviour. The main principles of this treatment approach include the modification of current behaviour patterns, new adaptive learning, problem solving and a collaborative relationship between the client and therapist. Cognitive therapy may be

performed as part of standard behavioural therapy. Cue avoidance is a stimulus control technique often used in weight loss programmes in which individuals are asked to reduce their exposure to certain foods by making various changes to their habits.

The support given by the HDA for the role of behavioural/cognitive type therapies is extended and reinforced by a more recent Cochrane review (Shaw, *et al.*, 2005) entitled *Psychological Interventions for Overweight or Obesity* (Review). The objective of this meta-analytical review was to "assess the effects of psychological interventions for overweight and obesity as a means of achieving sustained weight loss". Thirty six studies were reviewed within which 3,495 adult participants were evaluated. The review made 11 comparative assessments:

1. Behaviour therapy versus no treatment control *(10 trials).*
2. Behaviour therapy with diet / exercise versus diet / exercise *(8 trials).*
3. More intensive versus less intensive behaviour therapy *(17 trials).*
4. Cognitive behaviour therapy with diet / exercise versus diet / exercise *(2 trials).*
5. Cognitive behaviour therapy versus placebo *(1 trial).*
6. Cognitive behaviour therapy versus behaviour therapy *(1 trial).*
7. Cognitive behaviour therapy with diet / exercise versus cognitive behaviour therapy *(1 trial).*
8. Cognitive therapy versus placebo *(1 trial).*
9. Cognitive therapy versus behaviour therapy *(3 trials).*
10. Relaxation therapy versus placebo *(1 trial).*
11. Hypnotherapy versus placebo *(1 trial).*

The outcomes of each of the studies reviewed were considered as either category 1: Weight change in kilograms or category 2: Additional outcome measures. The authors' of the review concluded:

People who are overweight or obese benefit from psychological interventions particularly behavioural and cognitive-behavioural strategies, to enhance weight reduction. They are predominantly useful when combined with dietary and exercise strategies. The bulk of the evidence supports the use of behavioural and cognitive-behavioural strategies. Other psychological interventions are less rigorously evaluated for their efficacy as weight loss treatments.

Psychological interventions for overweight or obesity (Review), (Shaw, et al., 2005, p.1)

In attempting to assess the usefulness of certain interventions in overweight and obesity the HDA (2003) determine 'effectiveness' as being demonstrable intended effects (usually quantitative) on outcomes. For their purposes the HDA base effectiveness on statistical significance but acknowledge that, in the United Kingdom at least, ratio of effectiveness to outcome is a contentious issue. The HDA describes its appraisal system as favouring reviews that "have a transparent and replicable data search, methodology and analysis". They conclude that their rating system strategy will rate well conducted systematic reviews of effectiveness and meta-analysis more highly than other studies because "of their clear methodology, relative to literature or other non-systematic reviews". It would seem from the descriptions given by the HDA of their methodologies used that the traditional approach to gauging effectiveness is adopted; that of using levels of statistical significance. It has been resolutely argued that a better way of determining therapeutic effects would be by applying the principles of power and effect (see Clark-Carter, 2000 for a contemporary description). Clark-Carter demonstrates the fundamental premise that statistical significance on its own can only confirm that a sufficient sample size has been used. Thus, it cannot be used as a measure of how big an effect an experimental manipulation, in this case a therapy for overweight or obesity, has. Clark-Carter refers to Cohen (1988) who distinguished between small, medium and large effect sizes after surveying research in the

behavioural sciences. In the HDA evidence briefing (2003), where interventions are described as effective there is no indication of levels of effectiveness between interventions. Furthermore it is worth noting that promoting the effectiveness of interventions for overweight or obesity as 'small', 'medium' or 'large' would undoubtedly provide accessible guidance for people unskilled at evaluating statistical procedures.

* * *

Parliament has criticised the National Health Service for failing to take obesity seriously enough and has cast doubt on the likelihood that any future initiatives will isolate obesity for specific attention. Nevertheless a great deal of attention has been given to the obesity problem globally during the past fifty or so years with dieting maintaining its position as the preferred method of choice for weight control. Given that the observations of the U.K. Parliament are similar to those of many other countries it is time to reflect on why obesity continues to be intractable despite so much effort being expended by so many for so long.

Chapter Three

Contributory factors in the intractability of adult obesity

3.1 The misguiding influence of the energy balance equation

Despite the existence of the evidence just summarised that dieting can be an effective means of treating adult obesity, especially if combined with exercise and/or some form of psychological therapy (e.g. Shaw *et al.*, 2005; HDA, 2003; NHLBI and NAASO, 2000), prevalence rates throughout the world continue to climb. Taken alongside the high proportion of people who have dieted at some point during their lives (e.g. Ogden, 2000; Lissner *et al.*, 1994), this suggests the effectiveness of dieting should be questioned further. It may even be fair to question if effectiveness *per se* is the right conceptual basis on which to gauge the usefulness of interventions. Health psychologists differentiate between the 'efficacy' of an intervention and its 'effectiveness' (Wardle and Steptoe, 2005). They argue that:

> *The efficacy of a treatment denotes its effect when it is administered properly to the intended target population. Effectiveness takes account of the multiple barriers to proper administration, and refers to the impact of the treatment protocol when implemented in the real world.*
>
> *(Wardle and Steptoe, 2005 pp. 672-675).*

From this standpoint the evidence might suggest that dieting is a process that has a high degree of clinical efficacy but which might not prove to be as effective in the "real world".

Obesity can only occur if there is chronic displacement of the energy balance equation see 2.1 for a description. The status of the energy balance equation in the development of understanding about obesity has been gathering credence since the 19th century (Bray, 2002); so much so that it has gained axiomatic status amongst concerned

professionals and laypersons alike. The power of this doctrine has been instrumental in focusing obesity treatments on redressing energy imbalance either through food restraint, through increasing physical activity or through a combination of the two. The continuing fundamental subscription to these ideas at all levels of care is evident from the obesity literature (e.g. Shaw *et al.*, 2005; British Dietetic Association, 2004; HDA, 2003; Wadden and Osei, 2002; Wadden and Stunkard, 2002; Aronne, 2002; Fairburn and Brownell, 2002; NHLBI and NAASO, 2000; NAO, 1999; SIGN 1996).

Given the importance of the energy balance equation and the continuing intractability of adult obesity it may be pertinent to challenge its influence on obesity treatments and its foundational status (according to Prentice, 1999) within the developmental paradigm of the condition. The universal practice of concentrating obesity interventions on the requirements of the energy balance equation by directly controlling food intake may be a misguided approach. This practice may have caused treatment strategists to overlook the contradictory, yet common, behaviour of obese people who, whilst unequivocally stating their desire to be thinner, knowingly continue to eat fattening foods. Logic suggests that irrespective of whether obesity has psychological or biological origins this behavioural paradox should provide the fundamental focus for treatments. On the basis of this reasoning it might be helpful to modify the developmental paradigm of obesity which at present is governed by the energy balance equation. A continuum model depicting the development of adult obesity based on contemporary beliefs would place the implications of the energy balance equation (i.e. energy imbalance at the foundation of developing overweight (Prentice, 1999) see figure 3.1.

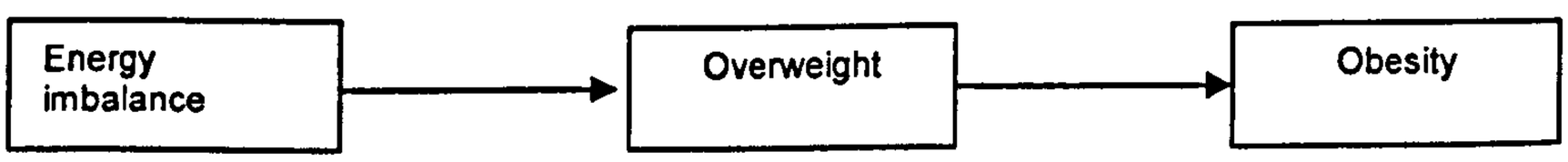


Figure 3.1 Contemporary representation of the development of obesity.

It would be more truly representative if the energy balance equation was superseded as the perceived foundation of weight gain by attending to factors which motivate hyperphagia. This could be achieved if the energy balance equation was repositioned to be the first of three progressively linked outcomes in the development of adult obesity which result from factors motivating hyperphagic behaviour, see fig 3.2.

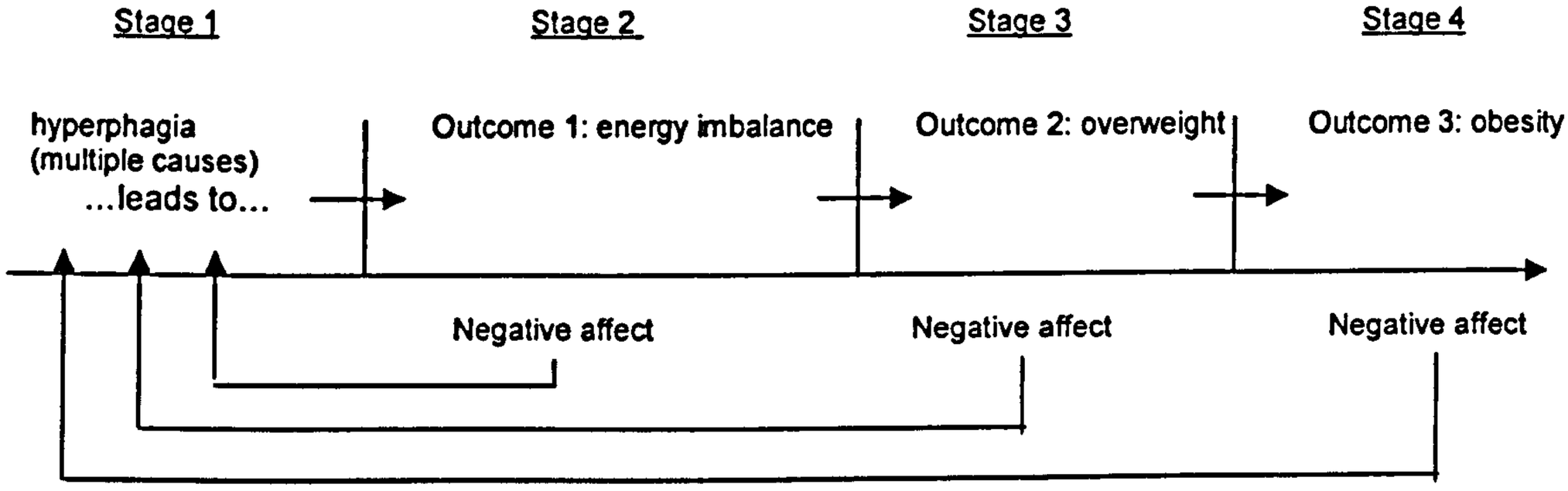


Fig 3.2 Revised model of the developmental continuum of adult obesity.

The foundational status of the energy balance equation in the development of adult obesity is superseded by the need to understand the reasons that motivate hyperphagic behaviour. The proposed new model suggests four stages in the development of obesity: 1) situational factors motivating hyperphagic behaviour, 2) the first outcome - chronic displacement of the energy balance, 3) the second outcome - development of overweight and 4) the third outcome - development of obesity. The model acknowledges that each of the outcomes can exert their own further influence on hyperphagia in the form of negative affective feedback. To illustrate this aspect: an overweight comfort eater anxious at not being able to control her weight might eat more and become obese.

If contemporary obesity treatments designed primarily to directly control food consumption e.g. diets, are examined against the revised model it is apparent that they are being clinically misdirected toward addressing the energy balance equation which is stage two on the continuum. Treatments which concentrate on the reasons driving hyperphagia i.e. stage 1 might have more effect. Commencing interventions at stage 2 is like "closing the stable door after the horse has bolted".

The homogenous view which underpins interventions in obesity persists in spite of developments in obesity research which identify obesity as a complex syndrome with

multifactorial origins (Prentice, 1999). The variety of potential origins was highlighted by the British Nutrition Foundation Task Force (1999) which reviewed eleven areas of scientific investigation of potential aetiological significance with regard to the manifestation of obesity:

- fat cell functioning
- genetics
- critical life span periods
- metabolism
- macronutrient balance
- physiology of appetite control
- endocrine causes
- psychological factors
- dietary factors
- food issues (e.g. choice, policy and eating patterns)
- physical inactivity

Although the authors of the report acknowledge from the outset that causal factors may overlap, the range of possibilities discussed fall into one of two categories: biological or psychological. There seems to be a greater emphasis placed on biological than psychological issues. Whilst such thinking lends support to the aetiological complexity of obesity it does little to direct attention toward the importance of psychological factors in eating behaviour. A unifying theory of obesity continues to be elusive but a growing subscription amongst scientists to its pluralistic nature (e.g. Stults, 1977; Roswell, 1978; Dudley, *et al.*, 1979; Simson, 1983; Weingarten, *et al.*, 1985; Polivy, 1988; Drewnowski, 1990, 1996; St Jeor, *et al.*, 1993; Prentice, 1999) constitutes an important and necessary step in unravelling its aetiological complexity. Until such time as the complexity of obesity is understood it is likely that attention will remain focussed on food consumption as the primary obesogenic agent. There may, however, be benefit in

challenging obesogenic reasoning that is solely concerned with the characteristics of food intake. Given the proportion of the population who attempt to diet (e.g. Ogden, 2000; Lissner, *et al.*, 1994), it is reasonable to assume that most obese people would consider their eating behaviour to be at the root of their fatness. It is inconceivable that, in Western culture where obesity is viewed so negatively, overweight people would consciously wish to progress into obesity or that obese people would consciously want to remain or become more obese. This line of reasoning leads to the conclusion that obese people routinely engage in eating behaviour which compromises their personal desire for slimness. As hyperphagics they continually eat types of food they know to be fattening. It seems logical, therefore, that treatment interventions should address such inconsistencies between attitude and behaviour rather than simply interfering with food intake.

3.2 Psychological aspects

Psychological research in the field of human adult obesity is largely concerned with the association between behavioural, cognitive and emotional processes and obesity (Wardle, 1999 p. 83). A range of theories have been suggested to explain the aetiology and progression of obesity. Wardle (1999 p. 83) describes these as ranging from psychosomatic theories, which suggest that unconscious conflicts motivate the individual to overeat, to psycho-physiological theories, which propose that disturbances of the processes of appetite regulation are responsible for overeating. It has been suggested that in a psychological sense the aetiology of obesity might have been clearer forty years ago than it is today (Pudel, 1995). In those days obesity was viewed as the mark of a person who ate for different reasons than normal weight people (Ferster, *et al.*, 1962). Throughout the 1960s and 1970s research into obesity was based on theories of eating behaviour that emphasised the role of food intake in predicting weight (Ogden, 2000). The leading theory to emerge at the time, and one

that continues to be influential was Schacter's externality theory (Schacter, *et al.*, 1968). Schacter proposed that although all people were affected by environmental stimuli such as the aesthetic and sensory qualities of food, even to the extent that they might overindulge, obese people were affected to a much greater degree. Theorists proposed that normal weight people ate mostly in response to their internal food cues such as hunger and satiety whilst obese individuals' internal cues seemed to be attenuated by the greater influence of external cues. Research based on externality theory investigated a) whether obese people did in fact react differently to a range of environmental and sensory stimuli than normal weight people (e.g. Schacter and Rodin, 1974; Schacter and Gross, 1968; Schacter, 1968), or b) whether obese people consumed more food or different food from normal weight people (e.g. Coats, *et al.*, 1978; Spitzer and Rodin, 1981). With regard to the motivational effects of external food cues studies produced fairly inconsistent results (Ogden, 2000 p. 136). The studies by Coats (1978) and Spitzer and Rodin (1981) were more consistent and indicated that obese individuals did not in fact consume more food or different food than normal weight people. Realizations that thin people are also susceptible to environmental food cues and that both obese and thin people cannot regulate internal food cues (Rodin, 1980) has led to a downturn in support for externality theory (Wardle, 1999).

Externality theory was soon overshadowed by the radical idea that obese people ultimately overindulge in favoured foods because of the effects of their self-imposed restrained eating behaviour. The basic idea of restraint theory, as it has come to be known, was first suggested by Nisbett (1968). This was crucially expanded by Herman and Mack (1975) who argued that restrained eating was ultimately likely to lead to disinhibition by the dieter. Subsequently this belief was reinforced by other investigators (e.g. Spencer and Fremouw, 1979; Herman, *et al.*, 1987). Disinhibition has been described as eating more as the result of the loosening restraints in response to emotional distress, intoxication or preloading (Herman and Polivy, 1989). The effects

of restrained eating have been clearly noted in both laboratory and ecological settings. In the former restrained eaters have been observed to eat more than un-restrained eaters (Herman and Polivy, 1984); whilst in the latter, diets, which are classic manifestations of restrained eating practices, have been seen to be subject to lapses (e.g. Kirkley, *et al.*, 1988; Ogden and Wardle, 1990b). There are many types and forms of weight reducing diet. Whether based upon missing meals, counting calorific intake, or moderating the macro-nutrient content of the food repertoire (i.e. alcohol, proteins, carbohydrates or fats) they essentially all share the common bases of restraint. The phenomenon of disinhibition has often been referred to as the 'what-the-hell-effect' (Ogden, 2000). This is thought to be a regular experience for dieters who encounter minor lapses in their resolve leading to episodes of unrestrained eating. Similarly the term 'counter regulation' (Pudel, 1995) is used to explain the outcome of an experiment conducted by Herman and Polivy (1984). In the experiment restrained and unrestrained eaters took part in a taste test in which they tried different sorts of ice cream. The experimenters hypothesised that the restrained eaters would demonstrate greater self-control than the unrestrained eaters and would eat less of the ice cream. But the opposite proved to be the case. The restrained eaters consumed far more ice cream than the unrestrained eaters but only when given one or two milk shakes before the experiment began. If the milk shakes were not given the restrained eaters behaved as predicted and ate less ice cream than the unrestrained eaters. In a variation of the experiment the milk shake 'preload' seemed to act like a placebo. If it was presented as a low calorie drink the restrained eaters would retain their self control and behave according to the original hypothesis. However when told it was a 'calorie bomb' they would consume much more ice cream after drinking it. Herman and Polivy (1984) proposed the idea of a 'boundary model' to explain the anomalous behaviour of the restrained eaters they had observed. The Boundary Model suggests that restrained eaters' self control functions within subjectively set calorific boundaries. If the restrained eater perceives their boundaries to have been breached their entire self

control structure collapses. In reality one or two milk shakes should not constitute such a catastrophic event. Thus the phrase 'counter regulation' describes the condition in which an incident that is in itself negligible leads to the collapse of the whole control system (Pudel, 1995). Herman and Polivy's findings present a caveat for anyone embarking on a weight reduction programme. Their effort to restrain their intake of fattening foods is only likely to be successful in the absence of counter regulation. More recent investigations have provided further insight into the dilemma of counter regulation. It is suggested that adopting a flexible attitude to restraint leaves the dieter less vulnerable to its effects than setting strict limits. Westenhoefer (1991b) distinguishes between rigid control strategies and flexible control and postulates that rigid control will always be highly vulnerable to counter regulation. According to Westenhoefer rigid control is based on firm, strictly defined intentions of behaviour, which are often absolute and based on all or nothing principles. Phrases such as 'I will never again...' 'I will always...' 'I will from now on...' are examples of all or nothing statements. In contrast he suggests that flexible control aims at more general and lasting attitudes and behaviour patterns, and allows for a possible correction of behaviour at any point in time, leaving little or no room for counter regulation.

Dieting, which essentially involves restrained eating, has been shown to cause a paradoxical increase in food consumption, subsequently leading to weight gain rather than reduction (Wardle, 1980; Wardle and Beales, 1988; Herman and Polivy, 1989). These findings undermine the dieting concept which was first promoted as the linchpin of a behavioural weight control treatment by Stuart (1967) and Stuart and Davis (1972). There is compelling evidence that food restraint can result in negative affective states which in turn can stimulate hyperphagia and diet lapsing amongst the obese (e.g. Wardle, 1999; Arnow, 1995; Ogden, 1995a; Laporte, 1990; Herman and Polivy, 1989; Warren and Cooper, 1988; Van Strien, *et al.*, 1986b; Wurtman and Wurtman, 1986 Halmi, *et al.*, 1980; Keys, *et al.*, 1950). Figure 3.3 is intended to illustrate the potential

paradoxical effect of dieting which can generate negative affect for the dieter. Despite the amount of research into the paradoxical potential of diets to result in weight gain there is a paucity of objective evidence to explain the cognitive processes involved.

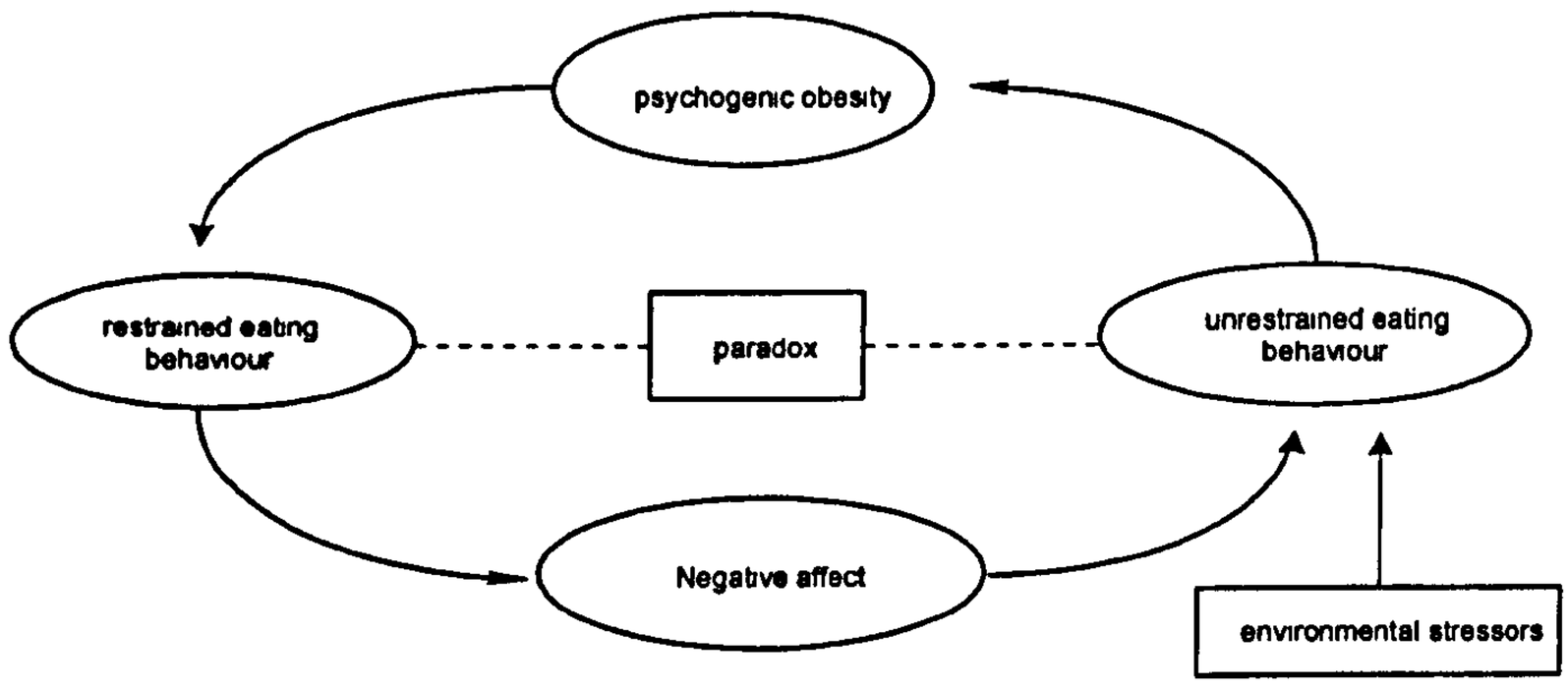


Fig 3.3 The paradoxical nature of dieting.

Negative affect can result from restraining food intake which can ultimately result in further hyperphagia.

Stress has been implicated in obesity. A link has emerged between stress and weight gain in community studies (Van Strien, *et al.*, 1986 a) and other work has implied that stress might be associated with greater fat consumption (McCann, *et al.*, 1990; cited in Wardle, 1999 p. 84). According to some recent developments in stress research, stress is conceptualised as a product of the individual's capacity for self-control (Bartlett, 1998). Generally people might not make much distinction between having negative emotional feelings and experiencing stress. People suffering in this way might simply report being "stressed out" or "under stress" or simply "feeling down", "feeling low" or "feeling blue" etc. In psychological terms they may be considered to be in a state of negative affect. Reber and Reber (2001) note in their dictionary of psychology that 'affect' is a general term used more or less interchangeably with various others such as emotion, emotionality, feeling, mood etc. For the purposes of this thesis negative affect is considered to be a particular response to or symptom of stress generated by a

complex interaction between internal and external influences. Relevant examples of these influences in the present context may be: a) an obese person's perception of their inability to control their overweight situation (Lazarus and Folkman, 1984; Bull, *et al.*, 1983) and b) their appreciation of the negative stereotypical way in which society views them because of their obesity (Stunkard & Wadden, 1993; Maddox & Liederman, 1969; Learner & Gellert, 1969). The expressions 'negative affect' and 'negative emotion' are used interchangeably by writers in obesity research and, because an in-depth examination of the stress concept is not required by this thesis, this convention will be continued here.

It has been clearly established that emotional eating is thought to play a causative role in psychogenic obesity and not least according to the psychosomatic theory of obesity (e.g. Kaplan and Kaplan, 1957; Herman and Mack, 1975; Van Strien, *et al.*, 1986b; Arnow, 1995). There is a strong suggestion that stress or negative emotions present a powerful triggering mechanism for hyperphagia (Fairburn and Wilson, 1993 pp.179-180) although how this happens is as yet unclear (Arnow 1995). In addition to triggering hyperphagia people are more likely to lapse from a diet if they are experiencing negative emotions (Wardle, 1999). Fairburn and Wilson (1993) also describe a number of studies which show that experimentally induced negative affect causes restrained eaters to eat more than similarly distressed unrestrained eaters. They also show that distressed dieters eat more than non-distressed dieters. The reason why the authors distinguish between restrained eating and dieting or unrestrained eating and non-dieting is unclear and may add unnecessary confusion to an already complex issue. Emotional eating has not played a prominent role in previous research into obesity and conceptual models guiding research and treatment of the obese have often assigned emotional eating a peripheral role (Arnow, 1995). Lowe and Fisher (1983) suggest that emotional eating may have received less attention from the scientific community because of its psychoanalytic flavour. The links

between negative emotions and obesity have been found in studies which have used psychometric instruments to assess emotional eating such as the Dutch Eating Behaviour Questionnaire (Van Strien, *et al.*, 1986b) or the more recent Emotional Eating Scale (Arnow, 1995). Numerous explanations of the hyperphagic triggering effects of negative emotions have been offered. It has been suggested that: some introspective people are hyperphagic as a means of escaping painful self-awareness (Heatherton and Baumeister, 1991), that distress causes some predisposed people to become externally focussed and therefore more susceptible to the stimulus properties of food (Herman, *et al.*, 1991), or that stress reduces the perceived importance or feasibility of dietary self-control leading to binge eating (Davis, *et al.*, 1988 cited in Fairburn and Wilson, 1993). Fairburn and Wilson (1993 p.181) consider the literature on affect self-regulation as a triggering mechanism for binge eating. The theme of the literature on this topic is that binge eating behaviour acts as a means of controlling emotional output such as through distraction, as an anxiolytic or as a comforter etc.

The psychosomatic theory of obesity (Kaplan and Kaplan, 1957) proposes that childhood associations formed between comfort and foods are at the root of emotional hyperphagia but there is little robust empirical support for this (Wardle, 1999 pp. 83-84). When considering how negative emotion might result in hyperphagic behaviour it is worth noting that the term 'negative emotion' is generic. It may be that not all forms of negative emotion will impact in this way and it has been established that there are differences between negative emotions in the way they precipitate hyperphagia. In one study of binge eaters anger and frustration was a more powerful precipitator of hyperphagia than anxiety and sadness (Arnow, *et al.*, 1992). Furthermore participants who reported eating in response to anger gained significantly more weight than those who ate in response to anxiety (Eldredge, *et al.*, 1994; Arnow, 1995). The idea that different emotions might or might not result in hyperphagia or that some might have a greater effect than others on eating behaviour adds to the complexity of adult obesity.

A number of investigations have been suggestive of a psychosomatic link between emotional arousal and hyperphagia through metabolic processes (e.g. Dallman, *et al.*, 2003; Arnow, 1995; Eldredge, *et al.*, 1994; Voznesenskaya, *et al.*, 1986; Kaplan and Kaplan, 1957). On this basis it seems reasonable to suppose that the greater precipitant value of anger over anxiety to generate hyperphagia (Arnow, 1995; Eldredge *et al.*, 1994) could be due to homeostatically driven anabolic processes. In metabolic terms the arousal phase of the stress response is known to be catabolic and predominantly controlled by the sympathetic branch of the autonomic nervous system (Silber, 1999). In this way energy stores are mobilised and sent out for essential use by the body as a prelude to fight or flight. It is logical to assume that after the arousal state has peaked there will ultimately be a return to passivity, which will require a parasympathetically generated anabolic reaction to eat. Continuing this reasoning process leads one naturally to speculate in support of Eldredge *et al.* (1994) and Arnow (1995) that the catabolic rate for anxiety is lower than for anger. Subsequently this differential ought to be reflected in post-arousal anabolism requiring greater nutrient replenishment to achieve homeostasis. Whilst anger tends to be an acute response other forms of negative emotion such as anxiety, dysphoria, fear and worry etc. are protracted responses possibly resulting in lower but chronic homeostatic anabolism. The idea of homeostatic anabolism forming the bases for emotional hyperphagia presents a plausible line of investigation into the hyperphagic triggering aspects for restrained eaters which has been previously determined (Fairburn and Wilson, 1993 pp. 179 -180).

Despite the low profile of emotional hyperphagia it could reasonably be classified as an atypical eating disorder according to the tenth edition of the World Health Organization's International Classification of Diseases (ICD-10) and subsumed under item F50.4 "overeating associated with other psychological disturbances not least psychogenic overeating" (Fairburn and Walsh, 2002). Equally, emotional hyperphagia

could be subsumed under the category of Eating Disorders Not Otherwise Specified (EDNOS); item 307.50, article 6, of the fourth edition of the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV).

3.3 Food-related attitudinal ambivalence

There can be little doubt about the motivational impact of negative affect on hyperphagia but the research in this area says little about why obese people continue to overeat in contradiction of their desire for slimness. Consequently it is worth considering the implications of food-related attitudinal ambivalence (see Shepherd, 1999 p.811). In the context of this thesis Reber and Reber (2001) define ambivalence as a state in which one is pulled in two mutually exclusive directions or toward two opposing goals. A typical example of food-related attitudinal ambivalence was provided anecdotally by obese Type 2 diabetic women who took part in work described later in this thesis. They reported being ambivalent about choosing between sweet and savoury foods such as biscuits, crisps, cakes and chocolate, and foods promoted as healthy options by their dietician, such as fruits, salads and vegetables. Foods in the former category were related to have a hedonistic quality and were felt to be rewarding and comforting but simultaneously were seen as fattening and wrong. Foods in the latter category on the other hand were viewed as healthy and good but were felt to be boring, unfulfilling and unsatisfactory. This anecdotal evidence concurs with empirical findings from numerous studies which have investigated the implications of ambivalence with regard to diet (e.g. Shepherd, 1999 p. 810; 2000 p. 269). Such studies have often been conducted within the framework of the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980), which was modified and renamed the theory of planned behaviour (TPB) (Ajzen, 1985; see fig 2.3). The TPB has since become the dominant social-psychological model for relating attitudes to behaviour (Conner, *et al.*, 2003). Conner *et al.* (2003) considered the moderating effects of attitudinal ambivalence on the various aspects of the TPB. In particular the study was concerned

to understand how ambivalence might act to moderate the relationship between intention and its predictors and between behaviours and its predictors (Conner, *et al.*, 2003 p. 78). The study indicated that the relationships between attitude and behaviour and between perceived behavioural control and behaviour were weaker when ambivalence was high compared to when it was low (Conner, *et al.*, 2003 p. 90). Nordgren *et al.* (2005) noted that considerable research has documented the properties of ambivalent attitudes focussing particularly on the strength of ambivalent attitudes. They cite Krosnick and Petty (1995) who have conceptualized attitude strength using four dimensions: (a) resistance to persuasion, (b) power to predict behaviour, (c) stability, and (d) effect on information processing. It has been argued that ambivalence weakens attitude by reducing the predictability of behaviour (Armitage and Conner, 2000; Conner, *et al.*, 2002), by reducing attitudinal stability and by reducing resistance to persuasion (Armitage and Conner, 2000).

Conceptually ambivalence is similar in nature to the cognitive processes described by dissonance theory (Festinger, 1957) which is also concerned with the simultaneous holding of psychologically inconsistent cognitions. The central idea behind cognitive dissonance theory is that whenever an individual simultaneously holds two cognitions which are psychologically inconsistent, he/she experiences dissonance, which is a negative drive state; a state of, psychological discomfort or tension which motivates the individual to reduce it by achieving consonance. Attitude change is seen as a major way of reducing dissonance (Gross, 2001 p.361). A classic example of cognitive dissonance is of a smoker who believes that smoking causes cancer. Assuming the person would rather not have cancer, the cognition 'I smoke' is psychologically inconsistent with the cognition 'smoking causes cancer' (Gross, 2001 p.361). The smoker could best reduce cognitive dissonance by stopping smoking but the most likely strategy is that they would seek to modify the alternative cognition for example by attenuating the negative implications of smoking whilst extolling its pleasures. The

illustration of cognitive dissonance theory described in the smoking example could equally well apply to other appetitive conditions not least to the hyperphagic behaviour of those who are overweight or obese.

Whilst models of attitudinal behaviour such as the TRA, TPB and cognitive dissonance theory seem to offer insight into food-related ambivalence there is an issue which limits their usefulness to the present study. The theory of reasoned action and cognitive dissonance theory apply only to volitional cognitive situations whilst the perceived behavioural control element of the theory of planned behaviour accounts for partial volition. People who experience food-related attitudinal ambivalence will usually be aware of their conflicting attitudes as they try to decide which foods to eat or buy. However the psychological obesity literature suggests that people can also be unaware that they are attitudinally ambivalent about food. People who are affected by emotional hyperphagia commonly report eating in a dissociated or trance like state usually at times when they feel negatively emotionally aroused (e.g. Fairburn, 1995; Griffiths, *et al.*, 1995; Coman and Evans, 1995; Greenleaf and Fisher, 1992; Kranhold, *et al.*, 1992; Vanderlinden and Vandereycken, 1991; Groth-Marnat and Schumaker, 1990; Torem, 1986, 1987). Typically this state is one in which any sense of reality about obesity is suspended prior to uninhibited eating ensuing. The process of emotional hyperphagia seems to be a self-perpetuating one (Herman and Polivy, 1980, 1988a) in which food is used to temporarily attenuate negative emotion. This is repeated as a means of coping with future negative emotions thereby maintaining the hyperphagic condition and resulting obesity (Fairburn and Wilson, 1993 p.185). Previous descriptions of ambivalence suggest it to be ostensibly a psychological state of conflict which in the present context would be between fattening and non-fattening food choices (e.g. Shepherd, 1999, 2000). However this view does not account for the dissociation and trance like experiences reported by emotional hyperphagic patients whose hyperphagia is experienced as non-volitional. It would seem from the evidence that food-related

attitudinal ambivalence can actually be experienced at both conscious and unconscious levels; e.g. the former occurring during food selection in a shop or restaurant etc. and the latter during episodes of emotional hyperphagia. It may be helpful when treating hyperphagia to explore the orientation of food-related attitudinal ambivalence and to appreciate whether a) patients are ambivalent about including non-fattening foods into their daily diet, b) about removing fattening foods from their daily diet or c) a mixture of both. If, as this thesis has suggested, there is a common desire amongst all obese people to reduce their weight it is unlikely that all foods which can contribute to this desire will be viewed negatively. Especially when for instance the Slimmers World food options plan allows for a variety of appetizing foods to be included in the slimming plan. Some of these are classified as allowable 'syns' because of their high energy content.

Chapter Four

The evidence for hypnotherapy in adult obesity and factors which may diminish its effectiveness

Firstly, in this chapter, the literature on hypnotherapy for adult obesity is reviewed to examine any changes in practice that might have occurred over time. This is followed by a review of the evidence based literature concerned with hypnotherapy for adult obesity which is intended to demonstrate that, despite the uncertainty in the evidence base, hypnotherapy is worth pursuing as a potential intervention. In the final part of the chapter issues will be raised which are thought to play a role in diminishing the effectiveness of hypnotherapy for adult obesity, particularly in group hypnotherapy. It is argued that understanding these issues is essential to improving the performance of hypnotherapy for adult obesity in the future.

4.1 Historical overview of hypnotherapy for adult obesity

Hypnotherapeutic effects in their present form have been recognised since the nineteenth century (Braid, 1899) and historical literature indicates an ancient lineage. The use of hypnotic-like techniques can be traced to the sleep temple of Aesculapius situated at Epidaurus in ancient Greece (Stam and Spanos, 1982) and Waxman (1989) relates that the power of suggestion was certainly appreciated in Biblical times. Healing techniques supposedly based on inducing altered states of awareness were commonly practiced by a variety of ancient cultures; for example by the Chinese, Egyptians, Hebrews, Indians, Persians, Greeks, and by the Romans (Gravitz, 1991). Over four thousand years ago Wang Tai, attributed as the founder of Chinese medicine, instructed in therapeutic techniques which utilised incantations and manual passes over the body of the patient. Present day hypnotherapists have relinquished most of these flamboyant practices. However they would almost certainly have seemed

familiar, a little over two hundred years ago, to Franz Anton Mesmer (Kirsch *et al*, 1997) who is credited as the father of modern clinical hypnosis and hypnotherapy.

Hypnotherapy for adult obesity can be traced to the seminal report by Hershman (1955) who described four case histories in which significant weight reduction was achieved over a period of one to four years. During the intervening period since Hershman's seminal work a substantial hypnosis literature has accrued. However reports concerned with hypnotherapy for weight-related issues account for only a few percent of the total. The results of a Boolean literature search of the PsychINFO data base which linked the two primary terms "hypnotherapy" and "hypnosis" with the associated terms: "obesity", "overweight", "weight management" and "weight control" indicated that, since Hershman's (1955) investigation, there have only been 34 publications, which focus primarily and specifically on weight-orientated hypnosis or hypnotherapy (see appendix 4.1). In summary the peer-reviewed hypnosis literature indicates that Hershman's was the only report to appear during the 1950s whilst two papers were published in the 1960s, six during the 1970s, eighteen during the 1980s and five during the 1990s. During the period 2000-2005, two further papers appeared. It might be concluded from this record that interest in hypnotherapy amongst obesity researchers peaked during the 1980s after which the trend has been clearly declining. The literature broadens substantially if the terms of reference are expanded to include authors who are working indirectly with hypnosis or hypnotherapy for obesity. Even so there are still fewer than one hundred and fifty individual peer-reviewed publications covering hypnotically-orientated interventions in obesity. Consequently, as well as a declining interest in the field it would seem there has historically also been a chronic disinterest amongst the research community. It could be expected that a small literature base such as this would allow for quick and easy access to information. Unfortunately due to the absence of a standardised specialist vocabulary reports are often ambiguous and confusing. For example, writers use the terms hypnosis, clinical

hypnosis, hypnotherapy and clinical hypnotherapy interchangeably. In fact clinical hypnosis and hypnotherapy are motivated by different aims. The former is used to generate what is commonly referred to as a trance condition for the patient through which hypnotherapy is facilitated toward some clinical objective. When the word 'hypnosis' is used without the clinical prefix it should suggest a non-clinical application e.g. as in 'stage hypnosis'. Similarly it is unnecessary to prefix hypnotherapy with 'clinical' because hypno*therapy* itself suggests a clinical application. Further ambiguity stems from the interchangeable use of the terms overweight and obesity which have distinct clinical definitions (see section 2.1 of this thesis). Early writers in the field can be partly forgiven for their contribution to the ensuing confusion, as the categorisation of body weight did not enter the research arena in any numerate sense until 1972 with the introduction of the Body Mass Index (Keys, *et al.*, 1972) (see section 2.1 of this thesis). Other investigators have commented on this problem and have noted that body weight and ongoing psychopathology may be connected (e.g. Orbach, 1978; Mott and Roberts, 1979; Wadden and Stunkard, 1985; Sullivan, *et* al., 1993) which can have important implications for treatment strategies.

Styles of hypnotherapy and ways of inducing hypnotic trance vary considerably. This diversity is most apparent in the way hypnotherapists use language during hypnosis and subsequent hypnotherapy. Basically there are two procedural styles, which are best described as being passive or directive. In the passive style suggestions are phrased and delivered in a manner tending more towards persuasion (Waxman, 1989) that will often include embedded or covert suggestions and metaphor. In contrast the direct style adopts a commanding, more authoritative approach where suggestions may seem more like instructions. It is not unusual for hypnotherapists to adopt an eclectic approach where aspects of both styles are synthesised during the therapy according to clinical requirements as they occur. Early investigators evaluating hypnotherapy for obesity tended to favour direct suggestion as a primary or only

method (e.g. Winkelstein, 1959; Glover, 1961; Kroger, 1970; Aja, 1977; Spiegel and Spiegel, 1978). Latterly approaches to hypnotic suggestion have tended to be less direct probably due to the influence of Milton H. Erickson and his work in passive forms of hypnotherapy and the use of metaphor (e.g. Erickson and Rossi, 1980 p.455; James, 2000 p. 29; Battino, 2002 pp. 21-55).

Guided imagery has tended to be an integral component of hypnotherapy for obesity (e.g. Hadley and Staudacher, 1996; Cochrane and Friesen, 1986; Andersen, 1985; Goldstein, 1981; Wadden and Flaxman, 1981; Channon, 1980; Cohen and Alpert, 1978; Stanton, 1975; Kroger, 1970), although usually in the more passive approaches to treatment. The most common focus of guided imagery by hypnotherapists treating obesity tends to be on preparing and eating low calorie foods, engaging in healthy eating behaviour and in visualising the outcome effects of weight reduction (Levit, 1993). Hershman (1955) encouraged his hypnotised female patient to visualise herself in one of two theatres. The patient was asked to imagine an actress with a very sad expression in her theatre and to elaborate on the scene that produced the negative emotions. She was then encouraged to imagine an actress in the second theatre who was feeling happiness, contentment and peace of mind. Adherence to the prescribed diet would allow the patient to fantasize about the pleasant scene whilst breaking the diet would produce the negative emotions of the first scene. Hershman's approach also included posthypnotic suggestions for developing a taste for low energy foods and for enhancing the patient's motivation to achieve a lower dress size, thereby becoming more attractive. There are no reports of research into the applied dynamics of hypnotic guided imagery for obesity nor has the variance in clinical value between its potential forms been explored. Reports of studies using hypnotic guided imagery in the pursuit of weight reduction have tended not to provide a rationale for the type of imagery used which has detracted from making comparative evaluations between studies. Ego enhancement techniques have also typically been a part of hypnotherapy for obesity

(e.g. Cochrane and Friesen, 1986; Andersen, 1985; Crasilneck and Hall, 1975; Hanley, 1967; Hartman, 1977; Jupp *et al*, 1975). The intention has been to generate optimism and high self-efficacy in patients regarding the future outcome of their treatments. Once again however, details have tended to be sketchily reported making it difficult to draw any evaluative conclusions about clinical merit.

An important variation between investigations into hypnosis/hypnotherapy for obesity has been in their use of either one-to-one or group procedures. Reports of studies using one-to-one procedures (e.g. Tilker and Meyer, 1972; Stanton, 1975; Channon, 1980; Davis and Dawson, 1980; Goldstein, 1981; Wadden and Flaxman, 1981; Bolocofsky *et al*, 1985; Andersen, 1985; Barabasz and Spiegel, 1989) would be considered to have greater ecological validity by practicing hypnotherapists than those using group procedures (e.g. Winkelstein, 1959; Glover, 1961; Wolman, 1962; Stanton, 1974; Miller, 1974; Aja, 1977; Cohen and Alpert, 1978; Deyoub, 1978, 1979 a, b; Bornstein and Devine, 1980; Deyoub and Wilkie, 1980) for reasons that should become apparent during this chapter. Once again however it is difficult to gain insight into the preferences demonstrated by previous researchers due to a lack of detailed reporting. It is not clear why some investigators have chosen to use group hypnotherapy over one-to-one hypnotherapy or how they have organised their groups. In studies which have opted to use group hypnotherapy the overarching reason seems to be economy of resources (Levit, 1993) rather than for any perceived clinical advantage. There are no reports about the therapeutic differences between one-to-one and group hypnotherapy for obesity or about the implications of social group dynamics during group hypnotherapy. Two studies report an eclectic approach by applying mixed one-to-one and group procedures (Cochrane and Friesen, 1986; McCabe *et al*, 1983) and these are discussed in section 4.2 in this thesis. A number of reports claim to have provided what would necessarily have been individual attention for patients being treated in a group setting. It is not clear how investigators addressed individuals'

personal needs without compromising their confidentiality which would be considered unethical by present day standards. For instance Winkelstein (1959) reports addressing patients' "special problems" during a group hypnotherapy study with forty-two overweight women. Similarly Wick *et al.* (1971) reported using an aspect of hypnotherapy called hypnoanalysis which is often used to help patients achieve insight, conflict resolution and mastery (Eisen, 1993 p.133.). Indeed Wick *et al.* (1971) used this approach to uncover deep-seated conflicts underlying what they describe as the pathological weight problem. Kroger (1970) argues that treatment by group hypnotherapy is more effective than one-to-one treatment for obesity and suggests that attending for group hypnotherapy is in some way a substitute for eating behaviour. He points to the psychodynamic interplay within groups, such as emotional contagion, the desire to please the leader and the competitiveness and extra socialization as positive factors.

The importance of addressing psychological issues underlying hyperphagia has been appreciated by hypnotherapists since the early stages of obesity research (e.g. Winkelstein, 1959; Wick, *et al.*, 1971; Hanley, 1967; Kroger, 1970, 1977; Mott and Roberts, 1979; Cochrane and Friesen, 1986). Early hypnotherapists were influenced by the behaviourist view at the time that held that obesity was the result of dysfunctional eating behaviour (Stuart, 1967, Stuart & Davis, 1972) or an inherent or acquired style of eating (Wardle, 1999 p. 84). Efforts centred upon this approach until the late 1960s-early 1970s when a view emerged that obesity was not simply the result of hyperphagia and that treatments based on this premise were unlikely to be effective in the long term (Stunkard & Penick, 1979). With the displacement of hyperphagia as the sole reason for obesity investigators broadened their etiological reasoning to include cognitive factors which might act as motivators in the hyperphagic paradigm, particularly the idea of "negative thinking" (Meichenbaum, 1977). Until the late 1970s, researchers evaluating hypnotic interventions concentrated on influencing participants'

eating behaviour directly; for example, by using aversive techniques (Miller, 1974,1976; Tilker and Meyer, 1972) to create negative associations linked to participants' eating behaviour, offering post-hypnotic suggestions for reduced appetite (Stanton, 1975; Glover, 1961), strengthening motivation and resolve through underscoring the positive attributes of weight reduction (Hartland, 1971; Stanton, 1976) or by using hypnoanalysis to uncover associated psychopathology (Hanley, 1967; Wick *et al.*, 1971).

Some investigators have argued that self-hypnosis is an important aspect of hypnotherapy for obesity (e.g. Aja, 1977; Andersen, 1985; Cochrane and Friesen, 1986; Crasilneck and Hall, 1975; Hanley, 1967; Hartman, 1977; Jupp, Collins, McCabe, and Walker, 1986; Stanton, 1975). They claim that it enables patients to develop a sense of control and self-efficacy through being directly involved in the management and delivery of their own treatment. Unfortunately here again a lack of methodological detail precludes evaluative comparison between approaches or proper consideration of outcomes. Whilst some investigators adopt a liberal approach by prescribing 'self-hypnosis' to be used at individuals' discretion, others adopt a more prescriptive stance (Bolocofsky *et al.*, 1985; Bolocofsky, *et al.*, 1984; Kline, 1982). The aim of prescribing self-hypnosis seems to be for patients who have previously sensed failure to regenerate their self-control in order to avoid lapsing from their weight control plan. A number of investigators also prescribe pre-prepared hypnotic tapes (Cochrane and Friesen, 1986; Davis and Dawson, 1980; Stanton, 1975) but again poor reporting prevents detailed analysis. In contrast Andersen (1985) expressed concern about the low level of patient compliance that was apparent amongst patients prescribed to conduct self-hypnosis.

Wadden and Anderton (1982) suggested, in their influential review, that although clinical hypnosis and hypnotherapy have been practiced for more than 200 years the

research field still appears to be in its infancy. Viewed from this perspective research into hypnotherapy for obesity may seem even less mature. And as yet there is no evidence that any one particular investigator is taking a special interest in this specific area. In contrast and on an optimistic note Levit (1993) assessed 20 studies with empirical validity – this approach is discussed in the following section.

4.2 Evidence for hypnotherapy in adult obesity

After almost 50 years of research into the effects of hypnotherapy for adult obesity influential review bodies such as the Cochrane Library, NICE, the Centre for Reviews and Dissemination (CRD) and the National Heart Lung and Blood Institute (NHLBI), remain unable to substantiate its clinical effectiveness. So far studies in hypnotherapy for obesity have been judged to lack robustness by evidence based medicine for which randomised control trial (RCT) data is the minimum standard. In contrast, despite the paucity of controlled studies in the field, some investigators have argued strongly in support of hypnotherapy for adult obesity on the basis of quantitative empirical results from their own controlled experiments or reviews of others' work. In this section of the thesis the intention is to review this evidence to show that whilst the effectiveness of hypnotherapy for adult obesity remains indistinct, there is a potential that is worth pursuing.

Hypnotherapy has been compared with cognitive behavioural therapy (CBT) which remains the instrument of choice for psychologists treating obesity. Numerous reviews have promoted CBT as an impressive intervention in obesity (e.g. Wilson, 1994; Bennet, 1986; Brownell and Kramer, 1989). But longitudinal studies (Cooper and Fairburn, 2001; Brownell and Wadden, 1992; Wilson, 1994) have cast doubt on such claims. Despite this, CBT approaches continue to hold favour with psychologists and anecdotal claims of their superiority over hypnotherapy are frequently made in the obesity literature. Some writers support the individual efficacy of both CBT and

hypnotherapy generally for obesity (Wilson, 1994; Coman & Evans, 1995) but Barabasz & Spiegel (1989) credit hypnotherapy with having the observed potential for greater sustained weight reduction over time. The primacy of CBT as an intervention in obesity may have been weakened by research which investigated the efficacy of an amalgam of behaviour therapy and hypnosis (Barabasz and Spiegel, 1989; Cochrane and Friesen, 1986; Bolocofsky, *et al.*, 1985; Collins, Jupp and Krass, 1981; Wadden and Flaxman, 1981; Bornstein and Devine, 1980; Channon, 1980) from which emerged hypnobehavioural therapy (HBT). Behavioural therapists in other areas have advocated the adjunctive value of hypnosis for some time (e.g. Dengrove, 1976; Kroger, 1977; Lewis, 1979; Surman, 1979) and the emergence of HBT is the result of this appreciation. Some obesity researchers have argued that HBT improves treatment outcomes with regard to maintained weight reduction over time (Bolocofsky *et al.*, 1985; Kirsch, 1996). However it has been suggested that the HBT approach is more effective for mildly obese patients (up to 30-40% above recommended weight) as opposed to moderately obese (40%-100% above recommended weight) or severely obese (100%+ above recommended weight) (Brown & Fromme, 1987). Brown and Fromme caution that such a caveat should not detract from the potential usefulness of HBT as 90 per cent of the obese population fall into the mild category. There is concern however that the emergence of HBT adds to the confusion which already exists about the clinical status of hypnosis compared to hypnotherapy which was mentioned earlier in this chapter (see section 4.1 of this thesis). Investigators working with HBT for adult obesity (e.g. Vanderlinden and Vandereycken, 1994; Barabasz and Spiegel, 1989; Cochrane and Friesen, 1986; Bolocofsky, *et al.*, 1985; Collins, Jupp and Krass, 1981; Wadden and Flaxman, 1981; Bornstein and Devine, 1980; Channon, 1980) do not make it clear whether HBT constitutes behaviour therapy which is simply conducted under hypnosis or whether two stand-alone treatments i.e. hypnotherapy and behaviour therapy are being combined. For instance Bolocofsky *et al.* (1985) refer to the combination of hypnosis and behaviour therapy whilst Vanderlinden and

Vandereycken (1994) refer to a combination of behaviour therapy and hypnotherapy. It could be argued that HBT is a superfluous concept. The modern practice of hypnotherapy is a broad-based psychological treatment process which draws on a range of analytical, cognitive and behaviour therapy techniques in appropriate combinations. It is certainly appropriate to combine hypnotherapy with a dieting or exercise programme, consequently HBT may be simply hypnotherapy by another name.

There are no reports in the general literature on interventions in obesity or in the literature dealing specifically with hypnotherapy for obesity which involve detailed consideration of emotional hyperphagia or food-related attitudinal ambivalence, both of which have been highlighted as key factors in this thesis. There is also very little discussion comparing one-to-one with group hypnotherapy. Vanderlinden and Vandereycken (1994) consider attitudinal ambivalence in a review conducted to establish the level of efficacy of hypnotherapy for obesity. They present a range of hypnotherapeutic techniques which they suggest should be included in a 'multi-dimensional approach' to obesity. Vanderlinden and Vandereycken argue that the techniques can: a) teach relaxation, b) increase self control, c) encourage physical exercise, d) alter self-esteem and body image, e) strengthen motivation and f) explore ambivalence for change. Unfortunately the authors do not explain in detail how the techniques work to generate these changes but importantly for the present thesis they suggest that attitudinal ambivalence is responsible for resistance to hypnotic suggestion. Vanderlinden and Vandereycken (1994) describe how hypnotherapists might utilize ideomotor inquiry (Cheek and LeCron, 1968) (see section 4.3 of this thesis for a description of this procedure) and ego-state therapy (Watkins and Watkins, 1982) to explore any unconsciously generated obstacles underpinning ambivalent attitudes. Ego state therapy is a technique used to communicate with that part of a patient that is

afraid to lose weight, that induces overeating, or that is sabotaging treatment (Vanderlinden and Vandereycken, 1994 p. 254).

In what is considered to be a prestigious review of the literature on weight-orientated hypnotherapy Mott and Roberts (1979) concluded that there was no research up to that time which could substantiate its effectiveness. Mott and Roberts reported that the literature dealing with hypnotherapy for weight reduction was difficult to interpret because hypnotic induction techniques or therapeutic methods were not standardised across studies and neither were they reported in most cases. Investigators commonly failed to indicate which aspects of their treatments may have been implicated whenever claims of weight reduction were made. Follow-up data was scarce, anecdotal reports and reports of single cases featured heavily in the literature and there was an absence of replication throughout. Research methods started to improve from about 1980 when control groups began to be incorporated and sample follow-up data collected (Levit, 1993) possibly because of the observations made by Mott and Roberts (1979). However critics continued to argue that results remained equivocal and presently it is still difficult to calculate which if any aspects of hypnotherapy have been effective in ameliorating obesity since Hershman's seminal report (e.g. Miller, 1975; Devine, 1978; Mott and Roberts, 1979; Wadden and Flaxman, 1981; Wadden and Anderton, 1982; Cochrane, 1992; Allison and Myles, 1996). The claims of ambiguity and equivocality of outcomes have been challenged by Levit (1993) who presents a more optimistic view after conducting the most recent review of the literature. Commenting primarily on attrition rates amongst the studies he had reviewed, Levit disagrees with Stunkard's (1958) argument that most obese patients either do not remain in obesity treatments, do not lose much weight or regain weight after treatment. He points out that in approximately 80 per cent of cases individuals undergoing hypnotherapy for weight control remained in treatment until completion. Levit (1993 pp. 540-541) lists 20 reports of hypnosis for obesity which provide quantifiable data – eight of which incorporate

control groups (Deyoub, 1979a; Deyoub and Wilkie, 1980; Bornstein and Devine, 1980; Goldstein, 1981; Wadden and Flaxman, 1981; Bolocofsky *et al.*, 1985; Cochrane and Friesen, 1986; Barabasz and Spiegel, 1986). Levit argues that a comparative analysis of outcomes between treatment groups receiving hypnotherapy and 'no treatment' control groups strongly indicates that hypnotherapy for weight reduction is effective. Levit's positive conclusions have been endorsed by meta-analyses of six of the same controlled study reports (Kirsch *et al.*, 1995, 1996).

To seek support for the view that hypnotherapy has the potential to become an effective intervention in adult obesity the essential aspects of the 8 controlled experiments endorsed by Levit (1993) are examined to assess if this can be achieved. Before commencing the review the criteria against which the 8 studies will be evaluated should be made clear. Dieting has been advocated to offer the best chance of consistent and sustained weight reduction by officially recognised agencies e.g. N.I.C.E., N.H.L.B.I., S.I.G.N. and W.H.O. Official guidelines suggest that worthwhile interventions in obesity should be able to generate at least a 10% weight reduction at a minimum rate of between 0.5 and 1.0 Kg per week (e.g. NHLBI, 2000; British Nutrition Foundation, 1999). It does not seem unreasonable to expect that obesity treatments which are adjunctive to diets or which do not involve dieting should be able to exceed this minimum objective to be considered worthwhile and superior to dieting alone. The first evaluative consideration therefore will be the amount and rate of weight loss reported and how it compares with the "10% weight loss in six months" recommendation. The second consideration will be whether or not the outcome of hypnotherapy can be compared with that of a randomised no treatment control group. It would be ideal if the outcome of hypnotherapy could also be compared with dieting alone as the 'industry standard' so this will be the third evaluative consideration. Incorporation and length of follow-up period will be the fourth consideration. There is at present no evidence to suggest how long a follow-up period should be but official

guidelines suggest that a 10% weight reduction should reasonably be expected to occur within 6 months (e.g. NHLBI, 2000). On this basis the minimum follow-up criterion will be set at 6 months. Finally methodological appreciation depends on the degree of technical detail investigators provide in their reports and this factor will be influential in deciding whether or not hypnotherapy is felt to have potential as an obesity treatment. To ensure these concerns are covered when evaluating each of the 8 reports the following 6 questions will be asked:

1. Does the average weekly rate of mean weight loss at post treatment and follow-up suggest that a 10% mean reduction would occur in 6 months?
2. How does the average rate of mean weight loss compare with the suggested minimum worthwhile requirement of 1 lb per week?
3. Does the study incorporate a no treatment control group against which hypnotherapy can be compared?
4. Does the study facilitate comparison with the dieting alone method?
5. Does the study incorporate a 6 month minimum follow-up period?
6. Is there enough detail in the report to fully appreciate the methods used?

<u>Deyoub (1979a) - Covert modelling-hypnosis in the treatment of obesity.</u>

Fifty two participants were randomly assigned to a treatment group or a no-treatment control group. Participants in the treatment group received group hypnotherapy at the rate of 1 session per week for 8 weeks followed by an 8 week follow-up period. The mean weight loss during the treatment period for the hypnotherapy group was 7 lbs and for the follow-up period almost 3 lbs providing a total mean weight loss for the treatment group across the study of approximately 10 lbs (see table 4.1). In contrast the control group gained weight across the study. The pre-treatment mean weight for the hypnotherapy group was 223.8 lbs. Based on the 10% recommendation a target mean weight loss in 6 months would need to have been almost 23 lbs. In order to achieve this target an average weekly mean weight loss of 0.96 lbs would have needed

to be maintained throughout. At the post-treatment stage the weekly rate of mean weight loss was 0.9lbs and at the follow-up stage this had slipped back to 0.63lbs. The post-treatment rate is almost at the required level but the falling trend suggests that a 10% mean weight loss would not have been achieved by the treatment group at the end of a six month follow-up period.

Group	Post-treatment	8 week follow-up
Treatment	7.0	10.0
No treatment controls	1.0 (+)	0.5

Table 4.1 Approximate mean weight losses (lbs) based on data from table 1 in Deyoub (1979).

The study provided a useful comparison with a no-treatment control group for which weight loss was negligible by the end of the study but did not allow hypnotherapy to be compared with dieting alone. Collecting follow-up data is commendable but at 2 months the follow-up period is considered too short to form an opinion about the longitudinal effects of hypnotherapy to reduce hyperphagia. In preparing the report the investigator concentrates more on rationalising what was done in the study rather than describing how things were done. The report outlines methods used in broad terms only and does not provide a detailed account of the technical and procedural aspects of the hypnotherapy applied. An issue of particular concern is that the report does not explain how patients' confidentiality was ensured during aspects of the group hypnotherapy sessions when they were questioned about reasons underlying their obesity. For example one question was: "Are you trying to make yourself unattractive to avoid sex?" Also the report states that this interactive process required the use of ideomotor responses (IMR) but does not explain how this was managed practically for group hypnotherapy which is a problem dealt with in detail later in this chapter in section 4.3. Further to criticisms made earlier in this section with regard to HBT, the application of covert modelling under hypnosis, is a basic aspect of hypnotherapy and, as such,

identifying the treatment condition as covert modelling-hypnosis is misleading. Although the report is short on detail and the rate of mean weight loss seemed insufficient to provide a 10% mean reduction in six months the rate of mean weight loss at the post-treatment stage was almost at the required level. This coupled with the fact that this may have been due to group hypnotherapy, which is a more complex procedure than its one-to-one counterpart, suggests that group hypnotherapy has the potential to be a worthwhile intervention in adult obesity in the future. This is particularly encouraging as group hypnotherapy is seen as the logical route to lower fees for patients.

Deyoub and Wilkie (1980) – Suggestion with and without hypnotic induction in a weight reduction programme.

Seventy-two participants were randomly assigned to either: a) hypnotherapy group, b) task-motivational group (TM), which refers to the use of suggestion without hypnosis and c) no-treatment control group. Participants underwent an 8 week period of group treatment which was applied at the rate of 1 session per week for 8 weeks and an 8 week follow-up period. Each of the two treatment groups received identical suggestions with the only difference being that the TM group received theirs without hypnosis. Basically the purpose of the study was to assess the relationship between weight loss and hypnotizability. Both treatment groups lost weight during the study in contrast to the control group which gained weight. On this occasion the TM group mean weight loss was greater than the hypnotherapy group at the post-treatment weigh-in however this situation had reversed after the follow-up period see table 4.2.

Group	Post-treatment	8 week follow-up
Hypnotherapy	1.3	6.0
Task-motivational	4.0	5.3
No treatment controls	2.4 (+)	4.3 (+)

Table 4.2 Mean weight losses (lbs) based on data from table 1 in Deyoub and Wilkie (1980).

In the absence of information about pre-treatment mean weights it is not possible to compare weekly rates of mean weight loss with the 10% recommendation. The average weekly rate of mean weight loss at the post-treatment stage for the hypnotherapy group was approximately 0.2lbs and at the follow-up stage 0.4lbs. Whilst the rates seem low if considered against the general weight loss recommendation of one to two pounds per week, the rate of mean weight loss did actually increase after the treatment ended. The study provided a useful comparison with a randomised no-treatment control group for which weight gain occurred but did not allow hypnotherapy to be compared with dieting alone. Similarly to the previous Deyoub study collecting follow-up data is commendable but at 2 months the follow-up period is again considered too short to form an opinion about the longitudinal effects of hypnotherapy to reduce hyperphagia. This study, like the previous one, provides only a broad view of methods and lacks technical details about the treatment procedures. Consequently it is only possible to assess the functionality of the study at a shallow level. The support the study provides for the potential of hypnotherapy as an intervention in obesity seems weaker than the previous Deyoub (1979a) study. The rate of mean weight reduction is very low at less than 0.5 lbs per week but this did occur possibly due to group hypnotherapy which is harder to manage than one-to-one hypnotherapy in this context. Also the rate of weight loss increased between post-treatment and follow-up and this trend may have continued. On balance the Deyoub and Wilkie (1980) study does support the potential of group hypnotherapy as a treatment for adult obesity.

Bornstein and Devine (1980) – Covert modelling-hypnosis in the treatment of obesity.

48 participants were randomly assigned to one of four conditions a) covert modelling hypnosis, b) covert modelling, c) no-model control and d) minimal treatment. Covert modelling is described as an imaginal procedure used extensively in behaviour modification techniques whereby new models of behaviour in a given context are imagined by the patient. Participants in the covert modelling hypnosis and the covert modelling groups underwent the same covert modelling procedure but in the former case this happened whilst the participants were under hypnosis. The intervention required participants in both modelling groups to follow a prescriptive homework programme which involved self-application of imaginal scenes and a reading assignment from a book entitled: *Slim Chance in a Fat World* (Stuart and Davis, 1972). Participants in the no-model control group were presented with non-modelling based visualizations e.g. of hunger arousing scenes leading to increases in behavioural control and were asked to follow the same homework programme as the two modelling groups. Participants in the minimal treatment group did not attend any treatment sessions but were given *Slim Chance in a Fat World* (Stuart and Davis, 1972) and asked to lose weight on their own by following the recommendations in the book. The two modelling groups and the no-modelling control group attended for one group treatment session per week for 8 weeks after which there was a post-treatment weigh-in for all participants which was repeated after a 3 month follow-up period. Participants in the minimal treatment group simply attended the weigh-in sessions at pre-treatment, post-treatment and follow-up. The report does not indicate weight change precisely in numerical terms and readers have to interpret a graph showing the mean weight change effects for each experimental condition. Approximate weight changes are presented in table 4.3.

Group	Post-treatment	3 month follow-up
Covert modelling and hypnosis	6.0	12.0
Covert modelling	6.0	8.0
Minimal treatment	2.0	6.0
No model control	3.0	1.0 (+)

Table 4.3 Approximate mean weight losses based on information from figure 1 in Bornstein and Devine (1980).

The report gives no indication of pre-treatment mean weights so it is not possible to assess the average weekly rate of mean weight loss against the 10% requirement. The average weekly rate of mean weight loss for the hypnosis group at the post-treatment stage was 0.75lbs and at the follow-up stage this had slowed to 0.6lbs. If assessed against the general recommendation of one to two pounds of weight loss per week this outcome is disappointing. This study did not incorporate randomised no-treatment controls and it was not possible to compare hypnotherapy with a 'dieting alone' condition. The longer follow-up period in this study is more useful at 3 months but remains too short to form an opinion about the longitudinal effects of hypnotherapy to reduce hyperphagia. The level of technical and procedural detail in this report is of a higher standard than is usually the case with reports in this field which allows a reasonable appreciation of the methods used. Similar to the observation made in the review of the Deyoub (1979a) study covert modelling is a basic procedure in hypnotherapy and as such the covert modelling condition in this study is can actually be considered as a hypnotherapy condition. Despite the low degree of weight lost and there not being a comparison with no-treatment controls the fact that Bornstein and Devine (1980) used group hypnotherapy lends weight to the study in the context of this thesis. As observed previously group hypnotherapy, not one-to-one hypnotherapy which is a very different approach, is thought to be the key to lower charges for patients. Studies, alongside this one, which suggest that group hypnotherapy has potential for adult obesity e.g. Deyoub (1979a), Deyoub and Wilkie (1980), and Cochrane and Friesen (1986) provide encouragement that this might be an achievable

goal. Although the weekly rate of mean weight loss slowed down during the study actual weight loss continued to accrue; therefore on balance this study suggests that hypnotherapy has potential for adult obesity.

Goldstein (1981) – The effect of demonstrating to a subject that she is in a hypnotic trance as a variable in hypnotic interventions with obese women.

This experiment was conducted to determine if participants' experience of trance based non-volitional behaviour during hypnosis resulted in an enhanced outcome after their hypnotherapy for weight reduction. Sixty participants were randomly assigned to one of three groups: a) hypnosis with proof, b) hypnosis without proof, and c) behaviour modification. Both hypnosis groups used the same procedures except that participants in the hypnosis with proof group underwent an arm levitation exercise as proof that they were in a hypnotic trance. The behaviour modification group received no hypnosis in their treatment but were treated in accordance with the basic principles of behaviour modification, particularly as described by Stuart and Davis (1972). The behaviour modification group acted as the control condition against which the two hypnosis conditions would be measured. Treatment was one-to-one and participants had to agree to attend a minimum of 4 sessions after which they could decide whether or not to forego further treatment as long as they continued to diet until the 6 month follow-up weigh-in. Treatment was not standardised across individuals in each group and Goldstein refers to a pool of suggestions which were applied according to the needs of each participant at any given time. All the participants were introduced to all the suggestions by the end of the treatment period and suggestions in the hypnotic conditions were similar to those used in the behaviour modification condition. The final data from the study included the participants who had terminated sometime after the initial 4 week treatment period. Both hypnosis groups achieved weight loss during the study with the hypnosis with proof doing best (see table 4.4). The 6 month figure of 4.2 lbs given for the hypnosis-without-proof group seems to be a printing error particularly

as the report states that weight loss was similar between this group and the behaviour modification group which was 25lbs. On the basis of similarity it may be suggested that the figure 2 has been omitted and that the most obvious figure is 24lbs (rounded down).

Group	4 weeks	6 months
Hypnosis-with-proof (N=20)	7.0	36.0
Hypnosis-without-proof (N=20)	4.9	24.2
Behaviour modification (N=20)	4.7	25.0

Table 4.4 Approximate mean weight losses (lbs) from table 1 in Goldstein (1981).

The report provides no indication of the pre-treatment mean weight of the individual groups. This precludes assessment of the average weekly rate of mean weight loss in the hypnosis groups against the 10% recommendation. For the purposes of this review the outcomes of the two hypnosis conditions can be combined as each are representative of hypnotherapy for behaviour modification. As such the study indicates mean weight losses for a combined hypnotherapy condition of almost 6 lbs at the post-treatment stage and 30lbs at follow-up if the revised follow-up figure of 24lbs for the without-proof group is used. By these figures the average weekly rate of mean weight loss for hypnotherapy would be 1.5lbs at post-treatment and 1.25lbs at follow-up. When considered against the general recommendation that weight loss should occur at the rate of one to two pounds per week the results of this study are encouraging.

The study did not incorporate a no-treatment control group or a dieting only control group which precludes these sorts of comparisons being made. The 6 month follow-up period is commendable and provides a more informative view of the dynamic performance of weight loss. The level of technical detail in this report seems above average for the field but there is still not enough information to assess all aspects of the methods used. Despite the absence of comparison with no-treatment controls and the

use of one-to-one hypnotherapy, the rate of weight loss in the Goldstein (1981) study is consistently above the minimum recommended rate of 1lb per week. Consequently the study offers support for the potential of hypnotherapy for adult obesity.

Wadden and Flaxman (1981) – Hypnosis and weight loss: a preliminary study.

33 participants were randomly assigned to one of 3 groups a) hypnosis, b) covert modelling or c) relaxation-attention control. The purpose of the study was to determine both the efficacy and the active treatment components of a hypnotherapeutic programme for weight loss. The hypnotic treatment was based on goal-directed and cognitive behavioural guided imagery formulated according to information gained from participants prior to the treatment period. The treatments were applied on a one-to-one basis at the rate of 1 treatment per week for 7 weeks. Weight reduction was assessed immediately post-treatment and again at 6 and 16 weeks follow-up. Weight loss occurred in each condition with the covert modelling condition doing best (see table 4.5).

Treatment	Post treatment	6 weeks	16 weeks
Hypnosis	6.6	6.0	4.6
Covert modelling	7.9	8.4	6.1
Relaxation attention control	6.3	6.2	5.5

Table 4.5 Mean weight losses (lbs) from table 2 in Wadden and Flaxman (1981).

The mean weight of the hypnosis group was 155 lbs which suggests that a mean weight loss of 15.5 lbs should have been the target according to the 10% recommendation. This would have required an average weekly rate of mean weight loss of 0.65 lbs. The average weekly rate of mean weight loss for the hypnosis group was 0.94lbs at the post treatment stage, 0.46lb at the 6 week follow-up stage and 0.2lbs at the 16 week follow-up stage. It would seem from these figures that the rate of weight loss slowed once the treatment ended. This result is particularly disappointing in

view of the use of one-to-one hypnotherapy and individualised guided imagery which would have to be considered as an ideal opportunity. The study did not incorporate no-treatment or dieting alone controls which precludes this type of comparison. According to the diminishing nature of sustained weight loss during the follow-up period the final amount of weight lost might have reversed to become a total weight gain if a longer follow-up period had been used. Once again as with the other reports reviewed here the paucity of technical and administrative detail in the Wadden and Flaxman (1981) report prevents full and proper appreciation of the methods used. To be considered a worthwhile intervention in adult obesity a major criterion of hypnotherapy will be its longitudinal effects which, in this study, clearly diminished. Having said this good weight loss was achieved by the hypnosis group during the treatment period. Therefore, although a comparison with no-treatment controls was not possible, on balance the study offers tentative support for the potential of hypnotherapy as an intervention in adult obesity.

Bolocofsky *et al.* (1985) – Effectiveness of hypnosis as an adjunct to behavioural weight management.

This study examined the effect of adding hypnosis to a behavioural weight management programme on short and long-term weight change. One hundred and fifty six participants were randomly assigned to two treatment groups one of which received HBT and the other behaviour therapy (BT). By the end of the study data were collected on 57 participants from the hypnosis group and 52 from the behaviour therapy group. Both conditions involved one-to-one treatment given at the rate of 1 session per week for 9 weeks. Weight change was assessed immediately at post-treatment and again at 6 months and 24 months follow-up. Results indicated that both forms of treatment brought about significant weight reduction during the course of the treatment programme with the HBT group doing best overall (see table 4.6). The report indicates the pre-treatment mean weight of the hypnosis group was approximately 155lbs which

suggests according to the 10% recommendation that a mean weight loss of 15.5lbs would be required by the 6 month stage. This would have needed an average weekly rate of mean weight loss of 0.65lbs. At the post-treatment stage the hypnosis group had achieved an average weekly rate of mean weight loss of 0.98lbs. At the 6 months follow-up stage this figure had slipped back to 0.56lbs. By the 2 year stage the average weekly rate of mean weight loss had reduced to 0.2lbs.

Treatment	Post treatment	6 months	2 years
HBT	8.8	18.4	21.8
BT	6.6	7.0	6.8

Table 4.6 Approximate mean weight losses (lbs) based on figures from table 1 in Bolocofsky *et al.* (1985).

The study does not facilitate comparison with a no-treatment control group or a dieting alone strategy and, in addition, Bolocofsky *et al.* provide only superficial methodological details of their study. For example the screening procedure used to eliminate undesirable recruitment characteristics amongst volunteers is not reported nor is the nature of an eight week training programme undertaken by 27 psychology students who acted as therapists during the study. Technical aspects of the treatment procedures are not reported in depth – neither for behaviour therapy nor for the hypnotic procedure. Irrespective of any criticisms which might apply to the report the achievement of the HBT group remains impressive if considered in comparison with other studies in the field to date especially because of the longitudinal perspective the study provides. The HBT group exceed the 10% in 6 months recommendation and continued to accrue weight loss throughout the follow-up period. On balance, despite the absence of no-treatment controls, the Bolocofsky *et al.* (1985) study again provides further indication that hypnotherapy has the potential to be effective for adult obesity.

Cochrane and Friesen (1986) – Hypnotherapy in weight loss treatment.

Cochrane and Friesen describe an eclectic approach where one-to-one and group hypnotherapy was used in a mixed treatment for adult obesity. Sixty participants were randomly allocated to one of 3 conditions: a) hypnotherapy with supplemental home use audio tapes (Hy-T), b) hypnotherapy without audio tapes (Hy) and c) no-treatment control group (Cont). The Hy-T and Hy participants underwent 24 hours of treatment in the form of two 3-hour group sessions per week for 4 weeks. Weight change was assessed immediately post-treatment and after a 6 month follow-up period. The group hypnotic inductions combined direct and indirect suggestions for dissociation and deepening and each participant also underwent a one-to-one induction intended to accommodate unique response patterns for which the investigators cite Coupar and Kennedy (1980). The treatment programme consisted of three aspects. Group hypnosis was used to present therapeutic stories and metaphors for ego enhancement, motivation and decision making. One-to-one hypnosis was used to uncover unacknowledged weight-related issues. And group hypnosis was again used to give specific suggestions aimed at weight reduction and maintenance following the uncovering process. Both hypnosis conditions achieved comparable weight loss throughout the study see table 4.7.

Group	4 weeks	24 weeks
Hy-T	6.5	17.8
Hy	8.0	17.0
Cont	1.5	1.5

Table 4.7 Mean weight losses (lbs) based on information from table 1 in Cochrane and Friesen (1986).

The pre-treatment mean weight for the Hy-T and Hy groups was 216lbs and 184lbs respectively. According to the 10% recommendation a mean weight reduction of 21.6lbs and 18.4lbs would be required by the 6 months stage. In terms of the average weekly rate of mean weight loss this would be 0.9lbs for the Hy-T group and 0.76lbs for

the Hy group. At the post-treatment stage it is clear that both hypnosis groups exceeded these requirements with average weekly rates of mean weight loss of 1.6lbs and 2lbs respectively. By the 6 month stage however the average weekly rates of mean weight loss had slowed to 0.64 lbs and 0.61 lbs respectively; both below the requirement. Cochrane and Friesen do not describe all aspects of their methodology fully, preferring instead to direct readers to the first author's address if a full description is required. The study provided a useful comparison with a no-treatment control group for which weight loss was negligible but did not allow hypnotherapy to be compared with dieting alone. The 6 month follow-up period allows for greater appreciation of the longitudinal effects of hypnotherapy. Generally the study is of particular interest to this thesis because of the importance placed on uncovering the reasons for participants' hyperphagia rather than just aiming to control food intake directly. Despite the fall in the rate of weight loss in the latter stage of the study good weight loss was achieved during the treatment stage and weight loss continued throughout the study. On balance the Cochrane and Friesen (1986) study does support the potential of hypnotherapy as an intervention in adult obesity.

Barabasz and Spiegel (1989) – Hypnotizability and weight loss in obese subjects.

Barabasz and Spiegel (1989) carried out a controlled experiment for which the primary aim was stated as being to explore the utility of hypnosis and a behavioural self-management procedure for weight control. A secondary hypothesis was concerned with the relationship between hypnotizability and weight loss. 45 participants were randomly assigned to one of three groups: a) basic behavioural weight loss procedure, b) hypnotherapy primarily using motivation techniques to control food intake through affirmation statements (e.g. "for my body overeating is a poison" or "I owe my body this respect and protection" etc), c) hypnotherapy similar to group (b) but using suggestions for change based on aversive techniques. It seems that the treatment period extended over 90 days although this aspect is not reported directly. Rather than describe the

methods used in detail Barabasz and Spiegel refer readers to other studies they had carried out previously on smoking cessation (Spiegel and Spiegel, 1978; Barabasz *et al.*, 1986) the methods from which were transferred and applied to obesity in their present study. Consequently it is not apparent how many treatment sessions were involved or whether they were conducted on a one-to-one basis or in a group. The study did not incorporate a no-treatment control group nor did it facilitate comparison with dieting alone. The Barabasz and Spiegel (1989) study showed that both forms of hypnotherapy resulted in greater weight loss than the behavioural self-management procedure see table 4.8.

Group	Weight loss (lbs)
Hypnosis type 1 (motivation)	7.5
Hypnosis type 2 (affirmation)	14.0
Behavioural procedure	3.0

Table 4.8 Approximate mean weight losses (lbs) based on information in Barabasz and Spiegel (1989).

This report does not indicate if the weight losses are for post-treatment or follow-up and no details are given about the number of treatment sessions or the length of the treatment period etc. This prevents any calculations from being made about the rate or amount of weight loss. In addition the paucity of technical and procedural details in the report prevents any meaningful evaluation of the methods used. This report cannot be taken as offering support to the potential of hypnotherapy for adult obesity.

* * *

On the basis of the criteria described prior to this review, 7 of the 8 studies reviewed do support the idea that hypnotherapy has potential for adult obesity. Although five of the eight studies did not facilitate comparison with no-treatment controls or with basic dieting strategies and only 3 studies met the 6 month follow-up requirement, mean

weight loss performances in the studies was sufficient to suggest potential to varying degrees. Whilst this is a positive opinion it is less ebullient than that expressed by Levit (1993) who argued that these studies provide confirmation of hypnotherapy's effectiveness as an intervention in obesity. The difference between Levit's belief and the more cautious view expressed here lies in the terms of reference adopted by each. Levit's view of effectiveness is fundamentally based on statistical significance whereas the present review has only sought to examine potentiality. The intention in doing this is to provide confirmation that, on the balance of the evidence from previous research, the research described in this thesis was worth conducting.

4.3 Factors that diminish the effect of hypnotherapy for adult obesity

In order to improve hypnotherapy as an intervention in adult obesity it is essential to appreciate which of its aspects attenuate its clinical efficacy. The issues discussed in this section are considered to be key issues which, in conjunction with the whole of chapter 3, are fundamental to the apparent ineffectiveness of hypnotherapy for adult obesity so far. The issues discussed in this section provide the cumulative challenge to anyone wanting to improve the effectiveness of hypnotherapy for adult obesity in the future.

<u>Accessibility of treatment</u>

Hypnotherapy is not at present an NHS treatment option and can only be undertaken privately (Heap, 1998). The cost of hypnotherapy is not standardised in the United Kingdom but in the North of England for instance fees are typically £50 for each one-to-one consultation with much higher fees occurring in the South of England. In view of the high prevalence rates of adult obesity in lower socioeconomic groups it seems ironic that the people in most need of help are least likely to be able to afford hypnotherapy. Clinical experience – both personal and on report from professional colleagues – suggests that patients on low incomes who seek hypnotherapy for obesity

usually are anxious about the likely number of sessions that will be required and eventual cumulative cost. Group hypnotherapy provides the opportunity to significantly reduce the cost of hypnotherapy for adult obesity. It is not inconceivable for instance that in the North West of England at current rates 5 patients being treated as a group might pay as little as £10 each per treatment. However for reasons which will be discussed in this section group hypnotherapy is not presently a realistic treatment for adult obesity making one-to-one hypnotherapy the only practical option. Under these circumstances hypnotherapy will continue to be inaccessible to a significant proportion of the adult obese population.

Group compared with one-to-one hypnotherapy

Group hypnotherapy for adult obesity can be thought of as a 'one size fits all' intervention. Usually in group hypnotherapy strangers are brought together and perceived by hypnotherapists to share a common disorder which they seek to ameliorate by applying a common treatment aimed at achieving a common outcome. The 'one size fits all' mentality is a characteristic of common dieting strategies which are motivated by the energy balance equation and seek solely to restrict food intake *per se*. Given the complexity of the aetiology of obesity this approach seems inadequate in either case. The view put forward in this thesis is that the root of adult obesity is unlikely to be found in an aetiology common to all members of a population. Hypnotherapy for obesity must be able to address the motivational differences which underpin individuals' hyperphagic behaviour. Clearly group hypnotherapy cannot provide a confidential environment in which to address these aspects which have been evident to other researchers (e.g. Cochrane and Friesen, 1986). Therefore despite findings such as those by McCabe *et al.* (1983) (see previous section) one-to-one procedures remain vital to hypnotherapy for adult obesity. In addition to the ethical problem of patient confidentiality, group hypnotherapy is limited by further issues which do not affect one-to-one hypnotherapy.

Since Erickson (1952) first described the use of symbolic head movements for hypno-communication, ideomotor response (IMR) has become commonplace in hypnotherapy. Presently this technique requires patients to make unconscious left and right index finger movements to answer 'yes' and 'no' or both fingers to indicate a non-answer (Cheek and Le Cron, 1968). Hypnotherapists can gain information through this technique about their patients' ongoing hypnotised conditions or it can be used to investigate the presence and nature of unconscious material (Waxman, 1989). When a patient makes an ideomotor finger response in answer to a question the movement is often slight (Gafner and Benson, 2000) and unpredictable. Sometimes the response does not occur immediately with questions having to be repeated or re-phrased. Effective IMR management requires that enough time be taken and that hypnotherapists can concentrate on minute observations of patients during the process. The IMR technique is a practical and immensely useful option for one-to-one hypnotherapy but is not a practical option for current forms of group hypnotherapy. The reasons for this are twofold. Firstly hypnotherapists would be unable to reliably monitor slight finger movements amongst groups of patients which might all occur to different degrees and at different times. Secondly it is often necessary to ask patients personal questions during the IMR procedure which would breach patient confidentiality in group settings. In terms of the present thesis the IMR procedure is considered to be an essential part of hypnotherapy when seeking to uncover the motivational issues which drive an individual's hyperphagia. Consequently the importance of the IMR procedure to hypnotherapy for adult obesity renders group hypnotherapy an impractical treatment option.

Words are important tools in the arsenal of the hypnotherapist (Kroger, 1977 p. 162) and patients' responses are linked to the way they interpret them. Kroger refers to hypnosemantics in this regard and suggests that most hypnotised persons respond literally to the meaning of words. The use of language which is both meaningful and

acceptable to patients is a basic requirement of effective hypnotherapy. Patients seeking hypnotherapy represent all areas of society which for group hypnotherapy places intolerable demands on the semantic and pragmatic requirements of hypnotherapeutic scripts. As such it would be naïve to assume that group hypnotherapy could be an effective intervention for hyperphagia when each patient's condition would be likely to be driven by highly personal motivating factors. Guided imagery can be a fundamental aspect at all stages of hypnotherapy. In addition to considering the hypnosemantic implications of language in the imagery process it is vital to develop imagery around themes which are personally meaningful to each patient, which requires the use of appropriate narratives. When conducting group hypnotherapy clinicians are limited in their use of guided imagery again by the variation in the semantic and pragmatic needs of individuals making up the group.

Of perhaps less importance than patient confidentiality, IMR or hypnosemantics, social interactions can have important positive or negative implications for group hypnotherapy. Whilst members of a group might usually be expected to support and encourage one another through the treatment process, patients who experience negative feelings about particular group peers may become anxious and consequently less responsive to hypnotherapy. Unless patients are specifically selected for a group this risk would usually remain beyond the control of hypnotherapists conducting group hypnotherapy in real world settings. Once again in comparison with one-to-one hypnotherapy this is potentially a disadvantage.

Galvanic skin response (GSR) describes a measure of electrodermal conductivity (Gregory, 1987), which is thought to increase in association with negative affect. GSR can be easily monitored by a digital readout meter via electrodes attached to a patient's fingers. Whilst this procedure is not yet widely used by hypnotherapists it is likely to become more commonplace due to promotions aimed at the profession. GSR can

provide researchers with valuable insight into the intrinsic neurological nature of hypnosis through their interpretation of electro-dermal responses (e.g. Gruzelier, *et al.*, 1985; Gruzelier, 1984, 1973; Gruzelier and Venables, 1972; O'Connell, *et al.*, 1968; Barber and Coules, 1959; Sears and Beatty, 1956). And GSR can enable hypnotherapists to appreciate the effectiveness of their induction and post-induction procedures (for example, lower GSR readings indicate a more relaxed state). Once again however, as with IMR, it would be impractical to monitor a number of GSR meters simultaneously whilst conducting group hypnotherapy. Other forms of biofeedback such as blood pressure, pulse rate, respiration or aspects of facial morphology also offer hypnotherapists the potential for greater insight into patients' ongoing condition during treatment. Whilst these are easy options for one-to-one hypnotherapy they are not practical options for group hypnotherapy, for the same reasons that disqualify IMR and GSR.

Free will

In addition to the deficiencies of group hypnotherapy exposed so far there is a further threat to clinical efficacy which affects both group and one-to-one hypnotherapy. Patient volitional control may be thought of as the first principle of hypnotherapy and basically means that patients do not relinquish control during hypnosis or hypnotherapy. In psychology volition is suggested to mean a conscious, voluntary selection of particular action or choice from many potential actions or choices (Reber and Reber, 2001). Non-volition in hypnosis refers to the commonly observed phenomenon of automaticity or involuntariness thought by some to be experienced by hypnotised individuals in response to hypnotic suggestions. Opinions vary about whether or not patient volitional control is absolute during hypnotic procedures and differ according to fundamental beliefs about the nature of hypnosis (Lynn and Rhue, 1991). In general hypnotherapists agree that patients undergoing hypnosis cannot be coerced into acting against their will (e.g. Conn, 1972; Hartland, 1974; Kroger, 1977 p.

36; Waxman, 1989 p. 39; Lynn and Rhue, 1991b; Vingoe, 1995; Kirsch *et al.*, 1999 p. 7; James, 2000 p. 51; British Psychological Society, 2001). The American Psychological Association (APA) has reinforced the idea of patient volitional control in its definition of hypnosis which states:

> *Contrary to some depictions of hypnosis in books, movies or television, people who have been hypnotized do not lose control over their behaviour* (APA, 1994)

Further evidence against the notion of a hypnotic automaton (Kirsch *et al.*, 1999) was provided by a survey of experts in forensic hypnosis who all rejected the idea that hypnotised individuals lose control of themselves to the hypnotist (Vingoe, 1995). Finally in what has been described as probably the most important academic volume on hypnosis to be published during the decade 1990 to 2000 (Kirsch *et al.*, 1999) *Theories of Hypnosis* (edited by Lynn and Rhue, 1991) Lynn and Rhue concluded,

> *Since the "golden age" of hypnotism (the 1880s and 1890s), the view of the hypnotized subject as a passive automaton under the sway of a powerful hypnotist has faded in popularity. In fact, this rather extreme position is not endorsed by any of the theorists whose ideas are represented in this book.* (p. 606)

The fact that a patient's free will cannot be compromised by hypnosis may have important implications when hypnotherapy is being applied to an obese individual who is affected by food-related attitudinal ambivalence (see section 3.3 of this thesis). A patient in this situation would be partially not in favour of complying with hypnotic suggestions to stop eating certain fattening foods. It would therefore seem logical and reasonable to assume that they would, to some degree, resist hypnotherapy in this context. In terms of clinical management, patient volitional control represents an area of the hypnotherapeutic process over which hypnotherapists have no direct control.

Resistance to hypnotic suggestion is an important clinical variable that hypnotherapists are unable to manipulate with any confidence.

The nature of hypnosis

A major issue which diminishes the potential of hypnotherapy generally is the lack of consensus about what hypnosis actually is. Theorists have been engaged in a long-standing academic argument which is known to most as the 'state/non-state debate' (Barber, 1969, 2000; Lynn and Sherman, 2000; Fellows, 1990; Lynn and Rhue, 1991a; Wagstaff, 1987, 1991a). Basically state theorists (e.g. Barber, 1991; Bowers, 1983; Evans, 1991; Nash, 1991; Orne *et al.*, 1986; Sheehan and McConkey, 1982; Spiegel, 1994) argue that hypnosis involves profound alterations in participants' psychophysiological state or condition (a hypnotic trance state) (Kirsch *et al.*, 1999) which leads to a significant degree of automaticity on the part of hypnotized individuals. Non-state theorists on the other hand dispute that hypnosis involves any alteration in psychophysiological status believing instead that the hypnotic response is based on natural everyday psychological processes; sometimes perceived as non-volitional by participants. The sociocognitive perspective of hypnosis is the most influential contemporary representation of the non-state argument (e.g. Barber, 1969; Coe and Sarbin, 1991; Gorassini, 1996; Kirsch, 1991; Lynn, 1992; Lynn and Rhue, 1991b; Lynn *et al.*, 1990; Sarbin and Coe, 1972; Spanos, 1982, 1986, 1991; Spanos and Chaves, 1989; Wagstaff, 1981a, 1986a, 1991a). Supporters of the sociocognitive view argue that hypnosis can be explained in terms of everyday psychological principles such as imagination, relaxation, role enactment, compliance, belief, conformity, attention, attitudes and expectancies and goal attainment.

White (1941) who viewed hypnosis as a process of goal directed action was the first modern theorist to explicitly reject the special state concept of hypnosis. Sarbin (1950) extended White's work by formulating a new hypnosis paradigm based on the workings

of social interactive role play. Subsequently the sociocognitive perspective received further important support from the work of T. X. Barber (1969) who sought to delineate the social psychological antecedents of hypnotic behaviour (Spanos, 1991). Sarbin and Barber can be credited for providing the main impetus for the shift away from a special state view of hypnosis which had monopolised for more than 150 years. At a fundamental level Wagstaff (1993 p. 364) attempts to ground the state/non-state issue by applying the principle of "Occam's razor" to demonstrate that because hypnosis can be accounted for under normal terms a special state explanation is superfluous.

Although a definitive and clear appreciation of the hypnotic process would be beneficial to hypnotherapy generally it is not vital to the focus of this thesis to engage the state/non-state debate. Whilst there are elements within each side of the argument which have some force there is only one aspect with a bearing on the present study which is directly affected by the controversy. 'Cognitive dissociation' is a phenomenon which has important implications within the present study particularly with regard to emotional hyperphagia and food-related attitudinal ambivalence. Despite wanting to remain outside the state/non-state debate the concept of cognitive dissociation is an intrinsic aspect of neodissociation theory (see below) which is central to modern special state concepts.

Cognitive dissociation

The intransigence which has for so long been apparent between state and non-state theorists has been lessening over recent years. The atmosphere has become more conciliatory hopefully in recognition of the need for a unifying theory of hypnosis. This may be due to E. R. Hilgard's attempt to soften the controversy by adopting the term "hypnotic condition" as opposed to "hypnotic state" which he recognised as controversial (Hilgard, 1991). In contemporary terms Hilgard's neodissociation theory (Hilgard, 1973, 1986, 1991) provides the most influential account of hypnosis from the

state perspective. Hilgard's theory of hypnosis argues that the human cognitive system is composed of a number of information processing sub-systems, which are hierarchically ordered to process information. Each sub-system has its own input/output, but it is connected with the others through a feedback arrangement (Kranhold *et al.*, 1992). According to Hilgard these are influenced by a dominant central control structure he describes as the executive ego, which controls and monitors the other systems (Hilgard, 1991) and which each person perceives as the 'self' that plans and manages their affairs. Hilgard argues that during hypnosis the hypnotist takes over some aspects of control and monitoring from the executive ego supposedly resulting in non-volitional behaviour on the part of the hypnotised individual due to their involuntary dissociated awareness in these areas. Neodissociation theory suggests that dissociation is a separation of subordinate cognitive control systems from the integrated organization of the cognitive apparatus (Kranhold *et al.*, 1992). These systems operate relatively independently from conscious control and are thought to be responsible for perceptions, thoughts, feelings and behaviour. The degree to which an individual can become demonstrably hypnotized, i.e. their hypnotizability, is thought to depend on their dissociative abilities. The mechanisms of this are considered by state-orientated hypnosis researchers to be prerequisite to the experience of hypnotic phenomena (Hilgard, 1973; Bowers, 1976; Kihlstrom and Evans, 1979). Although Hilgard attempts to bridge the gap between state and non-state proponents his claim that hypnotised individuals relinquish some control to the hypnotist supports the argument for non-volitional behaviour. This fact maintains rather than bridges the gap between state and non-state theorists.

Contrary to the early state perception of hypnotic participants as automatons, a truer idea may be of a shift occurring in their volitional awareness (Nash, 1991). During the normal course of daily events people remain aware of their intentional behaviour even at the most perfunctory level. But although the degree of awareness tends to increase

and decrease naturally, it often seems to become completely suspended during hypnosis. People who are hypnotically induced to experience arm levitation or catalepsy, or when prompted to experience amnesia or to dissociate from pain, typically consider their actions to happen independently of their will (Lynn and Rhue, 1991). In fact they retain the ability to resist such suggestions at all times (Lynn *et al.*, 1990). Paradoxically individuals who are new to hypnosis often rely on their subjective non-volitional experiences to validate their pre-conceived notions of hypnosis whilst harbouring simultaneous concerns about relinquishing their free will (Gorassini and Spanos, 1999). Despite patients' perceptions that their hypnotic experiences are largely non-volitional, such beliefs have to be wrong if the consensus within the hypnosis establishment is true that free will cannot be compromised.

Hilgard's suggestion for what amounts to patients' volitional suppression during the hypnotic condition (Hilgard, 1991) is challenged by the continuity of free will but his idea of dissociated awareness may remain valid. His argument that hypnosis can attenuate human consciousness irrespective of the patient's will, which he suggests by his claim for non-volitional dissociation, endows it with the qualities of a psychotropic substance. Having questioned the likelihood of non-volitional dissociation it may be more realistic to think in terms of volitional dissociation based on patients' willingness to be hypnotically led to dissociate from aspects of cognitive awareness. Dissociation often occurs during hypnotherapy usually in response to the hypnotist's suggestions as part of the planned treatment process, but sometimes patients report feeling dissociated irrespective of hypnotic suggestion. Whether intentional or not it is inconceivable on the basis of the first principle that an individual would become cognitively dissociated as a consequence of a hypnotic intervention against their will. An individual's dissociation experience may be an artefact of the hypnotist but they retain ultimate control with regard to every aspect of their dissociative experience albeit possibly without being aware of doing so. In making a case for volitional dissociation

this thesis is not directly supporting the sociocognitive view of hypnosis *per se*. However there does seem to be a greater cognitive involvement, especially during the pre-induction and induction stages of hypnosis, than that suggested by Hilgard's neodissociation theory. It would be useful if an eclectic position could be established somewhere between the state and non-state positions. Indeed a number of previous investigators have argued that state and non-state accounts are not mutually exclusive and that a comprehensive explanation of hypnotic phenomena must embrace concepts from both schools of thought (Heap *et al.*, 2004 p.22 citing Brown, 1999a, 1999b; Nadon, 1997). Despite these optimistic views however the state and non-state positions do seem to remain mutually exclusive from the perspective of this thesis. Reviewing the literature in terms of countering hyperphagia raises the ambivalence problem and in turn implicates cognitive dissociation at both voluntary and involuntary levels. On the one hand cognitive dissociation might occur as a coping strategy during hyperphagia or it could be an involuntary process which is triggered automatically at such times.

Although the idea of volitional dissociation seems to undermine Hilgard's position with regard to non-volitional behaviour the degree of contrast is actually minimal. The executive ego suggested by Hilgard to be the ultimate control and monitoring centre during hypnosis is not diminished by the idea of volitional dissociation. On the contrary it is strengthened by the fact that it does not relinquish elements of control but permits a withdrawal of control or a lowering of resistance when it seems appropriate and safe to do so, thereby demonstrating a true executive mechanism. In the final analysis the idea that the mind can delegate executive control to an external force as Hilgard suggests, other than in extreme situations, would appear to be at odds with basic self-protective instincts.

Resistance to hypnosis

The immunity of free will to hypnotism affords patients the same power to resist suggestions as they might with any other form of psychotherapy. Initial scrutiny of the hypnosis literature suggests that a large proportion of past research was concerned with resistance to hypnotic suggestion. However, it has been observed by Bates (1997 p. 43) that much of this work has little clinical relevance having involved students rather than actual patients (e.g. White 1930; Davis and Husband 1931; Friedlander and Sarbin 1938; Eysenck and Furneaux, 1945; Weitzenhoffer and Hilgard, 1959, 1962; Shor and Orne, 1962; Frankel, 1982; Bowers, 1993, 1998). There is also concern about the definitive nature of reports in this area. The overarching focus of investigators seems to have been on non-volitional responsiveness rather than on actual resistance to hypnotic suggestion. Resistance to hypnosis studies have been conducted under the auspices of hypnotizability, hypnotic suggestibility, hypnotic responsivity, hypnotic responding, hypnotic susceptibility and hypnotic depth (Council, 1999). Confusion arises because these terms are incorrectly taken to mean the same thing. For example, in a literal sense suggestibility and susceptibility are indicative of a trait quality within a person whilst responsivity and responsiveness on the other hand suggest a level of action by patients or participants. Sarbin (1989) usefully referred to 'doings' and 'happenings' as an informal means of differentiating between these concepts whilst conducting hypnotic procedures in his own research.

On first consideration one might assume a positive correlation between hypnotic suggestibility and responsivity but it seems the situation is not so straightforward. A factor of primary importance to the efficacy of hypnotherapy is the nature of the condition being treated. Efficacy of hypnotherapy can be predicted for some disorders, such as asthma and various dermatological diseases, especially warts, but not for others, such as smoking, alcoholism and obesity (Bates, 1997 p. 37 also citing Wadden and Anderton, 1982; Perry, *et al.*, 1979). Orne and Dinges (1984) cited in Bates (1997

p. 38) refer to hedonistic theory to explain this uneven situation. They suggest it is consistent with the fact that hypnosis is highly effective in providing pain relief for conditions that are organic in nature but that it is much less helpful when pain is functional or when secondary gain is present. The distinction is made between physical disorders such as pain, asthma and warts and behavioural disorders such as alcoholism, smoking and obesity (Bates, 1997 p. 38). It should be questioned whether pain is a good example of a physical disorder though. It is (usually) the result of or concomitant with a physical disorder, rather than a disorder *per se*. In addition, pain can be present when there is no discernable physical disorder. The literature acknowledges the importance of motivation in relation to the efficacy of hypnotherapy and how this may be tied in with reward and suffering (Wadden and Anderton, 1982). Patients may be highly motivated to rid themselves of pain and discomfort but may be ambivalent about stopping rewarding/appetitive behaviours (e.g. Bates, 1997 p. 37) such as eating, drinking and smoking.

For over 100 years hypnotists have been keen to measure how hypnotizable individuals are. During this time a range of psychometric instruments, usually referred to as hypnotizability scales, have been developed (See Barnier and McConkey, 2004 for an historical overview of their development and an outline of current usage from1992-2003). It is clear from the literature that hypnotizability assessment is mainly a feature of research rather than of clinical practice and that in this context it is much more prolific in laboratory based research than in clinical field work (Barnier and McConkey, 2004 p. 35). The literature also indicates mixed feelings about the worth of routinely assessing patients' hypnotizability. Some clinicians have expressed the view that a reliable estimate of patients' hypnotizability should always be obtained before commencing hypnotherapy (e.g. Hilgard and Hilgard, 1979; Kihlstrom, 1985; cited by Bates, 1993 p. 39) whilst others recommend against it (e.g. Weitzenhoffer, 1989). Bates (1993 p. 39) posits that some clinicians think that assessing patients'

hypnotizability is countertherapeutic and cites Spinhoven (1990) for a review of the issue. An American survey conducted in 1981 indicated that approximately two thirds of hypnotherapists did not routinely use any of the available instruments to assess patients' hypnotizability (Bates, 1993 p. 39).

Previous investigators have argued that a person's hypnotizability is both quantifiable and improvable and without interference it has been shown to have predictable constancy over time (see: Heap *et al.*, 2004; Council, 1997; Bates, 1993 for a review). The empirical orientation of hypnotizability testing mentioned above also extends through to hypnotherapy for adult obesity. Despite a general belief that the outcome of hypnotherapy for obesity does not depend on hypnotizability (e.g. Wadden and Anderton, 1982; Fromm, 1987), Andersen (1985) argues that the failure of hypnotherapy to provide a long-term solution may rest in the degree of hypnotizability of patients being treated. Andersen's argument for a relationship between hypnotizability and outcome is supported by Barabasz & Spiegel (1989) although numerous other studies (e.g. Kroger, 1970; Wadden & Flaxman, 1981; Aja, 1977; Deyoub, 1978, 1979 a, b; Deyoub and Wilkie, 1980; Spiegel and DeBetz, 1978) present compelling but contrary evidence, which suggests that hypnotizability and weight loss are not related. Andersen (1985) argues that investigators who refute the link between hypnotizability and weight reduction may have failed to sufficiently tap the individual's hypnotic potential due to the employment of inadequate protocols. The relationship between hypnotizability and treatment outcome has been clearly demonstrated in studies of hypnotherapy and smoking cessation (e.g. Barabasz *et al*, 1986; Baer *et al*, 1986; Spiegel & Spiegel, 1978); with similar evidence coming from studies of pain control (e.g. Hilgard & Hilgard, 1975) and phobic disorders (e.g. Spiegel *et al*, 1981). Andersen (1985) points to her own findings of significant positive associations between hypnotizability and weight loss and has received support from Barabasz and Spiegel (1989) and Levit (1993 p. 542). A review by Levit (1993)

challenges the influential findings of Perry *et al.* (1979) robustly endorsed later by Wadden and Anderton (1982), Bowers (1982) and Spinhoven (1987) whose analysis of reports found no connection between hypnotizability and weight reduction. Levit (1993 pp. 539-542) argues that if certain analytical discrepancies which are apparent in some of the reports reviewed are corrected the idea of a relationship between hypnotizability and weight loss outcome becomes much more tenable.

Whilst the significance of the debate on the implications of hypnotizability to treatment outcome especially in relation to adult obesity is readily acknowledged it does not figure largely in this thesis. Like the controversy over the fundamental nature of hypnosis, the debate over hypnotizability seems to have reached something of a stalemate. Current arguments about hypnotizability do not seem to address the issue of why patients might directly resist hypnotherapeutic suggestions intended to help them overcome their obesity. Despite the considerable attention paid by investigators to hypnotizability and weight reduction there are no reports which deal directly with resistance to hypnotic suggestions aimed at stopping hyperphagia. The governing principle of patient volitional control assures us that the primary reason why hypnotised patients respond positively to suggestions is because they agree to do so at the time. Subsequently if patients do not conform to hypnotherapeutic suggestions it must follow that they are in disagreement with what the hypnotherapist wishes them to do. Initially it may seem implausible that patients would seek out and pay for hypnotherapy for troublesome conditions only to resist treatment when it is given. However appetitive conditions having hedonistic or rewarding aspects may be cases in point. Even highly hypnotizable individuals might be ambivalent about relinquishing the hedonistic or rewarding aspects of their appetitive behaviours leading them to be resistant to hypnotherapy in this particular context (Vanderlinden and Vandereycken, 1994). It has been suggested by Lazarus (1973) that the success of hypnotherapy is related less to hypnotizability than to the patient's attitude toward hypnosis and the desire to be

hypnotized. Freud provided previous support to this notion observing that hypnotic depth is not invariably in direct proportion to its success (Tinterow, 1970). In this type of situation resistance might be a better yardstick of hypnotic responsivity than focusing on compliance. The notion of using hypnotic resistance to gauge patient responsivity for appetitive disorders fits comfortably with hypothetico-deductive reasoning in that complete resistance to hypnotic or post-hypnotic suggestion would equate to a null treatment effect whilst treatment effect size ought to correlate negatively with degree of resistance. This idea seems consistent with reasoning that underpins the notion of the null hypothesis in that absolute non-effectiveness can be more confidently gauged than absolute effectiveness. In reality tests of hypnotizability can only indicate individuals' degree of compliance with the suggestions making up the test at the time. They cannot project results by predicting favourable or unfavourable hypnotic-responsiveness in subsequent real-world clinical situations.

In closing this chapter it is important to reinforce the link between food-related attitudinal ambivalence (see section 3.3 of this thesis) and resistance to hypnotic suggestion for hyperphagia. Generally a simple model of attitudinal ambivalence might logically be perceived to have a positive and a negative domain. When using such a model to understand attitudinal ambivalence it makes sense to link desired behaviours with the positive ambivalent domain and undesirable behaviours with the negative ambivalent domain. In the case of food-related attitudinal ambivalence, hyperphagic behaviour might thus be associated with the negative ambivalent domain whilst efforts to control eating behaviour might be associated with the positive ambivalent domain. A basic common practice in hypnotherapy is to inform new patients that they will remain in control of their thoughts and actions during treatment and to reassure them that the hypnotic process cannot compromise their free will. In view of the free will caveat it is incomprehensible that the negative domain of food-related attitudinal ambivalence

would not resist suggestions for its elimination. This reasoning suggests that resistance to hypnotherapy to stop hyperphagia is a function of the negative ambivalent domain.

Part Two

Despite the varied range of treatments claiming efficacy for adult obesity, research evidence has so far only been able to substantiate the effectiveness of low calorie dieting and behavioural and cognitive behavioural strategies in conjunction with dieting and exercise. Although these approaches have been judged to be effective, the problem of adult obesity continues to escalate around the world. After more than 50 years of research the value of hypnotherapy for adult obesity remains uncertain but reports of eight previous investigations suggest that hypnotherapy does have the potential to be effective. Obesity treatments including hypnotherapy have tended to concentrate on controlling the amounts and types of foods a person consumes. Appreciation of the fact that obese people who unequivocally do not want to be fat continue to eat fattening foods is not reflected in treatment designs. Food-related attitudinal ambivalence has been suggested to underpin this form of paradoxical behaviour amongst obese adults and, in the context of this thesis, this in turn has been suggested to render patients resistant to hypnotic suggestions which aim to stop their hyperphagia. Adult obesity has the greatest prevalence in poorer communities and, in the absence of NHS availability, people on low incomes would benefit from reduced charges for obesity treatments. The cost of hypnotherapy could be much lower if a group method was used. However there are impracticalities with group hypnotherapy which prevent it from being a realistic treatment option for adult obesity. A lack of patient confidentiality is a major issue along with the inability to manage IMR procedures or to appeal to the particular semantic and pragmatic needs of individual patients. Less essential but still important, the use of GSR monitoring is also not practical with existing group hypnotherapy.

If the potential of hypnotherapy for adult obesity is to be realised the challenge lies in overcoming the issues outlined here and which have been discussed in detail in part

one. The process of group hypnotherapy would need to be redeveloped to accommodate confidential one-to-one treatment which, in turn, will require IMR to be an intrinsic feature. This could allow individuals' latent motives for their paradoxical hyperphagic behaviour to be addressed. A revised system of group hypnotherapy would need to incorporate a method for attenuating the resistive effects of food-related attitudinal ambivalence and a method to ensure positive group dynamics. To acknowledge the findings of evidence based medicine, low calorie dieting and physical activity and behavioural or cognitive behavioural techniques should be fundamental aspects of the hypnotherapeutic design. The treatment should also include a strategy to control the effects of counter regulation so that the risk of diet lapsing can be minimised.

These issues which were raised and discussed in part one of this thesis are considered to be essential factors in understanding the continuing intractability of adult obesity to hypnotherapy. Cumulatively they represent the nature of the problem being addressed by this thesis and, in part two, a conceptualisation process is undertaken in order to develop a prototype system by which an intervention that addresses these issues could be delivered in a group setting. Part 2 of this thesis focuses on two main objectives: firstly lowering the cost of hypnotherapy for adult obesity by developing a way of providing genuine one-to-one hypnotherapy in a group setting and, secondly, conceptualizing a way to reduce resistance to hypnotic suggestion aimed at stopping hyperphagia by neutralizing food-related attitudinal ambivalence. The work to achieve these objectives followed two developmental lines: first a process to conceptualize solutions to both objectives, which is described in Chapter 5, and secondly a practical process to operationalize the first objective and to integrate it into hypnotherapy which is described in Chapter 6. Work to operationalize the second objective will form the basis for suggested future research which is outlined in Chapter 7.

Chapter five

Conceptualizing a new group hypnotherapy for adult obesity

This chapter represents an attempt to "think through" proposed solutions to the problems which were raised in the earlier part of the thesis. Firstly the concept of genuine one-to-one hypnotherapy in a group setting will be developed as a means to improve the cost effectiveness of hypnotherapy for adult obesity. Secondly the concept of reducing resistance to hypnotic suggestion, aimed at stopping hyperphagia, by neutralizing food-related attitudinal ambivalence will be developed. At a secondary level a clear need has emerged for hypnotherapy to recognise its adjunctive responsibility to the dieting method to deal with the effect of counter regulation which invariably results in diet lapsing and the 'what-the-hell effect'. Subsequently a cognitive behavioural strategy was conceptualised to protect dieters from counter regulation which can be used by hypnotherapists as part of their treatments. The intention is that the conceptualization processes described in this chapter will contribute to the design of a prototype system by which an intervention that addresses the issues raised in part one of the thesis can be delivered in a group setting.

5.1 Lateralizing aspects of hypnotherapy and adult obesity

Although the debate about the nature of hypnosis has yet to be settled, some functional features which have hitherto not been understood are being unravelled by researchers. One important area concerns the mapping of the hypnotic process across the cerebral hemispheres. Findings from various neurophysiological and neuropsychological studies suggest that, contrary to previous assumptions about its "right brain" orientation, hypnosis is a bilateral cerebral process of left hemisphere initiation (e.g. Bakan, 1969; Gur and Reyher, 1973; Gruzelier *et al.*, 1984; Gruzelier and Brow, 1985; Jutai *et al.*, 1993; Jasiukaitis *et al.*, 1997; Gruzelier, 1988, 1998, 2000). In terms of laterality the shift in hemispheric initiation to the dominant side requires that the cognitive basis of

hypnosis and hypnotherapy be reappraised. Previous findings by brain scientists from a variety of disciplines may hold the key to enhancing the potency of hypnotherapy for adult obesity by considering the cerebral laterality of the central aspects of hypnotherapy: i.e. language, IMR, mental imagery, electroencephalogram, consciousness and unconsciousness, hearing, and resistance to suggestion. Having an appreciation of the cognitive dynamics of hypnotherapy in this way will allow hypnotherapists to plan and administer treatments more precisely than they can at present. This section of the thesis is concerned to examine these aspects of laterality.

Laterality

Laterality refers to the asymmetry of the hemispheres of the brain with regard to specific cognitive functions (Reber and Reber, 2001). In keeping with common expressions used in this field the terms "left brain" and "right brain" are used to refer to the left and right cerebral hemispheres throughout this section whenever possible. Broadly speaking the left brain is assumed to be naturally linguistic, sequential and analytical whilst the right brain is naturally spatial, and concerned with perception and attention. Although the ancient Greeks had observed that brain damage to the left side could result in loss of speech (Springer and Deutsch, 1993 p.1; Ornstein, 1998 p.44) official recognition began to emerge during the mid-nineteenth century primarily due to the anecdotal observations of Marc Dax, a French physician. Paul Broca, a French surgeon, has been officially credited as the first to identify that speech is controlled by the left brain and subsequently an area of the left cerebral hemisphere in the frontal lobe has been called Broca's area in his honour. During the nineteenth century other researchers continued to make progress in understanding lateralised brain functions and by 1870 it was appreciated that many aspects of language generally could be disabled by damage to the left brain and not just speech. Broca's findings were extended when Carl Wernicke a German neurologist discovered that an area of the left temporal lobe was responsible for what might now be deemed lexical perception for

which he too was honoured by the recognition of "Wernicke's area". Subsequently many stroke victims who are disabled by speech impediments are diagnosed as suffering with either Broca's aphasia or Wernicke's aphasia depending on which area of the left brain is damaged. Broadly speaking Broca's aphasia presents as an inability to express oneself through words, even though the ability to comprehend language is left intact, and is often referred to as expressive aphasia. Wernicke's aphasia differs in that people affected cannot comprehend speech, which results in the production of non-existent words or *neologisms*. Less than a decade after Broca's initial observations linking the left brain and speech, John Hughlings Jackson, a British neurologist often referred to as the father of British neurology, proposed the idea of the leading left-brain which probably gave rise to the notion, which still persists today, of the dominant left brain (Springer and Deutsch 1993 p.12). By the beginning of the twentieth century the functional asymmetrical character of the human brain was an accepted tenet amongst neurologists but any special characteristics the right brain might possess remained relatively unknown until the mid-1930s when evidence started to emerge (e.g. Weisenberg and McBride, 1935) which suggested a synergistic role for the right brain as opposed to a subordinate one. The Weisenberg and McBride study was the first large scale study into the effects of brain damage and consisted of more than 200 participants who underwent over 40 different tests. The tests used were standard psychological tests designed to study and compare non-brain damaged (*normal*) people in areas such as verbal ability, appreciation of spatial relationships and ability to manipulate forms. This and other similar studies found conclusively that damage to the left brain results, as a general rule, in reduced performance on the tests which assess verbal ability. Weisenberg and McBride also demonstrated that damage to the right brain consistently results in lower scores for non-verbal abilities that involve form, distance and space relationships such as manipulating geometric figures, assembling puzzles or completing unfinished patterns. It is clear from such investigations that damage to the right brain can disrupt the continuing appreciation of familiar information,

an eventuality that is referred to as agnosia. In spatial agnosia for instance disorientation occurs about locations and spatial relationships whilst in facial agnosia a stroke victim might be unable to recognise familiar faces or to discriminate between people. Further evidence for the uniqueness of the right brain comes from clinical reports of amusia in which some victims of right brain damage suffer reduced ability in various aspects of musical ability whilst their speech remains unaffected (Springer and Deutsch, 1993, p.16).

Dual brain

Further monumental evidence for the individuality of the cerebral hemispheres emerged from the "split-brain" studies conducted by Roger Sperry at the California Institute of Technology (e.g. Sperry, 1964, 1968, 1974, 1982; Sperry and Gazzaniga, 1967, 1969). The term "split-brain" refers to the surgical separation of the left and right cerebral hemispheres usually to relieve severe epilepsy in human patients by cutting the Corpus Callosum (commissurotomy), which is a bundle of nerve fibres involved in joining the two hemispheres together. Sperry was able to demonstrate that after patients undergo commissurotomy they are effectively left with two separate brains. An appreciation of this effect can be gained from the following description of a now classic study:

> "Participants were asked to sit in front of a screen, their hands free to handle objects behind the screen, but which are obscured from sight. While fixating on a spot in the middle of the screen, a word (for example, 'key') is flashed onto the left side of the screen for a tenth of a second (this ensures that the word is 'seen' only by the right hemisphere). If asked to select the key from a pile of objects with the left hand (still controlled by the right hemisphere), this can be done quite easily. However, the participant is unable to say what word appeared on the screen (because the left hemisphere does not receive the information from the right as it normally would), and literally doesn't know why s/he chose the key. Next, a word (for example, 'heart') is flashed on the screen with 'he' to the left and 'art' to the

right of the fixation point. If asked to name the word participants will say 'art' because this is the portion of the word projected to the left hemisphere. However when asked to point with the left hand to one of two cards on which 'he' and 'art' are written the left hand will point to 'he' because this is the portion projected to the right hemisphere" (Gross, 2001 p.58).

Since Sperry's groundbreaking "split-brain" work, during and for which he received the Nobel Prize for Medicine in 1981, a substantial body of research has developed identifying the left and right brain as specialized for particular types of cognitive processing (Pagano *et al.*, 1988). Researchers have also shown that speech and language are predominantly controlled by the left brain for 92.5 percent of right handed people with the remainder having right brain controlled speech (Knecht *et al.*, 2000). The situation is not so clear-cut for left handed people however. Whilst for 75 percent of left-handers speech and language are controlled by the left brain the remainder have a bi-lateral hemispheric arrangement (Satz, 1979 cited in Beaumont, 1988). It has been suggested by researchers into aspects of brain laterality that when the two halves are separated each seems to have its own private sensations, perceptions, thoughts, feelings and memories (Sperry, 1964). Ornstein (1986) summarises the differences thus:

- "The left is specialised for analytical and logical thinking (breaking things down into their component parts), especially in verbal and mathematical functions, processes information sequentially (one item at a time), and its mode of operation is primarily linear (straight line).
- The right is specialised for synthetic thinking (bringing different things together to form a whole), particularly in the area of spatial tasks, artistic activities, crafts, body image and face recognition, processes information more diffusely (several items at once), and its mode of operation is much less linear (more holistic)."

(Cited in Gross, 2001 p. 59).

More recently the trend has been to move away from the simple dichotomy of the verbal left and non-verbal right paradigm and to think in terms of hemispheric integration (e.g. Cohen, 1975; Broadbent, 1985 cited in Sternberg, 1990). Annett (1991) endorses this view whilst reviewing split-brain research by arguing that each hemisphere is involved in the function of the other. For instance the supposedly non-verbal right brain has a considerable understanding of language whilst similarly the non-spatial left brain is almost certainly responsible for producing imagery, which is likely to be needed for spatial thinking. Annett's suggestion that imagery originates in the left brain is contentious however and will be considered in more detail later in the chapter.

Further evidence of the integrative mental duality of the cerebral hemispheres comes from the observation of behavioural phenomena in split-brain patients referred to as post-commissurotomy syndrome and cross cuing. In the former condition commissurotomy patients can be affected by a disorder, albeit temporarily soon after surgery, in which they demonstrate right brain behaviour in simultaneous contradiction of their left brain intentions. Schiffer (1996) describes several instances where patients have been affected in this way. In one a female patient decided upon wearing a particular dress and reached for it from her closet with her right hand. Her left hand however grabbed another dress and refused to release it whereby she had to literally struggle against her autonomously driven left hand. In another instance Schiffer tells of a male split-brain patient who attempted to forcibly grab his wife with his left hand whilst his conscious self and his right hand tried to defend her. In an equally fascinating account, and one which has particular relevance to food-related attitudinal ambivalence which is considered in detail later in this chapter, Schiffer describes another patient who was unable to smoke because whenever he lit a cigarette, his left hand, acting against his conscious intentions, would grab the cigarette and put it out. Cross cuing on the other hand describes a situation in which split-brain patients experience a form of

contralateral perception due to, what seems to be, compensatory integrative behaviour between the left and right brain. Schiffer (1996) cites Bogen (1990) to describe a number of examples of cross cuing from the right to the left brain in commissurotomised patients. One patient was able to identify which of three items, a sphere, a cube, or a pyramid, was being placed in his left hand, out of sight. The experimenters noticed that the patient's right brain was providing information for his verbal left brain via behavioural cues. It is reported that when the sphere was placed in the patient's left hand he would look at the clock. Likewise with the cube he would look at the door and with the pyramid he would look up at the ceiling. However when the experimenters blindfolded the patient, preventing him from looking around the room, he was unable to identify the objects. The conclusion drawn from the experiment was that the patient's left brain was able to understand, for example, that when his eyes were moved towards the clock by his right brain, his left hand was holding the sphere. Schiffer relays the point that such cross cuing indicated that the patient's right brain autonomously controlled this reasonably intelligent, purposeful behaviour, supporting the idea of mental duality in split-brain patients. The asymmetrical independence of the left and right brain highlighted by post-commissurotomy syndrome and cross cuing amongst split-brain patients is also apparent in intact people (Schiffer, 1996).

Research utilizing the Wada test in which one side of the brain is anaesthetised whilst the other retains its waking state has demonstrated that normal people show a duality of mind attributable to a partial hemispheric independence (Bogen, 1990). Schiffer (1996) describes research by Risse and Gazzaniga (1978) that used the Wada technique to investigate cerebral laterality in eight patients. It is reported that participants whose left brain was anaesthetised whilst their right was kept awake had an object such as a spoon placed into their left hand. After the left brain had recovered, the individual would be asked what had been placed in his or her hand. Typically participants would report having no memory of anything being placed there but, when

asked to point to a picture of the object from among several options, could easily choose the correct one. The explanation offered for this fascinating situation is that whilst the patient was unable to articulate the right brain was able to understand and remember what was placed in the patients' left hand during the test and was able to assist the participant in selecting the correct picture. It has also been observed in split-brain patients that the affective state of the left brain can be directly influenced by its right counterpart. Such patients have been observed to demonstrate appropriate emotions when shown pictures or films in such a way as to preclude awareness by their conscious, verbal left brain (e.g. Schiffer, 1996; Sperry, 1968, 1990; Gazzaniga, 1985) even though they remain devoid of any understanding as to the reason for their feelings. It has been proposed by way of explanation that affective information may have been transmitted via "cross integration systems" of the brain stem left untouched after commissurotomy (Sperry, 1990). Further to the way intact participants have been shown to demonstrate cerebral functioning similar to split-brain patients during the Wada test it is also clear that they can be affected at an emotional level in the same manner. To this end Schiffer (1996) also describes two cases reported by Ahern *et al.* (1993) who used the Wada test to study two patients with temporal lobe epilepsy and a variant of multiple personality disorder. The investigators determined that, as is the case with some individuals, their two patients had the ability for limited speech in the right brain. The report indicates that the first patient, who had a left-sided seizure focus, had been diagnosed with a schizophreniform psychosis and a schizoid personality disorder but whose personality became essentially normal postictally. When this patient's left brain was anaesthetised during the Wada test he changed from his usual withdrawn psychological state to an affable state identical to his postictal personality. The second patient also had a left-sided seizure focus but is reported as having a normal baseline personality but postictally to have become verbally and physically abusive. When this patient's left brain was anaesthetised he is reported to have been extremely verbally abusive toward the investigators. The report suggests that this

behaviour is likely to have emanated from the patient's right brain. Schiffer posits that the best explanation for the behaviours uncovered by the above study is that each side of the brain in the two patients is associated with different psychological qualities that are released by the anaesthetisation of the other. Schiffer further posits that taken together, the results of these two Wada studies suggests that the chemically isolated right brain is capable at times of intact cognitive and emotional activity. Galin (1974) supports the idea of cerebral integration but broadens the concept by suggesting that the findings of split brain researchers are supportive of Freud's notion of an unconscious mind. Galin highlights that Freud's conclusions about mental processes that are repressed, unconscious and unable to control behaviour directly (Springer and Deutsch, 1998 p. 344) is similar to the functioning of the isolated right brain. In an interesting proposition Galin reflects on how verbal and non verbal language can sometimes appear incongruous and suggests that normal individuals can experience a form of cerebral disconnection similar to split brain patients due to resulting mental conflict. Galin argues that the two sides of the brain will function mutually as long as incoming sensory information is congruent but that the left brain will disconnect from the right brain if, for instance, incoming verbal information seems to contradict simultaneously received non-verbal information essentially to nullify the conflict. Galin argues that when this occurs the left brain alone governs consciousness whilst the right brain functions as a 'Freudian unconscious', and as an 'independent reservoir of inaccessible cognition', which may create uneasy emotional states in a person (Springer and Deutsch, 1998 p. 344). Whilst the fundamental idea of brain laterality has become established for both disconnected and connected individuals alike, due to Sperry's split-brain demonstrations, support for the dual brain paradigm (e.g. Schiffer, 1996; Sperry, 1990; Joseph, 1990; Watt, 1990; Galin, 1977; Hoppe, 1977; Bogen, 1969) is not yet universally accepted (e.g. Dennett, 1991; Robinson, 1982; Eccles, 1965). Given the concerns addressed in this thesis however the idea of a dual mind with distinctive psychological properties has some resonance. Particularly when it

seems that one side can hold in check and control aspects of the other as seen in postcommisurotomy syndrome or cross cuing or where normally inhibited or controlled aspects of personality are liberated during the Wada test. It has also been interesting to note from the literature reviewed how the conscious and unconscious minds are associated with the left and right sides of the brain respectively. It will become apparent later in this chapter that these particular lateral features may have important implications for understanding and intervening in food-related attitudinal ambivalence.

A lateralized view of hypnosis

Hypnotherapy is essentially a verbal process which according to established understanding about brain asymmetry ought to have a predominantly left brain orientation for the majority of right handed people. But traditionally hypnosis is perceived to have a right brain orientation (e.g. Waxman, 1989 p. 33-34; Pagano *et al.*, 1988; Macleod-Morgan, 1985; Meszaros *et al.*, 1985; Banyai *et al.*, 1985; Levine *et al.*, 1984; Carter *et al.*, 1982; Graham and Perricano, 1979; Frumkin *et al.*, 1978). Researchers have been endeavouring to determine the way the human brain functions during hypnosis for more than 50 years. Initially attention was focussed on seeking cerebral markers for hypnotizability (e.g. Gorton, 1949; Barker and Burgwin, 1949; Frank, 1950; Bakan, 1969 a, b; Morgan *et al.*, 1971; Morgan *et al.*, 1974) by using electroencephalographic techniques to investigate brain electrical activity in participants with varying levels of hypnotic susceptibility. Subsequently a range of methods have been and continue to be developed to investigate how the brain functions during hypnosis such as: electroencephalographic techniques (e.g. Waxman, 1989 p.p. 32-34; Springer and Deutsch, 1991 p. 280; Gruzelier, 1998, 2000; Pascalis, 1999; Lehmann *et al.*, 2001), neural imaging techniques (e.g. Halligan *et al.*, 2000; Kosslyn *et al.*, 2000; Crawford *et al.*, 2000; Rainville *et al.*, 2000; Maquet *et al.*, 1999; Rainville *et al.*, 1999;Crawford *et al.*, 1998; Baer *et al.*, 1990), electrodermal techniques (e.g. Gruzelier, 1984; Gruzelier and Brow, 1985; Gruzelier and Crawford, 1992;

Kinnunen *et al.*, 1994) and dichotic listening techniques (e.g. Frumkin *et al.*, 1978; Carter *et al.*, 1982; Levine *et al.*, 1984; Pagano *et al.*, 1986; Akots, 1988; Hemker, 1990). Nevertheless a definitive description of the cerebral orientation of hypnosis continues to be elusive. Efforts by brain scientists, neuropsychologists and others to understand and characterize hypnosis in this way are very much a part of the broader attempt by hypnosis theorists to deduce its essential nature which, ultimately, is an intrinsic part of the "state / non-state" debate (Kirsch, 1999).

Contrary to the traditional view that hypnosis is predominantly a right brain event there is compelling evidence of an eclectic process during which both sides of the brain are involved. Investigations have indicated that the left brain may be dominant during hypnotic induction after which dominance transfers to the right brain after the induction (e.g. Bakan, 1969; Gur and Reyher, 1973; Gruzelier *et al.*, 1984; Gruzelier and Brow, 1985; Jutai *et al.*, 1993; Jasiukaitis *et al.*, 1997; Gruzelier, 1988, 1998, 2000). At this point the left temporal lobe is thought to remain active in order to process the hypnotist's verbal instructions (Jutai *et al.*, 1993). The idea that the left and right brain integrate in this way is synonymous with Ornstein (1986) whose interpretation of hemispheric differences lies between the verbal, logical sequential and systematic nature of the left and the spatial, synthetic, holistic and aesthetic nature of the right. The verbal basis of hypnotherapy must logically mean that the left brain is engaged in a major way for the majority of dextral patients throughout the entire hypnotic procedure. Similarly in such patients the right brain must be engaged in an equally important way once the requirement for mental imagery, or other abstract cognition, is activated which is also likely to extend throughout most of the hypnotic process. It is improbable therefore to think that either aspect could be presumed to possess predominance over the other during a typical session of hypnotherapy. On the basis of the existing research evidence it is not possible to define totally the most beneficial way to conduct

hypnotherapy in terms of laterality but to some degree current knowledge should influence hypnotherapeutic procedures which at present it does not.

The overarching focus of researchers in the field seems to be on mapping brain activity during the various stages of the hypnotic process to identify markers of hypnotizability amongst people or to explore the laterality of hypnosis *per se*. Although investigators might speculate about the clinical implications of their findings there remains a paucity of research into the neurophysiology of hypnotherapy. It is also fair to say that the literature on the brain science of hypnosis is to a large degree often inaccessible to anyone without specialist training in brain anatomy and physiology. Writers often tend to adopt a highly technical style without obvious concern for dissemination to other disciplines in the field, not least to hypnotherapists who, in the U.K. at least, are often lay practitioners (Hawkins and Heap 1998, p. 25). In a review of experimental work carried out at the Charing Cross Laboratory of Cognitive Neuroscience aimed at understanding the neurophysiological basis of hypnosis Gruzelier (1998) describes a 3 stage working model of the induction process which he had previously proposed (Gruzelier, 1988, 1990) thus:

- "Stage 1: The initial instruction of fixating on a small object and listening to the hypnotist's voice was posited to involve an attentional network including thalamocortical systems and parietofrontal connections with engagement of left anterior focused attention control system. This underpins the focused, selective attention inherent in fixation and listening to the hypnotist's voice, processes that together require left hemispheric frontotemporal processing.

- Stage 2: The first stage is then replaced by eye closure, suggestions of fatigue at continued fixation, and tiredness together with deep relaxation. This sets in motion frontolimbic inhibitory processes underpinning the suspension of reality testing and critical evaluation, and the handing over of executive and planning functions to the hypnotist; the 'letting go' component of the hypnotic induction.

- Stage 3: The third stage involves instructions of relaxed passive imagery leading to a redistribution of functional activity and an augmentation of posterior cortical activity, particularly of the right hemisphere in high susceptibles. Simplifying the verbal content of the induction message may also facilitate right hemisphere processing as does emphasizing past experience and emotion. In contrast low susceptibles fail to show engagement of left frontal attentional control mechanisms, or if there is focal attentional engagement, low susceptibles fail to undergo the inhibitory, letting go process." (Gruzelier, 1998 pp. 4-5).

Gruzelier's model presents a fascinating insight into cortical and deeper brain processes during hypnosis but is limited in its usefulness to hypnotherapists apart from highlighting the laterality of hypnotic induction and post-induction processes. Models such as Gruzelier's are essentially mechanistic and positivist in nature rather than phenomenological which is surprising given the proposed involvement of the limbic system and its strong empirical links with emotions (Papez, 1937; MacLean, 1949). For Gruzelier's model of hypnosis to have ecological validity, in the present context, it should incorporate a facility that accounts for phenomenological effects, the importance of which is widely appreciated by hypnotherapists. Of course, Gruzelier is seeking to explain the process of hypnosis and hypnotic induction rather than the facilitated therapeutic intervention which is the goal of hypno*therapy*. Throughout the three stages of the model there seems to be no account taken, for example, of the influential nature of verbal and non-verbal communication or professional/client rituals which are all known to play important parts in hypnotherapy and hypnosis. Presently neurophysiology alone can only exert putative influence on hypnotherapy allowing clinicians to take account of general knowledge about laterality effects when designing and developing treatments. For example, that right brain functions are more accessible to hypnotic manipulation (Lehmann *et al.*, 2001) or that simplifying the verbal content of a hypnotic induction may facilitate right brain processing as does emphasizing past experience and emotion (Gruzelier, 1998). Given the associations between hypnosis

and the limbic system it may be appropriate to consider the experience of being in hypnosis as an emotional condition (Zeig, 1988). To do so would place hypnosis alongside other human emotions especially those which are, like hypnosis and hypnotherapy, vulnerable to psychosocial affects and which require qualitative as well as quantitative evaluation. In the third stage of his neurophysiological model of hypnosis Gruzelier accounts in two ways for low hypnotizability which is sometimes bemoaned by hypnotherapists. He proposes, firstly, that a non-engagement of left frontal attentional control mechanisms can be to blame or, secondly, a failure to undergo the disinhibitory 'letting go' process. In fact Gruzelier does seem to have at least one foot in the phenomenological camp as evidenced in stage 3 of his model with his reference to the 'letting go' process. Gruzelier clearly sees the need to 'let go' as a requirement for successful hypnosis which is unfulfilled in participants who demonstrate low hypnotizability. Gruzelier's observation of participants' need to 'let go' as part of the hypnotic process may provide the means to bridge the gap between the more traditionally positivist approaches adopted by scientists investigating hypnosis (state theorists), and those with more phenomenological views (socio-cognitive theorists). The neurophysiological evidence relating to the non-engagement of left frontal attentional control mechanisms that Gruzelier provides in support of the concept of low hypnotizability may be valuable to those who subscribe to the classical hypnotizability construct. However the distinction Gruzelier makes in stage 3 of his model between the non-engagement of left frontal attentional control mechanisms and willingness to let go may be misleading when both could be perceived as parallel domains of volitional control represented by resistance to hypnotic suggestions. Furthermore the question of whether refusal to 'let go' prompts non-engagement of frontal attentional control mechanisms or *vice versa* has not been addressed. Whilst Gruzelier's neurophysiological model of hypnosis is vulnerable to criticism about its lack of phenomenological value the support it provides for the laterality of hypnotic stages is compelling. In the specific context of the present thesis Gruzelier's

recognition of the importance of the quality of being able to 'let go' has fundamental implications for resistance to hypnotherapy.

Laterality of consciousness and unconsciousness

Hypnotherapy conventionally takes the view that mind can be divided into the conscious and the unconscious with the latter being of greater proportion than the former. At a basic level hypnosis is believed to be a means of accessing the unconscious mind in preparation for hypnotherapy. Waxman (1989, p. 22) uses the analogy of a floating iceberg to explain the idea of the unconscious mind. In Waxman's analogy one eighth of the iceberg is visible above the surface of the water – analogous with the conscious mind – whilst the unconscious mind is represented by the seven eighths of the iceberg hidden below the surface. According to Waxman the process of hypnotic induction is akin to upturning the iceberg so that as much of the submerged part as possible becomes exposed. Waxman suggests that the more of the submerged portion that is exposed the deeper the hypnotic trance and the greater will be the patient's submissiveness and response to suggestion. The unconscious mind is purported to be much less discriminating, evaluative or questioning than the conscious mind (e.g. Waxman, 1989, p. 22) so that suggestions which are properly presented to the unconscious mind during hypnotherapy are expected to be accepted without question or resistance. Objective claims about the size of the unconscious mind in comparison with the conscious mind and about its natural characteristics deserve to be questioned regarding the supportive evidence but doing so remains outside the boundaries of this thesis. Brain scientists have suggested lateral delineations for consciousness and unconsciousness based on the laterality of language (e.g. see Springer and Deutsch, 1998 pp. 331-359) which has led to the view that consciousness for most people resides in the left brain and unconsciousness in the right brain. In contrast there are those who do not subscribe to the essentialness of language to

conscious thought. Geneticist Francis Galton reflected thus about his personal thought processes:

> "It is a serious drawback to me in writing, and still more in explaining my-self, that I do not think as easily in words as otherwise. It often happens that after being hard at work, and having arrived at results that are perfectly clear and satisfactory to my-self, when I try to express them in language I feel that I must begin by putting myself upon quite another intellectual plane. I have to translate my thoughts into a language that does not run very evenly with them. I therefore waste a vast deal of time in seeking appropriate words and phrases, and am conscious, when required to speak on a sudden, of being often very obscure through mere verbal maladroitness, and not through want of clearness of perception. That is one of the small annoyances of my life."
>
> (Springer and Deutsch, 1997 pp.341-342).

Springer and Deutsch highlight others who have repudiated the verbal basis of thought. They refer to the mathematician Hadamard who claimed that words and verbal mechanisms could not be equated with thought or consciousness. He claimed that when he was concentrating words were totally absent from his mind and that every word he read or heard disappeared the moment he began to think it over. And they describe the feelings of the philosopher Schopenhauer who commented that "...thoughts die the moment they are embodied by words." Whilst the self-reflections of such eminent philosophers cannot be taken lightly it is difficult to equate such expressions with the common perception of people spoken to during the present investigation who have reported anecdotally that their thoughts essentially depend on mental articulation. For a comprehensive overview of research and theoretical thinking about consciousness from various perspectives see Springer and Deutsch (1997 pp. 331-355) who consider the laterality of consciousness, and Rolls (1997), Corballis (1998), Schimmel (2001), Tassi and Muzet (2001), Greenfield (2002) and Rainville *et al.* (2002) for a perspective on modern thinking about the nature of consciousness. Freud conceptualised the division between the conscious mind and the unconscious

mind to help explain human behaviour (Blakeslee, 1980 p. 26) however at the present time a definitive conceptual perspective on consciousness and unconsciousness which is acceptable to all remains elusive. A paradigm for hypnosis and hypnotherapy in which consciousness and unconsciousness are laterally delineated according to the facility for language fits well with the lateralised model of hypnosis discussed at the start of this section. From this perspective access to the unconscious mind is made through the conscious mind which, with regard to hypnotherapy, accommodates neatly the idea of volitional control (see section 4.3 of this thesis under the sub-heading 'Free will') as a feature of the rational left brain and resistance to hypnotherapy as a product of the 'irrational' right brain. To qualify this point of view it is felt that resistance to hypnotherapy must be an irrational process on the part of a patient because they are acting against the amelioration of their complaint. Similarly lateralising consciousness and unconsciousness provides hypnotherapists with the opportunity to determine if they are, at any given stage during treatments, working with their patients at a conscious or unconscious level and to adapt procedures accordingly – for instance with regard to the complexity or type of language being used.

Laterality of imagery

It is not possible at the present time to be sure what mental imagery is or is not in any objective way. The Oxford English Dictionary makes a rather vague attempt by defining it thus:

> 'Image....A mental representation of something (esp. a visible object), not by direct perception, but by memory or imagination; a mental picture or impression; an idea, conception' (Richardson, 1999 p.1)

Richardson (1999) observes also that imagery researchers have conceptualised mental imagery in different ways: as a phenomenal experience, as an internal representation, as a stimulus attribute, and as a cognitive strategy. In the same way that some hypnosis theoreticians remain divided by the state/non-state debate, investigators striving to

understand the essential nature of mental imagery are divided by what is commonly referred to as the 'imagery debate'. This debate can be traced back to the very early days of scientific psychology (for a review of the history of the debate see Kosslyn, 1994; Tye, 1991) when John B. Watson (1913), the founder of behaviourism, rejected the idea that picture-like mental images exist (Kosslyn and Thompson, 2003). Watson argued instead that mental imagery resulted from a form of sub-vocal behaviour which involved subtle movements of the larynx in contrast to William James (1890) who had argued previously that mental images are, in some sense, pictorial (Kosslyn and Thompson, 2003). The current modality of the imagery debate can be attributed in large part to Pylyshyn (1973/2003) who argues that mental imagery is based upon 'propositional representations' which are abstract language-like symbolic representations that capture the meaning of an assertion (Kosslyn and Thompson, 2003). Stephen M. Kosslyn and Zenon Pylyshyn are probably the two main protagonists who have acted to drive the debate during recent times with the former leading the 'pictorialists' and the latter the 'propositionalists'.

It is not the intention here to become involved in the imagery debate. However the seemingly dichotomous views expressed about mental imagery by the pictorialists and the propositionalists may not be as oppositional as previously thought. Fundamentally Pylyshyn's and Kosslyn's claims about the essential nature of mental imagery have either a verbal or a non-verbal basis respectively. The depiction of imagery as either pictorial or propositional might then relate equally well to being described as either verbal-left brain or non-verbal right brain. Both of which can be jointly accommodated here by the lateralized nature of hypnosis depicted by Gruzelier's three stage model (see this section under laterality of hypnosis). To reiterate previous comments there is compelling evidence of an eclectic hypnotic process during which both sides of the brain are involved. Investigations have indicated that the left brain is dominant during hypnotic induction after which dominance transfers to the right brain after induction. It is

not unreasonable to assume that the imaginative process during the inductive phase of hypnosis might be verbally generative whilst the post-inductive phase leading into the therapeutic domain might be pictorially generative which allies with stages 1 and 2 and stage 3 of Gruzelier's model respectively.

In seeking an experiential definition of mental imagery a seemingly unambiguous and broadly held view amongst imagery theorists is described by Ehrlichman and Barratt (1983) who refer to a number of previous studies that portray it as a quasi-perceptual experience occurring in the absence of external stimulation sufficient to produce the experience. The ecological validity of this definition of mental imagery may not be testable however until external effects can be controlled (Loverock and Modigliani, 1995). Despite the lingering and widely held assumption that imagery is based upon a single mechanism in the brain and that this mechanism is localised within the right cerebral hemisphere (Richardson, 1999 p. 140) there is evidence to the contrary. Ehrlichman and Barratt (1983) comprehensively reviewed the reports on imagery from about 1968 when imagery research began to gather noticeable pace. The Ehrlichman and Barratt review observes that although there was a relative absence of explicit statements claiming that imagery was under right brain control there seemed to be a widespread implicit belief that this was so; which was reflected in the hypothetical basis of many of the studies they reviewed. Subsequently they concluded:

> "None of the studies in our opinion can be described as unequivocally supporting the hypothesis of right hemisphere specialization for mental imagery, and some appear to be inconsistent with such a formulation"
>
> (Richardson, 1999 p. 140).

Richardson points out that much of the existing evidence which contradicts the hypothesis of right brain specialization for mental imagery has been conducted since Ehrlichman and Bartlett's 1983 review and he describes research which indicates surprisingly that the left brain is largely involved during the generation of mental

imagery whilst the right brain becomes involved in order to transform and manipulate images once they have been generated by the left brain. In order to explain why the right brain has been wrongly identified as the primary source of mental imagery Richardson refers to Tippett (1992) who pointed out that until recently mental imagery was considered so obviously a faculty of the right brain that the question was seldom explicitly discussed and subsequently Richardson describes this recognition as a shift of some magnitude in psychological thinking. Further support for the involvement of the left brain in the imagining process is provided by Springer and Deutsch (1998) who, In their book *Left Brain, Right Brain*, describe a number of neuroimaging studies which reveal greater activation of left-hemisphere regions, particularly the left temporal-occipital area, during experiments involving image generation, imagined mental walks, and imagined hand movements.

The role of imagination in hypnosis has been under discussion for more than a century (see Binet & Fere, 1888) and some of the earliest recorded evidence in support of mental imagery in hypnosis (Jennes, 1944) indicates that vivid mental imagers are more readily hypnotized than poor mental imagers. However, there is little to indicate whether or not this proposition works equally well in reverse or if 'more readily hypnotized' is a term founded on positivist or phenomenological views. The presumed link between mental imagery and hypnotizability has been supported by numerous other researchers since (e.g. Sutcliffe, Perry & Sheehan, 1970; Hilgard, 1970; Perry, 1973; Bowers, 1978; Wilson and Barber, 1978; Fromm, Brown, Hurt, Oberlander, Boxer & Pfeifer, 1981; Lynn Rhue, 1988; Roche and McConkey, 1990; Kirsch and Council, 1992) although only modest correlations have been found (Eisen, 1993) and females have been argued to have a higher capacity for mental image production than males (Lombard *et al.*, 1990), (For an extensive introduction to the range of instruments designed to measure hypnotic responsiveness and, indirectly therefore, imaginative ability see Council, 1999, p.p. 119-140). Anecdotal evidence based on

clinical experiences has not led to a belief in a gender-related superiority of quality or ability to imagine. Nor has it been noticeable that imaginative ability and hypnotizability are other than one and the same thing in the sense that willingness to imagine and become absorbed at any given time seem to tie in with hypnotherapeutic efficacy. Whilst it is generally accepted that hypnotic mental imagery is primarily a cortical function it has been shown to profoundly involve and affect a range of peripheral nervous system and immune system responses (e.g. Grabowska, 1971; Maslach *et al.*, 1972; Clawson & Swade, 1975; Roberts *et al.*, 1975; Raynaud *et al.*, 1983; Moore & Kaplan, 1983; Graham 1996; McGuirk *et al.*, 1998). The eminent psychologist D. O. Hebb once wrote 'You can hardly turn around in psychology without bumping into the image' and although there are those who insist that hypnosis does not require suggestions for imagery (Kirsch *et al.*, 1999) the same cannot be said for hypnotherapy to which Hebb's observation might equally apply. The left/right lateral sequence which is now believed to underlie the process of mental imagery is unsurprisingly not dissimilar to that which has been shown to underlie the hypnotic induction process discussed earlier.

None of the research examined so far in this thesis differentiates between imagery which is solicited and that which is unsolicited. These terms have been chosen to represent in the former case mental imagery which is a purposeful, goal-directed artefact of the self or a chosen other such as a hypnotherapist, and in the latter the continuous stream of mental images that occupy the waking mind. Bearing in mind the accepted view of mental imagery described by Ehrlichman and Barratt (1983) it seems valid to question whether unsolicited imagery that occurs during hypnotherapy can be considered to exist autonomously or whether it exists as an unwitting by-product of the hypnotherapist's work. The complexity of this situation is compounded if the patient's propensity for unsolicited imagery is considered to become suspended during hypnotherapy, possibly due to the enhancement of focussed attention, or whether it

continues to function at some other level. The notion that there might be multiform layers or domains of mental imagery simultaneously active during hypnotherapy raises further questions about whether each form is governed by the same set of mental principles. If not there are yet more questions about the diversity that separates them and about the effects of such diversity on the outcome of goal-directed hypnotic guided imagery. Testing the idea of solicited and unsolicited mental imagery anecdotally by gaining the views of a variety of individuals suggests that mental imagery does occur in either a solicited or an unsolicited manner i.e. it is purposefully self-generated or it occurs due to some other influence not of individuals' initiation. The general consensus seems to be that in order to invoke some imaginary situation in their mind people must first think of the thing they wish to mentally experience. This thought process appears to depend on mental articulation (words in the mind) and is considered essential to the invocation of pictorial images or of imaginative experiences involving other sensory modalities. It would seem that when solicited imagery is 'loaded and running', so to speak, other images are generated, sometimes autonomously, often with associated cognitive reactions. In contrast unsolicited imagery usually occurs in pictorial form and is not reliant on the process of mental articulation necessary for solicited imagery. The findings of this anecdotal survey concur with the left/right lateral sequence of imagery described by Ehrlichman and Bartlett (1983) and with the pictorial and propositional views of Pylyshyn (1973/2003) and Kosslyn and Thompson (2003) (discussed earlier in this section). It would also seem that mental imagery depends on a similar lateral sequence to that of hypnosis (e.g. Bakan, 1969; Gur and Reyher, 1973; Gruzelier *et al.*, 1984; Gruzelier and Brow, 1985; Jutai *et al.*, 1993; Jasiukaitis *et al.*, 1997; Gruzelier, 1988, 1998, 2000) (also discussed earlier in this section). When patients experience clinically orientated guided imagery during the various stages of hypnotherapy it is reasonable to suggest that they are in fact engaged in solicited mental imagery with the 'imagery set' being an artefact of the hypnotherapist. Their proactive involvement in deciding to undergo hypnotherapy makes it a solicited event

for the patient which is reinforced by their continuing volitional control during the procedure. In the first instance the hypnotherapist verbally generates mental imagery as part of the hypnotic induction process which involves predominant activation of the left brain and which can be considered to be solicited. After verbal imagery becomes active (loaded) pictorial imagery develops involving integrated activation of the right brain. In turn the cumulative effect of the 'imagery set' is to generate appropriate associated cognitive reactions. These reactive cognitions feed back to produce further solicited imagery which this time is an artefact of the patient's self rather than of their hypnotherapist, which logically ought to render them more deeply solicited and the procedure therefore psychologically more potent. Figure 5.1 shows the path of unsolicited mental imagery which, as stated, can translate directly into pictorial mental imagery. Rather than the dichotomy of the imagery debate it seems reasonable that mental imagery functions along a reciprocal continuum between verbal (left brain) and pictorial (right brain) which is also apparent in figure 5.1.

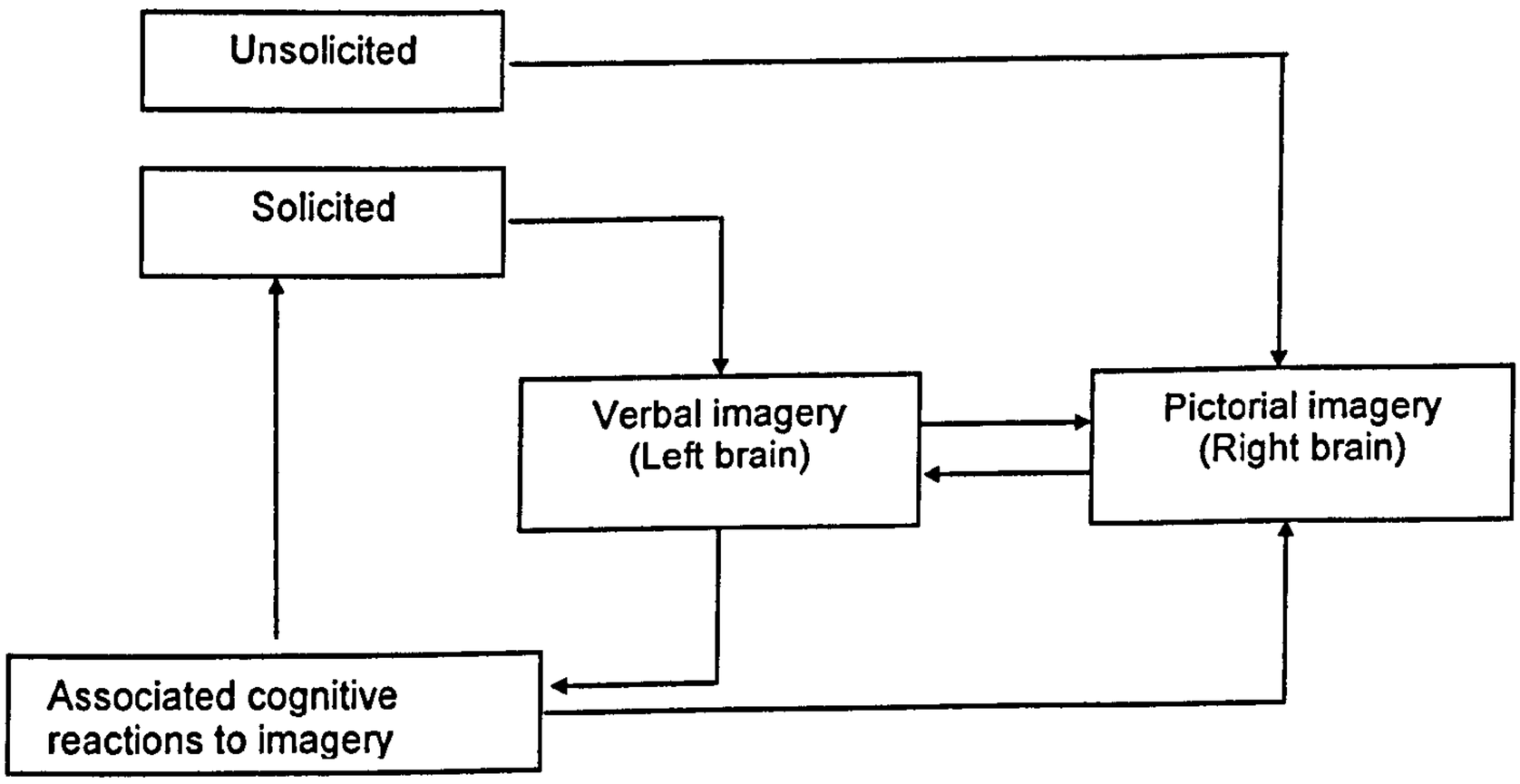


Figure 5.1 Generative laterality of solicited and un-solicited mental imagery.

Laterality of language

Hypnotherapy is basically a talking therapy and as such it can reasonably be argued that language is its most fundamentally important aspect. In this regard hypnotherapists have a duty to appreciate the functional laterality of language processing and to realize that designing treatment scripts to take account of these principles may offer a way of enhancing the effect of what they say to their patients during the treatment process. Whilst it is universally understood and accepted that expressive language is almost exclusively a left brain process for right-handed as well as for most left-handed people, questions remain about the extent and nature of language processing in the right brain and how the two hemispheres interact to process incoming language. The literature on hypnotherapy provides no insight into the neuropsychological implications of language for treatment effects and investigators and authors in the field have been mostly concerned with the semantics of language particularly with reference to metaphor and to Ericksonian hypnosis

The level of language ability of the right brain in most people is often an ambiguous area in the brain science literature. Split-brain research has shown that whilst for most people language is controlled by the left brain, the right brain is not completely bereft of language capabilities. The most significant division between the left and right brain is that the left to all intents and purposes exclusively controls the ability for expressive language whether it is spoken or written. Eran Zaidel proposed from his research with split-brain patients that the right brain has language ability equal to that of an average 5 year old child (Springer and Deutsch, 1997 p. 43) from which an appreciation of an extensive range of basic single words can be determined. Zaidel also demonstrated in this early work that the capability of the right brain to appreciate language becomes significantly compromised due to the complexity of sentences. Similar work with 'connected' (un-commissurotomised) participants has indicated that the right brain's comprehension of words depends on their concreteness as opposed to their

abstractness (Hines, 1977). Springer and Deutsch (1997 p.178) clarify this point by stating that the correct comprehension of words such as *justice, harmony* and *hate* seems to depend more exclusively on left brain processing than does comprehension of words such as *table, car* and *hospital*, which the right brain can also understand. Some insight into the right brain's ability to process language can be gained by considering the effects of damage to this side (see Code, 1987; Joanette *et al.*, 1990; Tompkins, 1995, for a review). Champagne *et al.* (2003) have listed a variety of language problems observed by other researchers which can be experienced by patients with right brain damage:

- Using language unsuitable to the context, failing to understand non-literal aspects of language, such as metaphor (Winner and Gardner, 1977)
- Being unable to appreciate humour (Brownell *et al.*, 1983; Gardner *et al.*, 1983; Bihrle *et al.*, 1986)
- Being unable to appreciate sarcasm (Weylman *et al.*, 1989; Kaplan *et al.*, 1990; Winner *et al.*, 1998)
- The inability to appreciate indirect speech acts (Hirst *et al.*, 1984; Foldi, 1987; Weylman *et al.*, 1989; Stemmer *et al.*, 1994; Brownell and Stringfellow, 1999)
- The inability to process expressive and emotional aspects of prosody (Cicone *et al.*, 1980; Wapner *et al.*, 1981)
- The inability to judge whether a fact is plausible or not with reference to a given context (Roman *et al.*, 1987; Wapner *et al.*, 1981)
- Being unable to make inferences and to manage the required implicit components in order to understand speech acts (Beeman, 1998: Brownell *et al.*, 1986; Joanette and Goulet, 1987; McDonald and Wales, 1986)

The language deficits apparent in right brain damaged patients described above all occur at the supra-sentential level and are pragmatic in nature (Champagne *et al.*, 2003). This list of defects provides a valuable insight into the subtler aspects of

language laterality and provides a more distinct impression of the sort of contribution the right brain makes to language processing. It is possible from the list to establish that the right brain is concerned with the following aspects of language:

- Context.
- Literalness.
- Metaphor.
- Humour.
- Sarcasm.
- Indirectness.
- Prosody.
- Plausibility.
- Inference

A verbal communication is usually not a straightforward transmission of information but rather and, most importantly, a conveyance of the speaker's intention which may well depend on these types of verbal nuances.

Despite its fundamental importance the scarcity of relevant literature suggests that investigators have shown little interest to date in the cerebral dynamics of hypnotherapeutic language. The principles governing the laterality of language offer hypnotherapists the opportunity to enhance the potency of hypnotic scripts by appealing directly to the particular cognitive processing characteristics of each cerebral hemisphere. For instance hypnotic suggestions which demand holistic and synthetic thought processes may well be processed more rapidly if they are not contaminated by language that requires logical and sequential appreciation. Of course the same would be true in reverse as each is sympathetic to processing characteristics of the separate hemispheres i.e. the former being orientated to the right and the latter to the left. It is extremely interesting to speculate what advantages there would be if this kind of

strategy was incorporated with the dichotic listening technique discussed later to develop cerebrally specific scripts for hypnotherapy.

Laterality of IMR

Involuntary motor activity is well documented in the hypnosis literature and Kroger (1977, p. 13) points to occurrences which are used as examples, such as when a mother inadvertently opens her mouth as she puts a spoonful of food into her baby's mouth or when a backseat driver steps on an invisible brake pedal. The phenomenon of involuntary motor activity forms the basis of a communicative procedure in hypnotherapy which is commonly referred to as ideomotor response (IMR). Usually suggestions for the implementation of IMR are given by hypnotherapists to patients once hypnosis has been satisfactorily induced. The IMR procedure usually follows one of two different selection methods, which may depend on the hypnotherapist's training and experience, one is prescriptive and the other is passive. In the passive method (i.e. Waxman, 1989, p.229) it would be suggested to a patient that their unconscious mind will select one of their fingers to represent 'yes' and cause it to rise when they want to answer in that way; fingers representing 'no' and 'I don't feel able to answer' will emerge in a similar fashion. In the prescriptive method the hypnotherapist tells the patient that slight unconscious movements of their index fingers will represent their yes/no responses with one being designated 'yes' and one 'no'. The 'I don't feel able to answer' signal in this situation would usually be represented by both index fingers showing movement simultaneously. The use of IMR was first described by Milton Erickson (1952) who at that time referred to symbolic movements of the head to represent yes or no. Subsequently the idea of unconsciously controlled finger movements to simulate 'yes', 'no' and 'I don't want to answer' responses was introduced (Le Cron, 1952; Cheek and Le Cron, 1968). The IMR procedure has become an established fundamental aspect of hypnotherapy which at a practical level

offers a realistic mechanism for hypnotised patients to answer questions without disturbing their quietude.

Whilst there is no doubt that the IMR procedure provides a valuable means of communicating with hypnotised patients two of its characteristics should be questioned in view of the laterality research reviewed so far. Firstly the idea that IMR is an involuntary process is at odds with the axiom that free will can not be compromised by hypnosis meaning logically that it must be voluntary. Secondly the traditional claim that IMR is an unconscious process also deserves a challenge. The cerebral laterality of finger movements is not as clear cut as might at first be thought from appreciation of the contralateral nature of the primary motor cortex i.e. left brain controls right hand and right brain controls left hand. An early study using probe-based cortical flow measurements (Halsey *et al.*, 1979) and latterly studies using imaging techniques (Kim *et al.*, 1993; Mattay *et al.*, 1996) have shown a bi-lateral cerebral function for finger movements of the non-dominant hand whereby minor ipsilateral innervation supplements the major contralateral innervation of motor pathways. The increased cerebral blood flow observed during non-dominant hand movements has been explained by investigators as being due to its less frequent operation compared to the automaticity of dominant hand movements (Springer and Deutsch, 1997). The situation may be even more complex however for hand and finger movements which are communicative; sign language offers such an example. Kimura (1993) argues on the basis of extensive evidence that the left cerebral hemisphere controls this aspect of fine motor function unilaterally as part of the left brain language process. As a communicative finger movement procedure hypnotic IMR falls within Kimura's terms of reference and this should cast doubt on hypnotherapists' traditional contralateral view of IMR. In addition to the challenge Kimura's argument presents to the contralaterality of IMR another question arises concerning whether IMR is an unconscious process.

It has been established that the left brain processes the major aspects of language and that the conscious mind, being defined by the ability for language and hence rational thought, is consequently a phenomenon of this hemisphere. Similarly the unconscious mind has been assigned to the right brain on account of its almost non-linguistic and hence non-rational status. On this basis IMR as a verbal procedure, and one which depends on communicative finger movements, is a left brain process which means logically it is a conscious process for dextrals and for most sinistrals. The implication of this reasoning is that a major aspect of hypnotherapy seems to be under left brain control despite the essential role of the right brain once trance has been established, which must happen before hypnotherapy can begin. A deeper consideration about the psychobiological nature of IMR is beyond the scope of this thesis but in placing the control for IMR with the left brain it is not the intention here to dispute that patients are not usually aware of it apart from suggesting that cognitive dissociation or automaticity may be an explanation. Perceiving IMR as a voluntary conscious process in contrast to its traditional non-volitional unconscious role presents hypnotherapists with opportunities to make the procedure more controlled, robust and less tentative; for instance by prescribing more definite and more obvious body movements than has hitherto been the case.

Laterality of food-related attitudinal ambivalence

Further to section 3.3 of this thesis food-related attitudinal ambivalence seems to occur consciously when choosing foods to eat or buy and unconsciously during periods of emotional hyperphagia. At the present time there has been no research carried out into the cerebro-cognitive dynamics of either aspect of this type of ambivalence and so whilst the conscious form can be defined psychologically in terms of conflicting desires there is no explanation for the unconscious form. The intention in this section of the thesis is to conceptualize food-related attitudinal ambivalence in terms of its cognitive dynamics by developing a paradigm based on cerebral laterality; hopefully this will

enable a better understanding of the phenomenon – especially its unconscious aspects. Further to the earlier discussion about the laterality of language and consciousness (see section 6.1 of this thesis) the left brain is the rational brain for the majority of people whilst the right brain is irrational. This reasoning suggests that obese people with left brain dominance, who avoid fattening foods when they want to lose weight, are behaving rationally and therefore in a left brain manner whilst similar people who continue to be hyperphagic are behaving irrationally and therefore in a right brain manner. If this format is taken as a template against which to model food-related attitudinal ambivalence the rational left brain behaviour could be attributed to a positive ambivalent domain whilst the irrational right brain behaviour could be attributed to a negative ambivalent domain (see section 4.3 under resistance). If this reasoning is extended resistance to hypnotherapy aimed at controlling hyperphagia (see section 4.3 under resistance) could also be attributed to the negative ambivalent domain, which in view of all that has been said about the laterality of aspects of hypnotherapy will have important implications for treatment design.

The definition of food-related attitudinal ambivalence developed here in terms of cerebral laterality and rational and irrational behaviour is supported by studies of post-commissurotomy syndrome and cross cuing (see section 6.1 of this thesis under 'dual brain'). The cases of the lady choosing a dress and the enraged man who attacked his wife described by Schiffer (1996) suggest clearly that rationality and irrationality have left and right brain laterality respectively for these patients. In the case of the smoker however things are not so clear cut. Here Schiffer describes a commissurotomised man who was unable to smoke because whenever he lit a cigarette, his left hand, acting against his 'conscious' intentions, would grab the cigarette and put it out. This case is more difficult to understand because the man is described as having a 'conscious' desire to smoke which points to his being subject to an irrational and illogical form of consciousness. It is inconceivable that smoking could be motivated by

anything other than irrational needs and self-deceptive motivations in light of evidence showing its very real threat to health. On the basis of the laterality argument smoking for most people ought to be viewed as right brain behaviour and as such the man's right hand (under left brain rational control) would be expected to have extinguished the cigarettes. Alternatively if this patient was one of the 7.5 per cent of the population with right brain dominance the normal situation would be reversed. If this were so the left hand extinguishing the cigarettes would be a demonstration of logical and rational behaviour. Alternatively if the man's desire to smoke can in some way be squared with the rational processes of the left brain it might be possible to envisage some emotional motive for his left hand's anti-smoking behaviour e.g. he may have been sensitive to the modern social pressures that vilify smokers or his left hand behaviour might in some way have been tied in with language-based communicative motor activity in the left brain (see section 6.1 of this thesis under laterality of IMR). On the other hand the man may have been addicted to nicotine which might mean a completely different appraisal of cerebral laterality should be made. Schiffer (1996) does not provide any other details about handedness or anything else that might allow further analysis of this case. In each of Schiffer's cases ambivalence seems to have been demonstrated by acute physical action which in normal individuals might not have been so apparent. Had each of the people above not been commissurotomised their ambivalence might not have been so physically apparent which suggests that commissurotomy caused some form of mental restraint to be relinquished. Cases like those of commissurotomy syndrome, where such relinquishment is evident, strongly support the notion of a duality of mind, and bolster evidence from Wada tests (see section 6.1 of this thesis under 'dual brain') in connected subjects which have demonstrated that each cerebral hemisphere seems to have autonomy of function and to be able to restrain characteristics of the other. Springer and Deutsch (1997 p. 40) refer to corpus callosum-mediated inhibition to describe the ability of one cerebral hemisphere to moderate, decrease or stop activity in the other. As indicated at the start of this section

there has been no research into the cognitive dynamics of food-related attitudinal ambivalence specifically but previous research is suggestive of the idea that it can occur consciously and unconsciously (see section 3.3 of this thesis). In the conscious form people can be affected when they have to make food choices e.g. whilst food shopping or when choosing foods to eat in a café or restaurant. When this type of food-related attitudinal ambivalence occurs people are usually fully aware of it and struggle to make the right choices even becoming anxious when trying to avoid temptations. Some obese people eat fattening foods unconsciously when they are emotionally upset (see section 3.2 of this thesis) and often report feeling dissociated (see section 3.3 of this thesis).

The ideas of corpus callosum-mediated inhibition and cerebral disconnection (see this section under 'dual brain') may provide the basis for understanding the difference in levels of awareness between the two forms of food-related attitudinal ambivalence. If Springer and Deutsch's idea is applied to obese adults who have left brain dominance and who are proactively trying to control their intake of fattening foods, corpus callosum-mediated inhibition would be from left to right where the rational brain holds in check the hyperphagic influence of its irrational counterpart. It is easy to imagine how greater strain would be exerted against the holding force of the left brain at times when the obese person was faced with making food choices and avoiding temptations all of which would occur consciously. It seems reasonable to argue that the effect of left/right callosal-mediated inhibition in this situation is similar to will power and that in the event of the arrangement breaking down the obese person will experience a lapse in their food control. Taking Springer and Deutsch's idea a step further it is possible to envisage that food-related attitudinal ambivalence might occur at an unconscious level if corpus callosum-mediated inhibition took on a right/left arrangement. In this situation the rational motivation of the left brain to control food intake would be held in check by the irrational tendency of the right brain towards hyperphagia. Cerebral disconnection

(see this section under 'dual brain') provides a second idea about how food-related attitudinal ambivalence can occur consciously and unconsciously. As with corpus callosum-mediated inhibition, which for active slimmers would usually be expected to operate in a left/right format, cerebral disconnection is described as the left brain disconnecting from the right in order to prevent mental conflict due to incongruent incoming sensory information. It has been suggested that after disconnecting from the right brain the left brain functions as a completely independent consciousness without any mediatory interaction with the right brain (Galin 1974). Similarly it has been suggested by Galin that when the left brain disconnects the right brain is left as an inaccessible unconscious with no influence on behaviour and that this ineffectiveness can result in 'uneasy emotional states'. It is conceivable how an obese person who wants to lose weight would be subjected to incongruent incoming sensory information about foods when having to make food choices if they were attitudinally ambivalent. If cerebral disconnection as described occurred in this situation however it would, on the basis of current reasoning, mean that the obese person would engage in a rational process and make food choices befitting their intention to lose weight. Sometimes though obese people consciously give in to temptation and end up selecting fattening foods in contravention of their weight loss intentions which in terms of the cerebral disconnection idea would mean that disconnection had not occurred and that the negative ambivalent domain (of the right brain) was being effectively influential on that occasion. It would seem than that cerebral disconnection like corpus callosum-mediated inhibition in its left/right configuration is similar in effect to maintaining will power when faced with temptation. Galin's idea of cerebral disconnection could also provide a basis for understanding how food-related attitudinal ambivalence can be an unconscious experience. But in order to do this the left/right effect may have to be reversed as it sometimes was with corpus callosum-mediated inhibition during Wada testing. In effect for people with left brain dominance the irrational right brain would have to disconnect from the left so that it presided over behaviour and although Galin

makes no mention of this it is reasonable to suppose his idea could be extended in this way. That the unconscious mind might attenuate the conscious mind is plausible in view of the array of evidence for right brain initiative and autonomy which has been discussed in this thesis so far; for example with regard to post-commissurotomy syndrome, cross cuing and callosal-mediated inhibition (all in this section) and electroencephalographic disconnection of one cerebral hemisphere from another (see section 6.2 of this thesis under 'maintaining relaxation through sonic entrainment'). Whilst one can can only speculate about what might initiate corpus callosum-mediated inhibition or cerebral disconnection in the present context it has been noted that people become unconsciously hyperphagic in contradiction of their rational desire for slimness when emotionally upset which might provide a clue about how the polarity of forces become reversed.

The paradigm of food-related attitudinal ambivalence which has emerged from the reasoning process undertaken in this sub-section has a positive and a negative domain which exert cognitive-behavioural influences on eating behaviour in reflection of their left and right brain bias respectively. Reasoning about the cerebral laterality of food-related attitudinal ambivalence will help hypnotherapists to engage patients' resistance more effectively by matching cognitive-behavioural strategies precisely with lateral requirements.

6.2 One-to-one hypnotherapy in a group setting

Two major operational aspects differentiate one-to-one hypnotherapy from group hypnotherapy; namely patient confidentiality and IMR, neither of which has, so far, been seen to be a practical option in the group setting. To maintain confidentiality and exploit the opportunity for IMR it would be necessary to be able to conduct authentic one-to-one hypnotherapy in a group setting. There is no evidence in the hypnotherapy literature that this has yet been accomplished. At the time of writing there was

hypnotherapy equipment available in the U.K. which facilitates the confidential transmission of the hypnotherapists' voice complete with an accompanying background medium (e.g. music to individual patients in a group; www.hypno-quip.co.uk) but this type of product does not enable IMR so would not facilitate one-to-one hypnotherapy in a group setting. With regard to confidentiality it is not only verbal communication which is at issue; usually group hypnotherapy is conducted with patients seated in rows or with them seated in a semi-circular formation which means they are fully on view to other group members. Patients in this situation can often feel self-conscious about being observed by their peers which, as previously stated, can limit their responsiveness to the hypnotherapist's suggestions. A further requirement in being able to conduct one-to-one hypnotherapy in a group setting therefore would be to protect against some of the negative aspects of group dynamics.

<u>Addressing a group of patients individually and confidentially</u>

Apart from the need to talk to individuals confidentially another issue emerges when considering the feasibility of conducting one-to-one hypnotherapy in a group setting. It would be necessary for patients to remain in some sort of holding mode at times when they are not being spoken to. This would require that their relaxed state be maintained during such times to avoid erosion of their hypnosis. In the first instance it would be a straightforward task to speak to a number of people directly and confidentially via a microphone and headset arrangement using audio equipment which has a multi-channel output facility. As well as being able to switch between channels for individual communication it would also be necessary to be able to address the entire group together. In this way aspects of the hypnotherapeutic process which were mutual to everyone in the group could be applied commonly to save on time and resources. It would make sense if individual audio channels were to be binaural in the sense that the hypnotherapist's voice should be transmitted to both left and right ears to allow for hearing difficulties. This would also require volume and tone controls for each ear to

cater to patients' personal hearing characteristics and/or preferences. The second requirement of a holding mode is a more complex issue. However findings from previous research in the area of brainwave entrainment may offer the means to maintain patients in a relaxed state whilst they were being kept in a holding mode during group based one-to-one hypnotherapy.

Maintaining relaxation through sonic entrainment

Enquiry into the electrical potential of the human brain during hypnosis began to gather momentum (e.g. Gorton, 1949; Barker and Burgwin, 1949; Frank, 1950) some twenty years after Hans Burger discovered that patterns of electrical activity could be recorded from electrodes placed at various locations on the scalp (Springer and Deutsch, 1998 p. 74). These patterns of electrical activity have come to be known as the electroencephalogram (EEG) and are represented by several different rhythms of activity. Each rhythm is portrayed in terms of electrical frequency bands: delta rhythm at 1-2 Hz, theta rhythm 3-7 Hz, alpha rhythm 8-12 Hz and beta rhythm ≥ 13 Hz. The alpha rhythm was the first to be discovered and is the dominant activity present in the EEG band when a person is resting quietly with their eyes closed (Springer and Deutsch, 1998 p. 75). Early EEG recordings were interpreted to show that hypnosis was a similar condition to wakefulness and different to sleep (Gorton, 1949). But this was followed by a shift in interpretation whereby hypnosis became likened to light sleep (Barker and Bergin, 1949; Frank, 1950). The alpha-rhythmic wave-band has provided hypnosis researchers with a predominant focus over the years probably because of the fundamental and traditional relationship between hypnosis and relaxation. Typically, as with other aspects of hypnosis research, investigators working in the field of EEG and hypnosis have concentrated on specifying determinants of the hypnotic condition or on marking hypnotizability among populations. Findings however have usually been uncertain due to poor design and control (e.g. Sabourin, 1982; Perlini and Spanos, 1991) similar to many other areas of hypnosis research. Early investigators argued that

highly hypnotizable individuals produced more EEG alpha waves in resting conditions than low-hypnotizables (London *et al.*, 1968; Morgan, 1974; Nowlis and Rhead, 1968). However this view has since been challenged by Perlini and Spanos (1991) who, after conducting a critical review of previous investigations concluded that there was little support for an alpha-hypnotizability relationship (Graffin, 1995).

Of late the relationship between hypnosis and the EEG alpha range has been challenged by claims that the EEG theta range (generally 3-7 Hz) is a better and more solidly related electrocortical activity to hypnosis (Crawford and Gruzelier, 1992) (for a comprehensive review of EEG theta activity see Ray, 1990, and for a discussion see Basar-Eroglu *et al.*, 1992). After more than half a century of investigative endeavour EEG researchers have been unable to identify a definitive EEG marker of hypnotic ability. Whatever the typical EEG hypnotic profile turns out to be cognitive neutrality, if such a condition can exist at all, will continue to be marked by EEG alpha and it is this rhythm-band which is of primary interest to this thesis. It has been shown that alpha activity increases in the right brain when presented with a verbal task in contrast to the reverse during spatial tasks (Galin and Ornstein, 1986). The appearance of EEG alpha indicates a 'turning off' of information-processing in the area of the brain involved (Gross, 2001 p. 93). Gross speculates that during verbal tasks information processing is turned off in the right brain, as if to reduce the interference between the two conflicting modes of operation of the two hemispheres. If this is true then it is also fair to assume that the opposite might occur during spatial tasks or other predominantly right brain activity. Following this train of logic it seems reasonable to hypothesise that the purposeful induction of either an alpha or beta frequency state via the modulation of the electroencephalogram in either cerebral hemisphere would constitute a type of 'cognitive switch'. Using an electrical analogy the switch probably would not create a break in the flow of awareness as an on/off switch would for the flow of energy in an electrical circuit, but might resemble the action of a rheostat whereby EEG frequency

could be tapped along a scale possibly between EEG theta and EEG beta; 3 Hz to ≥ 13 Hz. An everyday example of this idea would be the action of a lighting dimmer switch that controls luminescence between the minimum and maximum limits of a brightness continuum see figure 6.1.

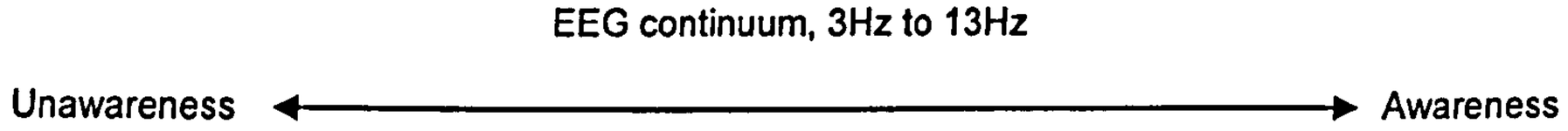


Fig 5.2 The EEG continuum as a cognitive switch.

The purposeful modulation, or 'driving' (Rosenfeld *et al.,* 1997), of electroencephalographic rhythms for therapeutic gain is not a novel enterprise. EEG modulation has long been a practical reality via photic and acoustic stimulation (e.g. Adrien and Mathews, 1934; Darup and Fessard, 1935; Jasper, 1936, 1937; Toman, 1941; Walter and Walter, 1949). This modulating process is commonly referred to as brain wave synchronization (BWS) and functions according to the principle that because EEG activity 'follows' repetitive light and sound frequencies (Toman, 1941) it can be driven purposefully and objectively. Theoretically this means that delta, theta, alpha, and beta rhythms, which constitute the basic range of electrical frequency band widths in the electroencephalogram, can be synchronously invoked by presenting light or sound stimulation at the desired frequency level.

Brain wave synchronization was commercialised with the development of a BWS unit (Kroger and Schneider, 1959) aimed primarily toward generating alpha and theta activity in various cortical areas which is indicative of deep relaxation (Morse *et al.*, 1977) and which continues to be a plausible and realistic option (see Shealy *et al.*, 1990). The first instrument marketed by Sidney Schneider in 1958 consisted of a photic

stimulator with variable frequencies ranging from low delta 0-1 Hz to beta ≥13 Hz (Morse and Chow, 1993) which could be controlled by the patient or the therapist. Reportedly Schneider and his colleagues were able to induce light to deep-hypnotic trances at specific frequencies in around 2500 research participants. Morse (1993) provides an informative and fascinating account of the development of BWS units and chronicles that by 1990 BWS had been used extensively by the medical establishment in obstetrics, anaesthesiology, and hypertension control and by C. Norman Shealy in over 5000 cases of chronic pain management between 1975 and 1990. Initially Shealy used one of Schneider's BWS models (which used a singular light 2 to 3 feet from the patient's eyes); and a Schwartz BWS unit developed by Jack Schwartz in the 1960s which delivered alternate light to the right and left eyes at alpha and beta frequencies. Morse and Chow (1993) describe how Shealy continued by developing a more sophisticated BWS unit which could simultaneously synchronize the left and right brain. This 'Shealy unit' contained photostimulation goggles with simultaneous flashing of left and right lights at alpha 10 Hz or theta 5.5 Hz which he later changed to a variable frequency of 3.1 to 12 Hz, with the patient selecting the frequency. The same authors also describe a retrospective study by Shealy in which he reported on 92 of his patients. Each had used the BWS unit at a fixed alpha frequency of 10 Hz and with opaque white simultaneous right-left photostimulation and had achieved depths of relaxation of 75% or greater although it is not apparent from the Morse review how this was measured. Shealy reported that when BWS was combined with self-hypnotic tapes relaxation depths increased by as much as 100% (again it is not clear how this was measured) with similar effectiveness being reported for blood-pressure, pulse rate and pain reduction. In the first of two other of Shealy's studies Morse and Chow (1993) describe biochemical changes after treatment with the BWS at 10Hz alpha rhythm in which norepinephrine increased by 18%, melanin decreased by 6%, beta-endorphin increased by 14% and serotonin increased by 23%. In the second of these studies Shealy reported that variable light and sound frequencies selected by patients

presented more effective pain control than a fixed 10Hz alpha rhythm. It has also been claimed by critics that most of the functional effects of BWS are adverse, including epileptic seizures and migraine attacks (Simon *et al.*, 1982). In contrast Shealy (1990) reports, after working with more than 50 epileptic patients, no contraindications had been observed after BWS in which frequencies of 3.1 and 12 Hz were used. Morse and Chow note however that seizure has occurred in other cases where 15Hz or higher has been used. BWS was introduced to dentistry in 1966 (Margolis, 1966) where it was used with a variable frequency controlled by patients in a study to aid hypnotic induction. The results of the study showed that less anaesthesia was required and in some cases no local anaesthesia was needed, gagging was more controllable, physiological depression which sometimes follows drug use was eliminated and post-operative healing was quicker.

Whilst there is no question about the neurological principles of brain wave synchronization there can only be putative reference to its therapeutic benefits despite the raft of positive claims. Previous studies have lacked rigour; claims of EEG synchronization have not been supported by EEG recordings and the potential bias of commercial interests has not been disclosed when testing BWS units. Failure to address possible commercial bias effects has also been a problem with research investigating BWS as an adjunct to hypnotherapy (e.g. Kroger and Schneider, 1959; Lewerenz, 1963; Margolis, 1966; Morse, 1975, 1976; Morse *et al*, 1977; Shealy, 1990). However, the integrity of the underlying principles involved act to maintain its high hypnotherapeutic potential. In comparison to the earlier photic BWS studies that utilized intense stroboscopic flash units present clinical approaches use a synthesis of low-intensity LED-based photostimulation and acoustics; the synchronous effects of which are now described as entrainment (Rosenfeld *et al.*, 1997). In describing how neurotherapists have incorporated rhythmic audiovisual stimulation into clinical practice

Rosenfeld and his co-authors discern three different clinical approaches toward achieving EEG entrainment for therapeutic gain:

1. The first approach has a reasonable conceptual rationale. It is argued that since increases in an EEG rhythm obtained with bio-feedback are reported to produce positive clinical effects (e.g. Lubar, 1985; Sterman, 1984) producing these effects with entrainment stimulation may lead more quickly to the same clinical end (Carter and Russell, 1993). A rational variant of this approach involves use of stimulation to generate EEG rhythms known to be associated with relaxation (Morse, 1993).

2. The second approach implies that a patient's baseline dominant frequency within some band (e.g. alpha 8-13 Hz) may represent, in some sense, the presenting pathological state. Thus therapy consists of attempting to drive the EEG away from the dominant 'rut' (e.g. 10 Hz) to new values such as 9Hz or 11Hz, (e.g. Russell, Carter, Bell and Bush, 1995; Montgomery, Ashley, Burns and Russell, 1994). Although they are rational both these approaches appear to assume, contrary to traditional understanding (see Regan, 1972, pp. 76-77), that evoked or driven rhythms involve the same pathways, mechanisms, and overall physiology as true, *spontaneous* EEG rhythms.

3. The third approach presents patients with a variety of entrainment 'programmes,' e.g., a few minutes of alpha, a few minutes of beta, a few minutes of theta, a few minutes of alpha alternating with beta, and so on. As far as we are aware, there is no conceptual or systematic empirical foundation for this approach, which is nevertheless reported to have functional effects (Brauchli *et al.*, 1995). The programmes used are what the commercial manufacturers provide, or what the particular clinician develops, idiosyncratically.

(Rosenfeld *et al.*, 1997)

As with the various methods of brain wave synchronization outlined above a phenomenon referred to as 'binaural auditory beat' described over 30 years ago (Oster, 1973) can similarly be used to modulate the EEG in a process referred to as sonic entrainment. This process is underpinned by the principle that when two pure auditory signals of similar frequency are mixed together, the phase interference between their waveforms produces a composite signal with a frequency midway between the upper and lower frequencies and an amplitude modulation that occurs with a frequency equal to the difference between the two original frequencies (Lane *et al.*, 1998). In other words if tones of 100Hz and 110Hz are mixed together a composite signal of 105Hz would be perceived with an amplitude that rises and falls across a frequency of 10Hz. This amplitude-modulated composite signal is called a binaural auditory beat (Lane *et al.*, 1998). A similar phenomenon occurs when auditory signals of similar frequency are presented dichotically through headphones. Although each ear hears only one of the frequencies, the listener perceives the middle frequency and the amplitude modulation, even though the auditory beat does not exist in physical space (Lane *et al.*, 1998). The seat of the binaural beat phenomenon lies in the way the brain processes the two separate auditory signals at the level of the olivary nuclei of the brainstem (Oster, 1973). Unfortunately the empirically validated literature on binaural beat effects is extremely small and most of the evidence consists of anecdotal reports which suggest that presentation of low-frequency binaural auditory beats can elicit a variety of changes in the listener's state of consciousness which might have a broad range of practical applications. For instance binaural auditory beats in the delta and theta frequency bands are considered to be associated with enhanced creativity and improved sleep (Lane *et al.*, 1998). The continual reference here to Lane *et al.* (1998) is due to the scarcity of other reliable reports and because theirs is one of the very few scientifically rigorous studies in the field. The other scientific studies that have been completed suggest that binaural auditory beats in the beta frequency band can enhance attention and memory performances (Kennerly, 1994) and that similar

presentation of alpha frequencies can generate greater alpha wave production leading to greater subjectively experienced relaxation (Foster, 1996).

Lane *et al.* (1998) report on a study which they designed to test if different patterns of binaural-beat stimulation could produce changes in level of arousal and alertness manifested in behaviour and mood. They incorporated a double-blind cross-over design to compare two distinct patterns of binaural-beat signals, one consisting of binaural beats in the EEG-beta frequency range and the other binaural beats in the EEG delta / theta range. Lane and his co-workers report selecting these patterns because these EEG frequency bands are typically associated with states of alertness versus drowsiness, reasoning that entrainment of these frequencies might thus enhance or impair alertness. Lane *et al.* set up a monotonous vigilance task lasting 30 minutes which required that participants monitor a video continuously whilst also responding to infrequent targets. Their hypothesis was that presentation of binaural-beat signals in the EEG beta frequency range would elicit better task performance, i.e. more correct detection of targets and fewer false alarms, than presentation of binaural-beat signals that entrained EEG frequencies in the theta / delta range. Lane *et al.* also postulated that the differential stimulation would affect the mood changes associated with the monotonous task, especially those related to subjective alertness and fatigue. The results of the study supported the Lane *et al.* hypothesis for the application of binaural-beat stimulation in every way. They report that binaural-beats in the beta EEG frequency range were associated with improved target detection and fewer false alarms than binaural-beats in the theta / delta range. The results of this study also suggested strongly that beta binaural beats were associated with smaller increases in task-related confusion and fatigue compared to theta / delta beats and greater mood enhancement. Unfortunately no EEG recordings were made during this study which allows only tentative conclusions to be drawn. In fairness to Lane and his co-workers they acknowledge the uncertainty this bestows on their results and note that the behavioural

and mood effects observed during the study can only be presumed to have been due to the binaural-beat stimulation. In defence of their position they argue that it is plausible that the binaural-beat signals entrained corresponding EEG frequencies and increased relative EEG spectral power in the beta or theta / delta bands. They also argue that such an interpretation is consistent with earlier studies that suggest apparent EEG changes in response to binaural-beat stimulation (Foster, 1996).

On the basis of all the evidence reviewed in this section it is a reasonable proposition that patients could be entrained and subsequently maintained in a bi-lateral EEG alpha state as a holding mode during group based one-to-one hypnotherapy at times when they were not required to pay attention to what the hypnotherapist was saying. Music of the sort composed and produced by Dr Steven Halpern (see http://www.innerpeacemusic.com/soundhealing.html), sometimes referred to as 'Moog music', provides a suitable alpha rhythmic sound medium for this purpose. Patients could simply be asked by the hypnotherapist to maintain their relaxed state by listening to the music being presented to them through their headphones until they were once again required to pay attention to the hypnotherapist's voice.

Ideomotor responding and patient signalling

Chevreul (1833) described in detail a variety of circumstances in which a pendulum consisting of an iron ring suspended by hand from a hemp thread was observed to swing in directions sympathetic with the holder's thoughts. Despite the person keeping a perfectly still arm the ring would swing in one of 4 directions i.e. in left or right circles or to and fro or side to side depending on which direction they thought about. Chevreul ascertained that the oscillations of the pendulum were caused by minute movements of the arm, hand etc of which the holder had no awareness. The English physiologist William Carpenter first used the term 'ideo-motor' (now ideomotor) in 1852 to describe such involuntary muscle movements thought to be initiated by autosuggestion. The

concept of IMR did not undergo much clinical development until the ground breaking work of Milton Erickson (1948/1980) (previously mentioned in section 4.3 of this thesis) during the development of his 'utilization approach to therapeutic suggestion'. In contrast to the usually authoritarian approach to hypnosis of the time Erickson's unique methods were based on passively encouraging and supporting patients to arrive at their own solutions to their disorders. He achieved this through what might be described as a mixture of hypnoanalysis, hypnotic counselling and the utilization of goal-orientated storytelling of which an important aspect was IMR. The progress Erickson made with IMR was extended by LeCron (1954) who utilised Chevreul's pendulum as a means of demonstrating ideomotor movement and then by Cheek and LeCron (1968) who used finger movements. The appreciation of a dynamic relationship between ideas and physiological responses has an ancient history and has been a fundamental and intrinsic factor in hypnosis since its earliest beginnings (Spanos and Chaves, 1991); Rossi and Cheek (1994) have called this relationship 'ideodynamic'. Generally the modern IMR procedure used by hypnotherapists in the U.K. is based on finger movements but other parts of the body can be used just as well. Rossi and Cheek (1994) recommend that any part of the body that can move can be used to express IMR; e.g. fingers, hands, arms, shoulders, head, mouth or eyelids. This recommendation by acknowledged experts in the field of IMR, in addition to the earlier argument that IMR is a conscious process (see section 6.1 of this thesis under laterality of IMR), provides the key to unlock the impracticality of IMR for group hypnotherapy.

On the basis of laterality, and on Rossi and Cheek's evidence, it appears both logical and feasible that individuals undergoing group hypnotherapy could be expected to express themselves through IMR by utilizing their finger movements to press a button in order to send an electronic signal to the hypnotherapist. This process would involve the use of some sort of hand held push button device. There may be some concern about whether or not being in such a relaxed condition would prevent a hypnotised

patient from keeping hold of something like this throughout a session of hypnotherapy or whether trying to do so would interfere with the hypnotic condition. However previous research in the area of 'alert hypnosis' (Banyai and Hilgard, 1976) has resolved this worry by showing that the hypnotic condition can be enhanced through manoeuvres which increase tension, alertness and physical activity. Experiments in this field usually require hypnotic subjects to ride a bicycle ergometer set to resistance, with their eyes open throughout the entire hypnotic session. While the participant exercises in this manner, verbal suggestions are administered to enhance his or her alertness, attentiveness, and feelings of freshness. No mention is ever made of passive relaxation, sleepiness or eye closure and throughout the session the room remains illuminated at its customary level (Banyai *et al.*, 1993, p. 272). A range of experimental studies have shown that active alert hypnosis is on a par with traditional hypnosis with regard to heightened responsiveness to suggestion, feelings of involuntariness, lack of reality testing, focussed attention as well as a lateral shift in favour of the right brain processing (Banyai *et al.*, 1993, p. 272). In addition to matching traditional hypnosis investigators working with active alert hypnosis argue that their method results in increased alertness enhanced positive emotional tone and a perception of active participation in treatments.

<u>Protecting against negative group dynamic effects</u>

Further to earlier comments at the start of this chapter, anecdotal evidence as well as personal experience, suggests that the seating formation of either straight rows or semi-circles commonly adopted by hypnotherapists administering group hypnotherapy can cause patients who do not want to interact with their peers, or to be overlooked by them, to feel anxious. In turn this can result in such patients adopting an uncooperative attitude to hypnotherapy to the point of being acutely resistant to initial hypnotic induction. In seeking to overcome this problem it seems that advice can be taken from the field of interior design with regard to creating user-friendly spaces. The terms

"sociopetal" and "sociofugal" are used by interior designers to describe environments arranged to either increase intimacy among their users (*sociopetal*) or to minimise intimacy amongst their users (*sociofugal*) (Reber and Reber, 2001). It seems clear from this line of reasoning that a sociofugal seating arrangement would provide the best way to minimise negative group dynamics during group hypnotherapy. Consequently the most sociofugal environment for the maximum number of patients could be provided by seating eight patients in a circle facing outwards as shown in Fig. 5.3. The geometry of this arrangement provides 45 degrees of arc for each patient which precludes any member of the group from being in direct line of sight of another group member.

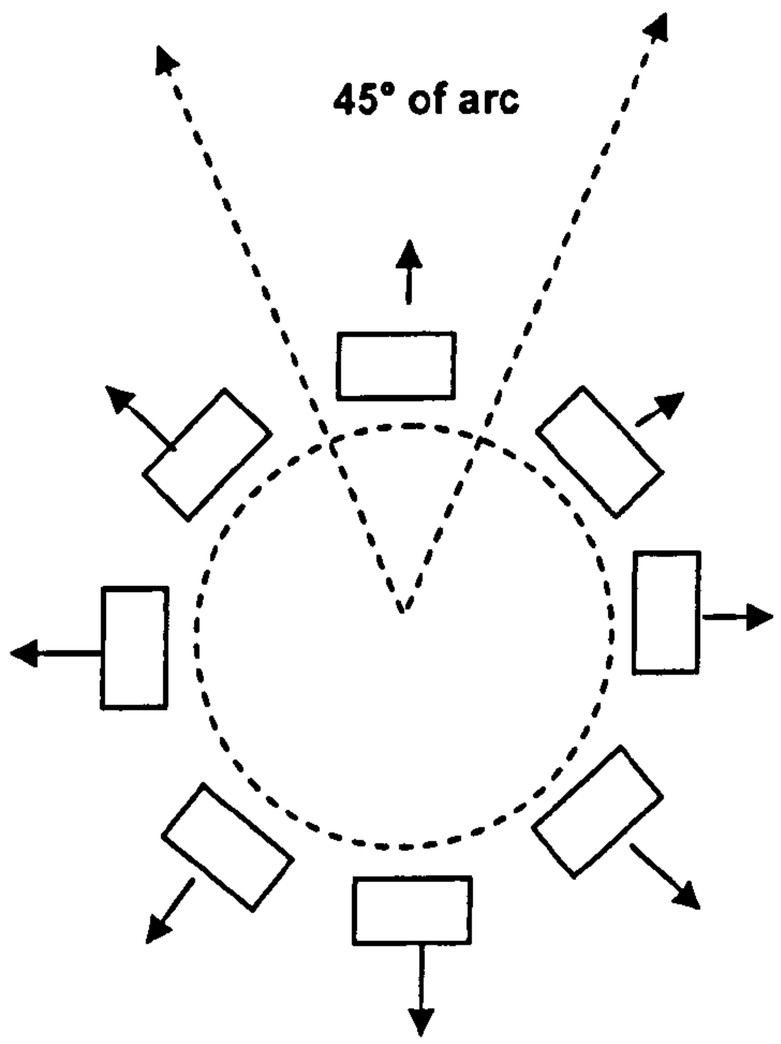


Fig 5.3 Geometry of the sociofugal seating arrangement.
A balance of maximum sociofugal advantage with optimum group size is achieved by seating 8 patients in an outward facing formation.

5.3 Neutralizing food-related attitudinal ambivalence

Dichotic listening

In contrast to the visual system which projects contralaterally to the brain, the human auditory system is represented by both ipsilateral and contralateral neural pathways. An ipsilateral hearing pathway projects from each ear to the cerebral hemisphere on the same side whilst a contralateral hearing pathway projects from each ear to the cerebral hemisphere on the opposite side. Experiments using dichotic listening techniques, whereby different auditory stimuli are presented to each ear simultaneously, have shown that the contralateral route from the ear to the brain is favoured naturally over the shorter ipsilateral route. Kimura was the first to demonstrate that under dichotic conditions normal subjects report words presented to the right ear more accurately than words presented to the left ear, and to develop a model explaining why the ear asymmetry occurred. Although either ear performs equally well when tested individually Kimura provided physiological evidence that ipsilateral auditory neural pathways are weaker and less conductive than their contralateral counterparts (Kimura, 1967). She proposed that during the dichotic listening process ipsilateral pathways are suppressed and that stimuli presented to each ear will be projected primarily or exclusively to the contralateral cerebral hemisphere. Figure 6.2 (taken from Springer and Deutsch, 1998 p. 99) demonstrates the operation of these hearing pathways as proposed by Kimura.

The dichotic listening phenomenon has been tested in research with split-brain patients and findings have been comparable with those found in normal participants (Springer and Deutsch, 1998 p. 100). This is because ipsilateral and contralateral hearing pathways run sub-cortically and are therefore not dependent on callosal transmission. Split-brain patients are therefore able to perceive just as well as intact participants when words or consonant-vowel syllables are presented to either ear. This situation

alters radically however under dichotic listening conditions. With split-brain patients the attenuation of ipsilateral hearing pathways is particularly pronounced and patients report hearing only the right ear stimulus (Springer and Gazzaniga, 1975; Sidtis, 1988). This would be expected, because the left-ear stimulus projects only to the right hemisphere as a result of ipsilateral suppression. Because the right hemisphere is unable to produce speech, and because fibres connecting the two hemispheres have been cut, participants are unable to accurately identify the left-ear stimulus above a chance level (Springer and Deutsch, 1998 p. 100). The right ear advantage for verbal type stimuli found in most dextrals has been confirmed in many studies since Kimura's work (Akots, 1990) and has since become a firmly accepted phenomenon.

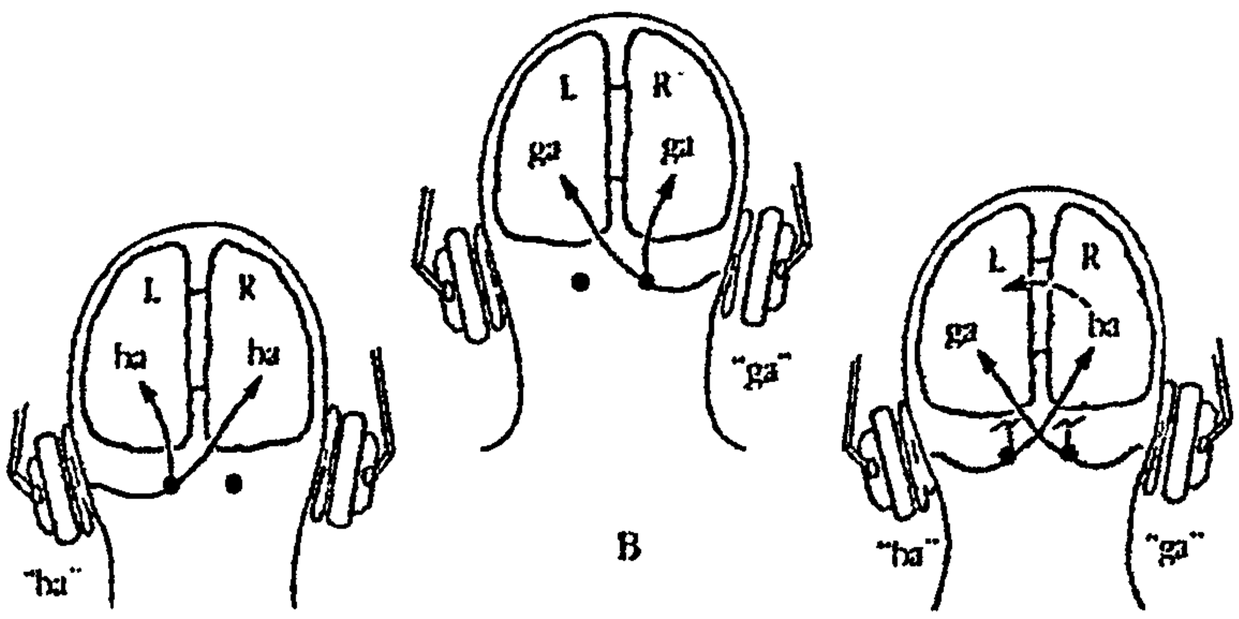


Fig 5.4 Kimura's model of dichotic listening in normal subjects taken from Springer and Deutsch (1998 p. 99).

The syllable 'ba' is correctly reported when presented to the left ear alone; it reaches the left and right hemispheres via ipsilateral and contralateral pathways, respectively. B. The syllable 'ga' is correctly reported when it is presented to the right ear alone. C. In dichotic presentation, ipsilateral pathways are presumed to be suppressed. The syllable 'ba' is accessible to the left (speech) hemisphere only through the commissures; 'ga' is usually reported more accurately. Following commissurotomy, the patient reports hearing only 'ga'.

Whilst there have been thousands of research studies which have utilized the dichotic listening technique first pioneered by Kimura there have not been many within hypnosis research and none at all with regard to hypnotherapy. Hypnosis studies that have been designed around the dichotic listening paradigm have been concerned with

investigating the cerebral laterality of the hypnosis condition (e.g. Frumkin *et al.*, 1978; Sanders, 1979; Crawford *et al.*, 1983; Levine *et al.*, 1984; Pagano *et al.*, 1988; Akots, 1989) but have not yet investigated the opportunity it affords to selectively target the cerebral hemispheres separately (cerebro-specific). The dichotic listening technique is held in the context of this thesis to be the key, in conjunction with sonic entrainment, to improving the effectiveness of hypnotherapy to control food-related attitudinal ambivalence and this will be discussed next.

<u>Cerebro-specific EEG modulation to switch off resistance to hypnotherapy aimed at stopping hyperphagia</u>

It has been reasoned in this thesis that the negative domain of food-related attitudinal ambivalence is a main source of resistance to hypnotic suggestions aimed at stopping hyperphagia in obese adults (see sections 3.3, 4.3 and 5.1 of this thesis). The reasoning process has also suggested that the basis for resistance lies in the fact that the integrity of free will cannot be compromised by hypnosis. It has become apparent from this reasoning that the influence of the negative ambivalent domain must be blocked by hypnotherapy before it can stop hyperphagia which in effect means compromising this aspect of free will. On the basis of the range of discussions which have been conducted throughout this thesis it is argued this can be achieved by hypnotherapists for people with left brain dominance by shielding their rational left-brain cognitions about food control from the irrational hyperphagic influence of their right brain and there seem to be two plausible ways in which this could be achieved. Firstly by cerebral disconnection (see section 6.1 of this thesis under 'dual brain') in which the irrational influence of the right brain could be isolated from the left brain by causing incoming sensory information to be incongruous and, secondly, by EEG modulation (see section 6.2 under maintaining relaxation through sonic entrainment) which would involve inducing an alpha rhythmic state in the right brain, effectively switching it off, whilst maintaining a waking beta state in the left brain. After deliberating about both of

these options it was evident that EEG modulation was the obvious choice because of the amount of previous research that has been carried out in the fields of brainwave stimulation, EEG driving and sonic entrainment compared to cerebral disconnection for which there have been no previous studies of any direct relevance.

The literature on sonic entrainment suggests that previous researchers were concerned to manage the EEG across the whole brain, which would also be the requirement in creating a holding mode for one-to-one hypnotherapy in a group, (outlined earlier in this section). However to block the influence of just the right brain it would be necessary to conduct 'cerebro-specific' EEG sonic entrainment for which dichotic listening is the key. On the basis of the literature reviewed so far it is reasonable to propose that EEG sonic entrainment provides the means to create a cognitive switch by placing just one side of the brain into alpha rhythm. Furthermore it is conceivable that by utilizing the dichotic listening technique the left and right brain could be sonically entrained to different frequencies if required e.g. left (beta) right (alpha), simultaneously to mimic Wada or cerebral disconnection effects. Dr Steven Halpern's music mentioned previously as in connection with the setting up of a 'holding mode' would also provide a suitable alpha rhythmic sound medium as the basis for a cognitive switch. Using the dichotic listening procedure this music could be administered to the left ears of patients with the appropriate cerebral dominance whilst a hypnotherapeutic script written specifically to take account of left brain processing features was administered to their right ears. In this way the right brain in alpha state would not be expected to successfully generate negative ambivalent resistance to hypnotherapeutic suggestions being processed by the left brain aimed at stopping hyperphagia.

5.4 Preventing counter regulation and supporting the diet

Previous discussions about laterality suggest that contemporary dieting systems such as those of Slimming World and Weight Watchers, which are probably the most popular in the U.K., are very much left brain processes for anyone with left brain dominance. Examination of instruction manuals and guide books for these systems suggest they require a high level of cognition by dieters not least with regard to literacy and numeracy and it seems fair to assume that other diet systems will be similar. Demand for right brain involvement seems to be limited to processing imagery in the form of pictures intended to reinforce diet promoters' dieting message. Usually this consists of 'before' and 'after' pictures of successful slimmers, pictures of highly appetizing foods which can be included in the diet and others of slim, happy, healthy and youthful people no doubt intended as inspirational role models. The high left brain bias of the contemporary dieting method makes it a self-limiting process though in the absence of much right brain involvement. Dieters are unlikely to formulate a holistic impression of their diet or of its impact on them. Instead they will perceive their diet as a temporal programme and as a set of parts which have to be fitted together like a jigsaw puzzle with the end result not completely apparent until the last piece is put in place. Any holistic sense is likely to be pushed even further away by the mandatory weekly weigh-in of many commercial dieting systems; a procedure which by nature will reinforce the left brain view of the diet as a sequential and fragmented string of short-term goals from which, ultimately, the end goal is constructed. The argument of this thesis is that, in addition to reinforcing the various dieting strategies people may follow, hypnotherapy can play a further vital adjunctive role by filling the gap in right brain stimulation neglected by contemporary dieting systems. Contemporary dieting systems do not appear to include specific provision to protect dieters from the effects of counter regulation (Pudel, 1995) (see section 3.2 of this thesis) leaving dieters vulnerable to continual lapses and yo-yo dieting. It has been argued that the dieting paradigm has the energy balance equation at its heart which concentrates attention on food intake

per se to the detriment of the aetiological factors underlying individuals' hyperphagia (see section 3.1 of this thesis). Consequently, apart from variations in packaging, contemporary dieting systems, just like their predecessors, are essentially about restraining food intake which generates susceptibility to counter regulation effects. An alternative supplementary diet plan would need to be devised so that hypnotherapists could provide support to whichever diet a patient is following. It would need specifically to provide dieters with protection against counter regulation and to generate greater motivational power by recruiting their right brain abilities. Such a plan would require patients to engage in a high level of imaginative activity and should involve significant amounts of spatial and synthetic thinking as well as a considerable degree of future-orientated visualization all of which depend extensively on right brain involvement.

Chapter six

Practical development of one-to-one hypnotherapy in a group setting

In the first part of this chapter an outline of the equipment constructed as a means of operationalizing the concepts developed in Chapter 5 is provided. The second part of the chapter describes empirical work carried out to gain experience at incorporating the equipment into group hypnotherapy as a future basis for one-to-one hypnotherapy in a group setting for adult obesity and as a means to develop a system to treat food-related attitudinal ambivalence in the future.

6.1 Prototype equipment

Electrical

The electrical equipment referred to in this section was designed and constructed by electronics technicians from the Department of Computational Chemistry at the University of Wales, Bangor between March and November 2000. It was produced by them to fulfil tasks specified by the researcher, and was funded by the School of Nursing, Midwifery and Health Studies at the University (see appendix 6.1 for details). The equipment provides each of 8 patients in a group with 2 separate channels to each ear (see figure 6.1) each with left and right ear volume control that can be operated centrally by the therapist. One channel is connected to a microphone used by the hypnotherapist whilst the other facilitates input from an external source (e.g. a compact disc player). The arrangement allows the volume of each input to each ear to be adjusted according to individual needs at any given time or to be switched off and provides the hypnotherapist with the facility to address patients either individually and confidentially or all together as a group. The arrangement also provides the option of closing down the hypnotherapist's microphone channel whilst leaving the external

channel open thereby providing the facility for a 'holding' mode (see also section 5.2 of this thesis).

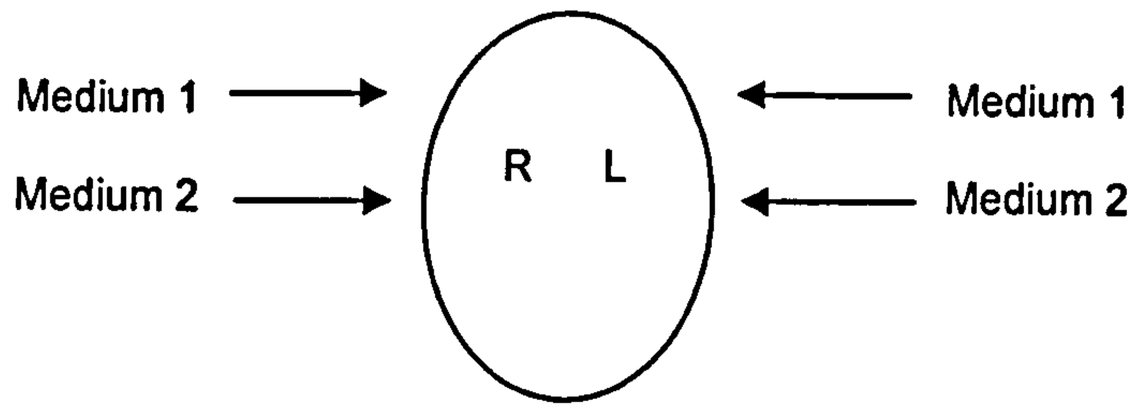


Figure 6.1 Dual binaural auditory mode.

The equipment provides 2 binaural channels to each patient, one for the hypnotherapist's voice and one for an external medium e.g. music (front view).

An IMR facility is provided in the form of two hand held wands, one green and one red wired back to the control panel, each having a push button on the tip which activates specific red and green LEDs on the control panel (see appendix 6.1 and figure 6.2 below). Activation of the red push button is intended to indicate a 'no' response whilst the green indicates 'yes'. Activation of red and green together is intended to indicate 'I don't know' or 'I am unable to answer at this time'.

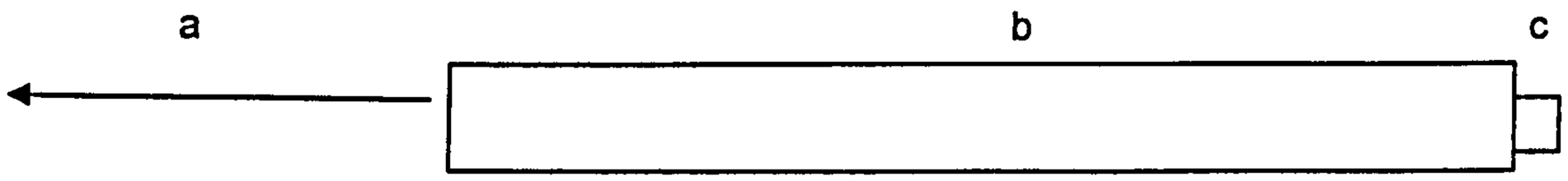


Figure 6.2 IMR wand.

The figure shows a) the wiring link to the control panel, b) the wand body either red or green and c) the push button.

Cumulatively the equipment consists of:

- Main control panel and associated connection leads.
- 8 sets of stereophonic headphones with associated connection leads.
- 8 pairs of IMR wands with associated connection leads.
- 1 hypnotherapist's combined headset with microphone and headphones.
- An external sound media facility - compact disc player.

The equipment control panel is housed in an electrical enclosure of approximate dimensions: 525mm width, 287mm height and 412mm depth. Internally the enclosure houses the associated electrical wiring and electronic printed circuit boards (see appendix 6.1). The audio/electrical outlets for the patients are positioned to the rear of the panel along with the mains input socket and on/off switch whilst the hypnotherapist's controls are laid out to the front (see appendix 6.1). The rear panel layout consists of:

- 240 volt a.c. power supply socket inlet.
- 8 audio headset socket outlets.
- 8 IMR handset socket outlets (IMR wands).
- 2 socket outlets for the hypnotherapist's headphone/microphone set.
- 2 socket inlets for the c.d. and tape inputs.
- Power on/off switch.
- 2 warm air release ventilation grills.

The hypnotherapist's control panel (see appendix 6.1) is arranged in 8 columnar banks of 4 dials, 5 switches, 2 LEDs 1 red and 1 green, and a push button. Each bank represents the controls for one group seating position numbered '1' to '8' from left to right. The top pair of dials in each bank is labelled 'microphone' and control the volume of the hypnotherapist's voice to patients' left and right ears separately. Each dial also has an adjacent toggle switch which can be used to isolate the hypnotherapist's voice from patients' left and right ears separately. The bottom pair of dials mimic the top pair except that the output is from an external source, in this case music from a compact disc player. Below the dials at the bottom of each control bank there is another toggle switch which activates a signal tone used to attract the attention of individual patients. Finally there are the red and green IMR indicator lights with an adjacent reset button which is used to cancel the IMR signal. To the far right side of the control panel there is a master control bank also arranged as a column. There are two dials at the top of the

bank to control the treble and base effects of the hypnotherapist's microphone output with an adjacent toggle switch to isolate the microphone. Adjacent to the top dial is an indicator light to show when the equipment is powered-up. The third dial down this bank is a master selector switch which permits the hypnotherapist to listen in to each of the eight channels separately. The bottom dial of the bank provides the means to adjust the volume of the signal tone and adjacent to it is a toggle switch which can be used to send a tone to all 8 patients simultaneously. Lastly at the bottom of the master control bank is a push button which is used to stop the cumulative signal tone. The sociofugal format discussed in section 5.2 of this thesis was adhered to with the addition that the hypnotherapist would operate the control panel from the centre (see figure 6.3).

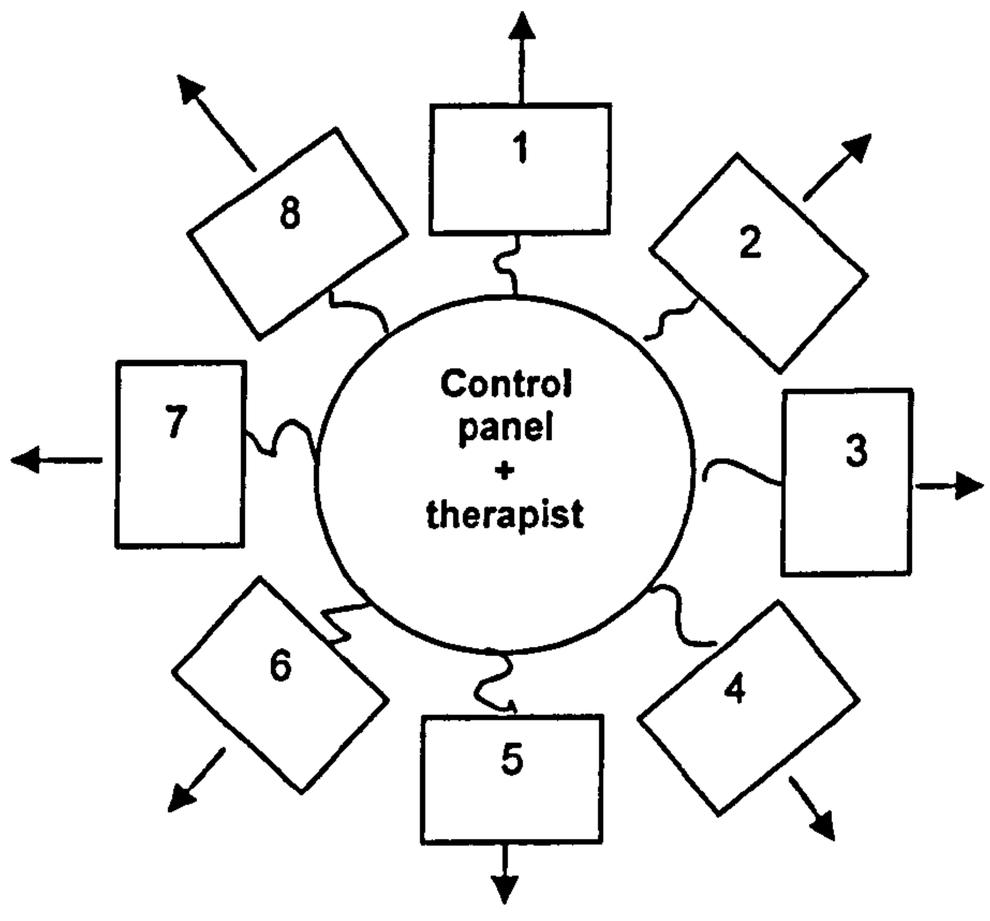


Figure 6.3 Sociofugal seating arrangement with the hypnotherapist in the centre.

The equipment described above provides the facility for one-to-one hypnotherapy to be conducted in a group setting. It will enable a hypnotherapist to address individuals confidentially or to address the whole group or part of the group and consequently it will enable them to reduce fees for individual patients.

In addition to fulfilling the primary aim of the thesis i.e. one-to-one hypnotherapy in a group setting, the dual binaural channel arrangement also provides a dichotic listening facility to test if EEG sonic entrainment can be used to generate a cognitive switch to control resistance, conceptualized in Chapter 5 of this thesis, which is the second aim of the research. This facility will be discussed in more detail in Chapter 7 when considering the direction of future research. Having two binaural channels provides a range of 15 different auditory output modes (see figure 6.4) which will facilitate a variety of cerebro-specific audiological permutations to be explored in the future.

Mode	Right ear	Left ear
1	H	H
2	H	0
3	0	H
4	M	M
5	M	0
6	0	M
7	H + M	H + M
8	H + M	0
9	0	H + M
10	H	M
11	M	H
12	H + M	H
13	H	H + M
14	H + M	M
15	M	H + M

Figure 6.4 Fifteen audio output modes afforded by the equipment with numbers 10 and 11 being the dichotic listening modes. H = hypnotherapist, M = alpha rhythmic music or other medium, 0 = no input.

6.2 Empirical work

After the manufacturing process was completed empirical work was undertaken to develop an operational methodology for the equipment to incorporate it into hypnotherapy to provide one-to-one treatment in a group setting. The work was organised into 4 stages each with a specific purpose:

1. Commission the equipment and formulate basic operating methods.
2. Compare group hypnosis using the equipment with the normal method.
3. To use the equipment to deliver ecologically valid group hypnotherapy.
4. To deliver ecologically valid one-to-one hypnotherapy in a group setting.

Ethics approval process

An application for ethical approval was submitted to the North East Wales Local NHS Research Ethics Committee for permission to proceed with research using the equipment with outpatients from the renal unit at Wrexham Maelor Hospital. The ethics committee convened on 28 June 2000 at the Wrexham Medical Institute to consider the research proposal and subsequently granted permission to proceed with the research on 3 July 2000 (see appendix 6.5). The application is listed in the annual report on the activities of the North Wales Health Authority Research Ethics Committee (East) for the period 1 April 2000 – 31 March 2001.

Empirical work stage 1

Stage 1 of the empirical process was concerned with commissioning the equipment and with formulating operating procedures to incorporate it into hypnotherapy toward the ultimate aim of providing one-to-one treatment in a group setting. Each aspect of the stage 1 empirical work was carried out in the Archimedes Centre of the University of Wales, Bangor.

Design

This aspect of the work focused on the development of a number of operational aspects arranged under the headings pre-clinical, clinical and post-clinical thus:

Pre-clinical

- Arranging group seating.
- Assembling equipment.
- Pre-setting of equipment.

Clinical

- Commissioning the equipment.
- Group management.
- IMR.
- Single and Dual binaural auditory modes.
- Conducting group hypnosis incorporating the equipment.
- Conducting one-to-one hypnosis in a group setting.
- Arousal from hypnosis and conclusion to the procedure.

Post-clinical

- System deactivation.
- Equipment disassembly.
- Equipment storage and transportation.

Participants

Fourteen student nurses from the School of Nursing at the University of Wales, Bangor volunteered to help with this aspect of the empirical work in response to posters placed around the School. The participants were not expected to meet any particular criteria apart from giving assurances of availability for the duration of the work.

Resources

The resources required to carry out the work included all the components making up the equipment described above plus a compact disc player and two music compact discs: 1) a musical arrangement by Dr Steven Halpern (see section 6.3) entitled 'Higher Ground' and distributed at www.stevenhalpern.com by Halpern Inner Peace Music, and 2) a musical arrangement by Medwyn Goodall entitled 'Medicine Woman' and produced by New World Music.

Procedure

Rooms to accommodate the work and furniture were organized in the School of Nursing at the University of Wales, Bangor. Unfortunately it was not possible to find high backed chairs which would provide adequate head support during hypnosis and hypnotherapy and low backed arm chairs, which offered no support for shoulders, head or neck, had to be used. This continued to be the case throughout the entire period of empirical work described in this chapter. Before commencing work on the clinical aspects pre- and post-clinical procedures were developed, as these did not require the help of volunteers, to set up rooms ready to conduct work and for assembling and disassembling the equipment before and after each session of work. This involved: a) the most efficient way of setting out the group seating formation and central hypnotherapist's operating position in each of the individual locations which had been assigned for the work, b) assembling and disassembling the equipment, c) making preparations for being able to preset volume controls according to individuals' settings

from their previous session, and d) transporting and storing the equipment. After several trial and error episodes with volunteers this resulted in the production of the procedures set out below:

Pre-clinical procedure

1. Place pre-prepared notices on the doors to the work area and around the immediate corridors asking for quiet whilst the work session is in progress.

2. Set out the 8 chairs according to the sociofugal plan (see figure 6.3) with a table and chair in the centre to be used as an operator station. Then place pre-prepared numbers on the backs of each chair to indicate each one's numerical position in the group according to the sequence shown in figure 6.3. Attention should be paid to ensuring there is enough leg room for people to stretch out and that window blinds are closed against bright daylight and to ensure their privacy from people outside. There is a definitive geometrical characteristic to the seating formation so it is important when setting the chairs out to check each one individually to ensure the most sociofugal environment possible for each participant under the circumstances.

3. Assemble the equipment thus:

    - Position the main control panel on the table in the centre of the group.
    - Connect the control panel to the mains power supply via a 240 volt extension lead.
    - Position a compact disc player or equivalent next to the control panel and connect it to the 240 volt power supply and to the control panel.
    - Connect the hypnotherapist's microphone and earphone headset to the control panel.
    - Install the IMR wands for each seating position in the group by plugging each set of IMR leads into their appropriate numbered outlets on the

rear of the control panel and arrange the IMR wands on each seat so that the trailing leads do not constitute a tripping hazard. Each pair of IMR wands is also numbered to correspond with a specific seating position so as to ensure continuity of function during the work.

- Install the headphones to each seating position by plugging the headphone jacks into their appropriate numbered outlets at the rear of the control panel. The sets of headphones which are also numbered to help functional continuity should then be placed on corresponding seats and trailing leads made safe.
- Check the equipment by activating the compact disc player or equivalent and systematically listening in through each set of headphones to make sure they are working. Each set of IMR wands should be worked to check they are activating the appropriate indicator lights on the control panel. In order to check the operator's microphone is transmitting correctly to each group position a check should be made by tuning in to each set of patient headphones via the master multi-channel selector switch on the control panel. This will enable the operator to listen into whatever sounds are coming through individual sets of headphones. The signal-tone facility should be checked to verify it is functional as both an individual, part group and whole group facility. Finally it should be ensured once more that none of the trailing leads form a tripping hazard.
- At this stage of the pre-clinical proceedings each set of volume controls could be pre-set for patients or research participants about to retake their position in the group according to their previous requirements.

Post-clinical procedure

1. Confirm that any volume settings or other relevant information has been recorded.
2. Close down the equipment by setting all controls to a neutral, zero or off setting.
3. Disassemble the equipment by reversing the pre-clinical assembly process.
4. Check all aspects of the equipment for damage and return it to its storage area.

The overall aim of the work conducted with the volunteers was to develop the 7 clinical aspects listed in the design section. The work was organised into 7 sessions with one aspect forming the focus of each session thus:

Session

1. Commissioning the equipment.
2. Group management.
3. IMR.
4. Single and Dual binaural modes.
5. Conducting group hypnosis with the equipment.
6. Conducting one-to-one hypnosis in a group setting.
7. Arousal from hypnosis and conclusion to the procedure.

The 7 sessions of work were spread over a period of 3 weeks and held on Mondays and Fridays for the first 2 weeks covering sessions 1 to 4 and Monday, Thursday and Friday for the third week covering sessions 5 to 7. During an initial meeting with the volunteers the nature and aims of the work were outlined and they were given a short talk on hypnosis and hypnotherapy and introduced to the equipment. They were then formed into 2 groups, identified as TG1 and TG2 with 7 participants in each group. Each participant was assigned to a numbered position in their group between 1 and 8 which they were to maintain for the entire programme. Participants were then referred to by this identification reference, for example TG1-1 would indicate a participant

occupied position 1 in group 1 whilst TG2-4 would mean a participant had position 4 in group 2.

Session No.1- procedure

Each of the 14 participants attended and took their designated places in their group after which the aims for the session were outlined which were to:

1. Evaluate the calibration of the 8 pairs of left and right volume controls for the operator's microphone output.
2. Evaluate the calibration of the 8 pairs of left and right volume controls for the external sound output.
3. Evaluate the calibration of the treble and bass controls.
4. Check the integrity of the multi-channel master selector switch.
5. Check the integrity of the left and right earphone isolation switches for each group position.
6. Check the efficacy of the signal tone facility.
7. Check the integrity of the IMR LEDs and reset buttons.

After providing the participants with an opportunity to ask questions the commissioning process for item number 1 commenced. Participant number 1 donned their headphones then listened as the sound volume in their left earphone was incrementally raised by adjusting the appropriate 10 position volume control switch on the operator panel one position at a time until they indicated their satisfaction. After this the process was repeated for the right earphone. This procedure was carried out for all the participants in turn then their volume requirements for 'hypnotherapist's voice' were recorded on an equipment settings form (see appendix 6.3). Once this aspect was complete the participants all donned their headphones to listen as a group as a short poem was read out to them. The participants were then consulted for their opinion regarding the clarity and general quality of the voice being transmitted binaurally

through their headphones which, it must be remembered, is an important factor in hypnotherapy. It was then necessary to commission the second binaural channel through which an external sound media can be transmitted. To this end the Medwyn Goodall music was played on a compact disc player connected to the equipment and the same procedure used to set the volume of the hypnotherapist's voice was repeated for the music volume. Next the treble and bass controls were tested whilst the whole group were listening firstly to the researcher's voice then to the music and thirdly to the music combined with the researcher's voice. The multi-channel selector switch, which provides access to whatever each group member is hearing from the system, was then checked by switching to each group position in turn as the participants listened to the music to see if what they could hear was also available to the hypnotherapist's headphones. Next as the participants listened to the researcher's voice each of their left and right headphones were turned off via the headphone isolation switches. The participants indicated whether or not isolation was achieved by raising their hand; left for left and right for right. After this the procedure was repeated for the left and right headphones of the second binaural channel whist participants were listening to the music. The signal tone facility was also evaluated whilst the participants were listening to the music. First a cumulative tone was sent out which was a melodic sound intended to overplay and stand out from any other sounds being listened to. Participants were again asked to raise their hands when they detected the signal. The signal tone facility was then tested in the individual mode by signalling each participant in turn who again raised their hands if they heard the tone. Finally a token test of the signal tone facility was conducted in a part group format by signalling participants 1 to 4 then 5 to 7. A token test was felt to be adequate as it would have been impractical to try to test all the possible part group permutations. The final test in this session was of the IMR wands and their corresponding LEDs and reset buttons on the control panel. Each participant was asked in turn to depress first the button on the red IMR wand followed by the button on the green IMR wand to verify that they caused their corresponding LEDs to

light up on the operator control panel. As each participant activated their corresponding LED on the control panel the reset button for that group position IMR was used to cancel it. After each participant's left and right IMR had been checked the participants were asked to indicate a cumulative group red IMR followed by group green IMR which served to test the master reset button on the control panel. Once the various procedures were completed the participants were left to listen to the music for five minutes. At the end of this period a cumulative signal tone was sent out and the participants were informed the session was coming to an end. They were thanked for attending then asked to remove their headphones when the music stopped and to place their IMR wands on their chair prior to leaving the room. Once all the participants had left the post-clinical procedure was carried out.

Session No.1 - outcomes

It was apparent that 45 minutes to 1 hour should be allowed for the pre-clinical phase whilst 30 minutes should be required for the post-clinical phase. There were no anomalies with regard to the volume controls for either of the dual binaural channels. But it became apparent that the sound of the researcher's breathing and swallowing etc. could interfere with the quality of reception to the participants' headphones and may pose a distraction for patients trying to relax. It was decided that this could best be avoided by a) not wearing the microphone too close to the mouth and b) switching off the hypnotherapist's microphone whenever it is not in immediate use. During the session it was noted that participants required different volume settings for their left and right ears, particularly when listening to music, which demanded that the volume for each ear must be set separately for both binaural channels. Adjusting the bass and treble controls seemed to have little impact on the quality of sound being delivered in terms of voice or music which suggested further investigation by the electronics technicians was required. There were no problems with the multi-channel selector switch or the earphone isolation switches. The melodic signal tone had to be

transmitted at full volume when participants were listening to music to guarantee a response. Whilst this did not constitute an anomaly it was felt a more effective tone should be sought. Finally the entire IMR system functioned as planned and without problems. During the trial it was noted that the participants had a tendency to walk between the seats forming the group which created problems because a) they were in danger of tripping over the various trailing leads and b) because they were liable to damage the cables particularly when wearing high healed shoes.

Session No.2 – procedure

After observing the problem of participants walking over trailing leads during the first sessions a notice was placed by the door to the work room asking participants to remain outside the seating formation at all times and to avoid damaging trailing leads by standing on them. Further notices were placed around the workroom warning of the potential tripping hazard presented by the trailing leads. In order to support the sociofugal integrity of the group strategy patients were asked as they entered the room to don their headphones immediately and to sit quietly whilst listening to the Medwyn Goodall music. All the volume controls had been pre-set for each participant according to the volume control data recorded during the first sessions. The music was played for approximately 5 minutes in order to promote relaxation throughout the group. The music was then turned off and the aim of the session was explained, through their headphones, which was to determine an efficient method for organizing future patients or research participants undergoing hypnotherapy incorporating the equipment. The participants were informed that the music would soon start again and that they were required to sit and listen for about 15 minutes. The music was reinstated and the group were then left for 15 minutes without any further contact to simulate the time spent in trance during a typical session of hypnotherapy. At the end of this period a cumulative signal tone was sent out and the participants were informed the session was coming to an end. They were thanked for attending and asked to remove their headphones when

the music stopped and to place them with their IMR wands on their chair prior to leaving the room. Once all the participants had left the post-clinical procedure was carried out.

Session No.2 – outcomes

An array of unsuitable behaviours had been observed amongst the participants by the end of the second sessions which had the potential to disrupt and hinder the efficacy of hypnotherapy. By the end of the second sessions it was apparent that in any ecologically valid setting a clinical assistant would be essential to supervise and monitor patients during treatment sessions. On the basis of observations it is clear that hypnotherapy incorporating the equipment must also incorporate a code of conduct to manage patients' behaviour during future treatments. In this regard the following principles would form the basis for a behavioural code:

- In order to protect the sociofugal environment patients should be discouraged from interacting with each other in the vicinity of the treatment room or within it.
- Patients must maintain a quiet disposition at all times in the vicinity of and within the treatment room.
- Mobile telephones must be switched off before entering the treatment room.
- Having entered the treatment room patients should not leave until the treatment is concluded therefore visits to the lavatory, for example, should be made before entering.
- Patients wanting to communicate with the clinician should raise their hand to attract the attention of the clinical assistant who would either deal with the problem or liaise with the clinician.
- Patients must not attempt to reposition their chairs.
- Patients must not bring any food or drink into the treatment room.
- Patients must not smoke in the vicinity of or within the treatment room.

- Patients must not eat sweets or chew gum in the treatment room.

For the remainder of the empirical work, as a clinical assistant was not a feasible option, notices were placed outside and inside the work room informing patients how to behave with regard to the points listed above.

Session No.3 – procedure

The volume controls on the equipment had been pre-set for each participant according to their records and as each one entered the room they were asked to don their headphones immediately and to listen to the Medwyn Goodall music whilst sitting quietly. Once all the participants were settled the music was switched off after about five minutes and the aim of the session was explained to them, via their headphones, which was to determine the best way to conduct IMR interactions using the IMR wands. Participants were informed that they would be required to continue listening to the same music and that when they heard the signal tone the music would stop and they would be asked a series of questions. Their task was to answer the questions using their IMR wands by pressing the red button for *no*, the green for *yes* and both buttons together if they wanted to answer *I don't know*. The auditory input mode was set to binaural music only for participants 2 to 7 whilst a binaural voice only setting was made for participant 1 who was then asked the following questions:

1. Are you a human being?
2. Do you live on the moon?
3. Who will win the next National Lottery draw?

A positive response was expected to light up their corresponding green LED on the control panel for question No.1. Similarly a negative response was expected to light up their red LED for question No.2 and an 'I don't know' response should light up their red and green LED's together for question No.3. The process was repeated for each participant in TG1 and TG2 and their responses recorded. After the process was completed for each participant they were asked to continue sitting quietly whilst

listening to the music. The groups continued listening to the music for 5 minutes after completion of the last participant in each group. At the end of this period a cumulative signal tone was sent out and the participants were informed the session was coming to an end. They were thanked for attending and asked to remove their headphones when the music stopped and to place their IMR wands on their chair prior to leaving the room. Once all the participants had left the post-clinical procedure was carried out.

Session No.3 – outcomes

These sessions indicated the potential for confusion during IMR interactions. In order for a hypnotherapist using the equipment to be confident about the integrity of patients' IMRs it will be crucial to ascertain that:

- Patients are universally holding the green IMR wand in their right hand and the red wand in their left hand or vice versa if applicable.
- When asking a question patients are reminded which hand corresponds to which response.
- Ascertain patients have made their intended response by checking with them after they have answered a question.

In practical terms none of the participants experienced any problems in physically operating the IMR wands. However during the sessions participants were not hypnotised and whilst in theory there were no psychophysiological reasons why they should perform this type of IMRs less well during hypnosis (see section 5.2 of this thesis under ideomotor responding and patient signalling) it was felt that the procedure should be repeated under conditions of hypnosis to determine primarily if the potential for confusion seemed different during hypnosis. To this end further IMR work was incorporated into the fifth and sixth sessions of the stage 1 work. Each participant eventually responded as expected to the three questions by indicating 'yes', 'no' and 'I don't know'.

Session No.4 – procedure

Participants were asked as they entered the room to don their headphones immediately after taking their place in the group and to listen to the Medwyn Goodall music whilst sitting quietly. The volume settings for both binaural channels had been pre-set for each participant according to their records. Once all the participants were settled the music was switched off after about five minutes and the aim of the trial was explained to them, via their headphones, which was to gain experience in achieving the range of auditory output modes outlined in figure 6.4. The objective during the session was that for dual binaural transmissions the researcher's voice should be perceived by each participant to be slightly to the fore of the music and experience would be gained in establishing left and right ear volume settings for each medium for each participant to create the desired effect. Whilst the rest of the group remained in a single binaural music only setting one participant at a time was switched to a dual binaural music and voice setting and asked to listen to the music as a poem was also read to them so that they were receiving a dual binaural transmission. The participant was asked to indicate with upward or downward left and right hand movements (remember the hypnotherapist had a back view of each participant in the group) how they wanted the music volume for each ear re-adjusted to achieve the desired effect. Once the process was complete and volume settings had been recorded on a clinical settings form (see appendix 6.3) the participant was switched back to the single binaural music only setting (holding mode) and told to continue listening to the music whilst the same procedure was undertaken with the next participant. Once this process was completed the group was presented commonly with the full range of auditory modes and after hearing each one they were asked to indicate if they received the expected transmission by indicating simultaneously 'yes' or 'no' using their IMR wands. A few further adjustments had to be made but after this the participants were informed, via their headphones, that the session was at an end and where thanked for their attendance. They were asked to place their headphones and IMR wands on their

chairs prior to leaving the room. Once all the participants had left the post-clinical procedure was carried out.

Session No.4 – outcomes

During these sessions a basic working knowledge was gained about operating the equipment using monaural, single binaural, dual binaural and dichotic applications to create 15 different auditory modes for a group of up to 8 people at a time. At a practical level operating the controls on the equipment to switch between auditory modes was not difficult but the session did raise a potential issue about the quality of some auditory modes where sound and voice are heard together. It had been noted previously that the required comfort level of sound volume differed for individuals between their left and right ears. In the present sessions the situation became more complex when the requirement was for two media, i.e. voice and music, to be synthesised so that one would be perceived as being to the forefront of the other. On this occasion the researcher's voice was to be the principal medium over music. Whilst this was achieved for each participant in general terms the equipment volume controls could not facilitate the degree of sensitivity necessary to blend the two media to the total subjective satisfaction of participants. This problem will have to be referred back to the electronics technicians for investigation but for the present circumstances where the aim was simply to gain experience of using the equipment it was sufficient. The session suggests that when using dual binaural applications of the equipment volume settings may need re-establishing each time secondary sound media are changed.

Session No.5 – procedure

Participants were asked as they entered the room to don their headphones after taking their place in the group and to listen to the Medwyn Goodall music being played whilst sitting quietly. Once all the participants were settled the music was switched off after about five minutes. The aim of the trial was explained to the participants, via their

headphones, which was a) to gain experience of conducting one-to-one hypnosis in a group by incorporating the equipment, b) to extend the outcomes of the third sessions by evaluating the functionality of the IMR wands under hypnotic conditions and c) to assess if changing the external sound medium during a clinical session would cause any problems. The participants were asked to indicate their willingness to undergo hypnosis by sending a 'yes' or 'no' response via their IMR wands all of whom indicated positively. The Medwyn Goodall music was changed for Steven Halpern's 'Higher Ground' composition the details of which were provided earlier. Each participant's dual binaural volume controls were set according to the information gained in the fourth sessions i.e. so that they would perceive the music to be behind the researcher's voice. In view of the previous realization that volume adjustments might be required each time the dual binaural mode was used participants' were asked if they were satisfied with their volume settings and adjustments were made wherever necessary. A standard form of group hypnotic induction was carried out with each participant listening to the researcher through their headphones (see appendix 6.8 for the complete hypnotic procedure). After the induction process was complete a visual check was made, by walking around the outside of the group, to ascertain that each participant was displaying outward signs of being hypnotised. During the hypnosis the participants underwent the same IMR exercise as in session 3 except that this time it was conducted as a group format rather than individually. Once the IMR exercise was concluded a re-energizing technique was applied to the group (see the script in appendix 6.8) and they were aroused from hypnosis and asked to indicate if they felt free of hypnotic effects by showing a green or red IMR. As there seemed to be no residual hypnotic effects amongst the participants they were thanked for their attendance and told to contact the researcher if they experienced any negative post-hypnotic effects after leaving. Everyone was asked to place their headphones and IMR wands on their chairs prior to leaving the room after which the post clinical procedure was carried out.

Session No. 5 – outcomes

An important observation made during this aspect of the trial was that participants appeared to keep hold of their IMR wands even when seemingly in a hypnotic condition. There were no practical difficulties in swapping the Medwyn Goodall music for the Steven Halpern composition and only part of each group required the volume to be altered from their previous settings. The lack of adequate head support due to the low backed chairs was a problem for some participants who complained of having a stiff neck after being roused from hypnosis. After a visual inspection by the researcher observations of participants' breathing, degree and type of facial relaxation, eye and swallowing behaviour and general physical posture and demeanour suggested that they all responded as they would be expected to for a normal hypnotic induction. There were no problems with the arousal process and on the contrary it actually seemed more fluid and efficient than usual. It felt as if the participants began to wake the moment the Steven Halpern music was stopped and indeed a number of them confirmed afterward that they felt they would have emerged from their hypnosis unaided at that point. Whilst fluid arousal from hypnosis should be taken as a positive attribute it would be a problem if patients were to emerge from hypnosis before they were required to, so this should be considered further. There seemed to be no major differences in the way IMR functioned during hypnosis compared to the non-hypnotic IMR exercise in the third trial sessions. This session did however indicate that a reminder to reset IMR push buttons after responses have been made should be written into any future treatment scripts. If the hypnotherapist forgot to perform this task at the appropriate time subsequent IMRs could be disrupted with significant negative consequences for that particular clinical session.

Session No.6 – procedure

Participants were asked as they entered the room to don their headphones as soon as possible and to listen to the Medwyn Goodall music whilst sitting quietly. After about

five minutes the music was switched off and the aim of the trial was explained to the group via their headphones which was to gain experience of conducting one-to-one hypnotherapy in a group setting. Prior to entering the work room each participant had been asked to briefly describe an imaginary holiday scenario that would be particularly desirable to them the details of which were recorded against their research number. It was explained to the group that they would undergo a similar hypnotic procedure as in the previous session after which they would experience individual hypnotic guided imagery based upon their chosen scenario. The equipment was preset to the participants' recorded dual binaural settings and after installing the Steven Halpern composition their satisfaction with the sound levels was rechecked. After carrying out a few adjustments the group underwent a repeat of the hypnotic induction experienced during session five (see this aspect of the script in appendix 6.8). On completion of the hypnotic induction the group were asked to concentrate solely on the music being played until they heard the signal tone they were now familiar with. The equipment was reset to a single 'binaural music only' setting for participants 2 to 7 which isolated them from what the researcher was saying and effectively placed them into a 'holding mode'. The signal tone was given to participant No.1 to let them know they were about to be addressed then they were asked to indicate using their IMR wands if they were ready to undergo guided imagery. In every case participants answered 'yes' after which hypnotic guided imagery incorporating their preferred scenario was applied using a dual binaural (voice and music) setting. On completion of their guided imagery participants were told that they should continue to relax whilst listening to the music until they were addressed once more. At this point their audiological input was reset to the single binaural (music only) setting thereby placing them back in the holding mode after which the process was repeated for the rest of the group in turn. The series of hypnotic guided imagery sessions referred to were conducted to aid the practical aspects of conducting one-to-one hypnotherapy in a group setting rather than for any semantic enlightenment about scripting; as such the scripts used during this aspect of

the work have not been included in this report. After the final application of hypnotic guided imagery the auditory setting for the whole group was switched to dual binaural output and they underwent a similar arousal process to sessions No.5 after which they were asked to indicate with their IMR wands if they felt free of hypnotic effects. As there were none they were thanked for their attendance and asked to place their headphones and IMR wands on their chair when leaving. The participants were also reminded to contact the researcher if they experienced any negative post-hypnotic effects after leaving. Once all the participants had left the post-clinical procedure was carried out.

Session No.6 – outcomes

This aspect of the empirical work substantiated the concept of one-to-one hypnotherapy in a group setting. Fourteen participants were judged to have been successfully induced as a group into hypnosis before being placed and maintained in a holding mode from which each one was brought out and given individualized hypnotherapy and then returned without apparently compromising their hypnotized condition. Making transitions between dual and single binaural settings and *vice versa* presented no practical difficulties nor did the management aspects of manipulating participants in and out of the holding mode. It became clear during the session that the success of one-to-one hypnotherapy in a group setting will depend largely on thorough preparation and planning by the hypnotherapist. It will be essential to remember that unlike normal group hypnotherapy which incorporates a 'one size fits all' approach this type of hypnotherapy requires that each individual patient in a group be thoroughly yet succinctly prepared for. It is envisaged that the order of treatment would proceed according to a pre-conceived clinical plan and that patients' positions in the group i.e. from one to eight would be determined by the order in which the hypnotherapist decided to conduct treatments. It was apparent from this session that it will also be important to limit each individual treatment to a maximum time. Individual treatment

scripts need to be succinct and specific to patients' individual circumstances all of which should form part of the planning process.

Session No.7 – procedure

Participants were asked as they entered the workroom to don their headphones as soon as possible and to listen to the music being played whilst sitting quietly. The music was switched off after about 5 minutes and the aim of the session was explained to them, via their headphones, which was to determine a suitable procedure for ending hypnotherapy which incorporated the equipment. It is sometimes the case that patients undergoing the usual form of hypnotherapy seem reluctant to give up their hypnotised condition. In a normal one-to-one situation this is not too much of a problem, but if it occurs for more than one person during group hypnosis it can be troublesome, especially for less experienced hypnotherapists. In order to address the possibility of this type of behaviour four of the seven participants in each group were selected by an assistant, prior to entering the workroom, to act in a recalcitrant manner by either responding negatively or by not responding at all during the arousal procedure. The intention was that the researcher would not be aware of their identity until the recalcitrance emerged. The music was changed from Medwyn Goodall to the Steven Halpern composition and hypnosis was induced for the group using the same script as in sessions 5 (see this aspect of the script in appendix 6.8). After this a standard form of ego enhancement therapy was used to add an element of clinical authenticity to the session. The same arousal procedure as session 5 (see appendix 6.8) was used to end the pseudo-hypnotherapy after which the participants were asked to indicate by using their IMR if they felt free of hypnotic effects. During this procedure three participants from TG1 indicated negatively whilst one failed to give a response and in TG2 there were two negative responses and two non-responses. The participants were informed that if they felt they were still under the influence of hypnosis or if they felt they could not come out of their hypnosis they should not be alarmed but should

remain seated whilst the other members of the group left the room. The auditory settings for the recalcitrant and non-responsive participants were switched from a single binaural voice only setting to a single binaural music only setting. The single binaural voice only setting was retained for the participants who had responded positively all of whom were reminded to contact the researcher if they were affected by post-hypnotic negative effects after leaving. They were then were asked to place their IMR wands and headphones on their chairs and to leave the room quietly whilst taking extra care not to disturb the participants who remained seated. The dual binaural music and voice setting was reinstated for the remaining participants who were informed that the music would soon stop and that when this happened they should remove their headphones and place them with their IMR wands on the floor beside them. They were asked to remain sitting quietly whilst and that each of them would be approached and spoken to individually. After closing down the remaining audio channels standard one-to-one procedures designed to remove lingering hypnotic effects from patients and to rouse hypno-recalcitrant patients from their hypnotic condition were applied. Once this was achieved these participants were also reminded to contact the researcher if they felt any negative post-hypnotic affects. They were then asked to place their IMR wands and headphones on their chairs before leaving. Once all the participants had left the room the post-clinical procedure was carried out.

Session No.7 – outcomes

This and previous sessions have indicated that the usual procedures for rousing patients from hypnotherapy whether or not recalcitrant are likely to be sufficient. Although there were considerably more changes to make between single and dual binaural output settings in the seventh sessions than in previous sessions they were all able to be made precisely and fluidly without any hindrance to the overall procedure. After listening to the participants' commentaries on their experiences during the sessions making up this stage of the empirical work it would seem that in most cases

they felt as if they were coming out of hypnosis automatically once the music was switched off. It does also seem that arousal tended to occur more quickly for participants than has been witnessed in past clinical practice. The strategy of placing hypnotised patients in a holding mode was useful in dealing with hypno-recalcitrance during the arousal procedure. However in a real clinical setting the recalcitrant patients would have been on view to their group peers as they left the treatment room which raises ethical concerns about their confidentiality and privacy which will need to be considered further.

Stage 1 conclusions

During this work it has been possible to develop a methodology for using the equipment which resulted from the conceptualization process described in Chapter 5 and to gain experience in operating its various aspects. This has led to the conclusion that the equipment is capable of facilitating confidential individualized hypnotherapy including IMR for a number of patients in a group during the same treatment session. In addition to the positive support which has come from this work there are also some issues which will require further attention. One of these is that some participants felt as if they would come out of hypnosis automatically when the Steven Halpern music they were listening to during hypnosis was turned off. Further investigation will be needed to find out if this would in fact be likely to happen and if so to determine the best way to control it. It should be borne in mind at this early stage that the Halpern music is an alpha rhythmic sound medium and, as such, on the basis of previous discussions in the thesis, it could be speculated that participants may simply be experiencing a shift in their EEG to a higher frequency when the music stops whilst still remaining in hypnotised condition. This problem and others related to the effects of EEG sonic entrainment on hypnosis and hypnotherapy should form the basis of future research and will be outlined in Chapter 7. A further issue which came to light during session No.7 concerned the loss of privacy by recalcitrant participants who were observed still

in hypnosis by other group members as they left. This type of situation can best be resolved in the future if the non-recalcitrant participants/patients were to be asked to remain quietly seated until the recalcitrant patients had been dealt with so everyone could leave the treatment room together.

Empirical work stage 2

This aspect of the empirical work was conducted to verify that incorporating the equipment and associated methods into group hypnosis would not diminish participant responsiveness. The Creative Imagination Scale (CIS) (Wilson and Barber, 1978) is an instrument designed to measure responsiveness to suggestions given under both hypnotic and non-hypnotic conditions. It was developed with the intention of providing a passive alternative to existing scales which tended to be highly authoritarian and directive in their approach. The CIS (see appendix 6.6) is based on ten items, or test suggestions, designed to stimulate participants into experiencing ten different imaginary situations. Participants are required to self-rate their experiences which, in the case of hypnosis, they do after arousal from their hypnotic condition. For example in the second of the ten test items participants are engaged in a hand levitation scenario. They are told:

In the second test you were asked to think of a strong stream of water from a garden hose pushing up against the palm of your hand. Compared to what you would have experienced if a strong stream of water were actually pushing up against your palm, what you experienced was:

0	1	2	3	4
0% Not at all the same	25% A little the same	50% Between a little and much the same	75% much the same	90+% Almost the same

Reproduced from Wilson and Barber (1978).

The CIS was selected for the second study over other hypnosis scales a) because it was developed for use with groups, b) because it can be used with or without hypnosis and c) because it acknowledges more than any other scales the autonomic contribution

of individuals during the hypno-imaginative process. This places it in alignment with the solicitation model of mental imagery proposed earlier (see section 5.1 of this thesis).

The CIS has been shown to have satisfactory test-retest reliability ($r = .82$, $p < .01$) (Wilson, 1976) and highly satisfactory split-half reliability ($r = .89$, $p < .001$) (Kiddoo 1977). Three separate factor analyses carried out in three investigations (Kiddoo, 1977; McConkey, *et al.* 1977; Wilson, 1976) cited in Barber and Wilson (1979 p.92) have shown that the CIS possesses factorial validity in a dimension labelled 'hypnotic-like suggestibility'.

Aim

To test if incorporating the equipment and associated methods into group hypnosis reduced participant responsiveness the following one-tailed research hypothesis was tested:

The CIS data will show that the revised form of group hypnosis proposed here is no less effective than ordinary group hypnosis.

Design

A randomised independent groups design was used to compare CIS data by ANOVA using SPSS from two groups undergoing two different forms of group hypnosis.

Participants

Forty-nine students were recruited from the University of Wales, Bangor (Wrexham campus) to act as participants in the experiment. Volunteers were of mixed gender, although mostly women, and ranged in age from 18 to 30 years. Apart from the requirement not to have any previous experience of undergoing hypnosis there were no special recruitment criteria.

Resources

Minimal resources were required for the experiment with the main aspects being the equipment as itemised in section 6.1 of this thesis and copies of the Creative Imagination Scale questionnaire (see appendix 6.6) and pens for the participants to write with.

Procedures

The volunteers were randomly assigned to either group (A) or group (B) by simply selecting their names from a bag and assigning them alternately to group (A) and group (B). The first name pulled from the bag was assigned to group (A) so that volunteer No 49 would also go to group (A). This procedure was adopted so that group (A) would have the odd number. Unknown to the participants, group (A) was to receive normal group hypnosis whilst group (B) would receive group hypnosis incorporating the equipment. With 25 participants in group (A) and 24 in group (B) it was planned to evaluate group (A) as one whole group whilst group (B) would be divided into the sociofugal arrangement of 3 sets of 8 (see fig 6.3). Rooms were booked for the experiment in the Archimedes Centre of the university over a 2 day period and the volunteers were sent information regarding the date and time of their attendance. The volunteers assigned to group (B) were also told which set they were to join i.e. 1, 2 or 3 and what position they would have in each i.e. 1 to 8. On the first day the 24 participants making up group (B) attended a preliminary session in their 3 separate sets so that a similar initial process as that described in stage 1 could be undertaken to record each individual's volume requirements for single binaural and dual binaural output modes. During these preliminary sessions participants were familiarized with the equipment including the IMR wands and were provided the code of behaviour (see appendix 6.7) which was produced on the basis of observations made during stage 1. The participants making up group (A) attended a pre-experiment introductory session during which they were given an outline of the study as being to evaluate hypnotic

guided imagery prior to being given a talk about hypnosis and relaxation after which they underwent a simple progressive muscle relaxation exercise. At the end of this session each group (A) participant was provided with a printed copy of how they would be required to behave during the experiment (see appendix 6.7). These procedures were included for group (A) in order to cancel out attention factors (Hawthorne effects) which may have been generated for group (B) when they were familiarized with the equipment and their preferred volume settings were recorded. The actual evaluation sessions were held for all the participants on the same day with group (A) attending first at 10 am and group (B sets 1, 2 and 3) at 11am, 12.30 pm and 2pm. The Creative Imagination Scale is purported to take 18 minutes to administer which meant that the planned time frames allowed plenty of spare time in case of problems – particularly in the case of group (B) where there was the potential to have to adjust equipment settings. The scripts used to induce hypnosis in each group were broadly similar but differed in some essential aspects. For instance the group (A) script (see appendix 6.8) utilized traditional vertical analogies of sleep and waking – of depth (*deeper and deeper*) and of sinking down and rising-up, generally delivered in a directive manner. Also IMR did not figure in the group (A) script as it would be an impractical technique for normal group hypnotherapy for reasons previously discussed (see sections 4.3 and 5.2 of this thesis). The group (B) script in contrast had IMR as an integral facility and was written in a passive neutral style that depicts hypnosis as a lateral shift in cognitive awareness similar to daydreaming in recognition of the contemporary view of the laterality of hypnosis (see section 5.2 of this thesis).

Group (A)

The participants were seated in 2 semicircular rows of 12 participants with approximately 1.5 metres between rows and 0.5 metres between chairs which would not be an unusual seating arrangement for a session of normal group hypnosis. The

purpose of the session was again explained to the group as an exercise in the evaluation of hypnotic guided imagery. The participants were told they would be hypnotised prior to being asked to imagine a number of different situations after which they would be woken from their hypnotic trance and asked to complete a questionnaire about their experiences. The participants were given the opportunity to ask questions prior to being induced into hypnosis using the script shown in appendix 6.8. Once the hypnotic induction was complete and a visual check had been carried out to ascertain each participant was displaying outward signs of being hypnotised the group was tested on the 10 imaginary items of the CIS. After completing the tests the group underwent a traditional waking script (see appendix 6.8) and a check was made to ensure none of the participants were displaying residual hypnotic effects. Two of the participants were displaying recalcitrant symptoms and were helped to emerge fully from their hypnosis by applying standard hypnotherapeutic techniques. Once the entire group had come out of hypnosis they were asked to rate each of the 10 imaginary events they had experienced by completing the CIS questionnaire. After completing the questionnaire the participants were thanked for their cooperation and reminded to contact the researcher if they experienced any negative post-hypnotic effects and then were allowed to leave the room.

Group (B)

The participants in group (B) attended their allotted session and as they entered the room they were asked to don their headphones as soon as possible after taking their place in the group and to listen to the Medwyn Goodall music whilst sitting quietly. The music was switched off after about 5 minutes and the aim of the trial was explained to the group via their headphones, which, like group (A), was to evaluate hypnotic guided imagery. The participants were reminded to activate their red IMR wands if they wished to stop the process at any time and to answer 'yes' or 'no' to any questions they might be asked by pressing the green or red buttons with their right and left hands

respectively and to answer 'I don't know' by pressing both buttons together. The participants were asked to indicate their willingness to undergo hypnosis by sending a 'yes' or 'no' response via their IMR wands – all of whom indicated positively. The Medwyn Goodall music was replaced with the Steven Halpern composition and a check was made to ensure the equipment was set for dual binaural operation for all eight positions. A further check was made to ensure the volume controls were pre-set to each participant's requirements after which the hypnotic induction (see appendix 6.8) was carried out with the group in a dual binaural mode. In stage 1 of the empirical work it was not primarily important whether participants actually became hypnotised or not as the aim was to develop a methodology. In contrast the apparent induction of hypnosis was an essential requirement of this aspect of the work. Subsequently all 24 participants were observed for physical signs of being hypnotised. After a visual check All twenty four participants demonstrated sufficient hypnotic symptoms to indicate successful inductions and subsequently they were presented with the 10 items of the CIS. After the final item of the CIS the participants underwent a similar arousal process to sessions 5, 6 and 7 of stage 1. The participants were asked to indicate with their IMR wands, as they had been taught, whether they felt free of hypnotic effects. As all their responses were positive they were asked to complete the CIS questionnaire. They were then thanked for their assistance and asked to place their IMR wands and headphones along with the questionnaires on their chairs before leaving the room. The participants were also reminded to contact the researcher if they experienced any negative post-hypnotic effects after leaving. Once all the participants had left the post-clinical procedure was carried out.

Outcomes

Group overall CIS score means and standard deviations were: Groups (A) and (B) respectively were 2.14 (SD = .81) and 2.40 (SD = .80). An independent samples *t*-test (see appendix 6.13 for full SPSS output) showed no significant difference between

groups (t = 1.02: df = 47; $p > .05$). A post hoc power calculation based on the observed means and standard deviations revealed that with a power of .8 and alpha = .05, a sample size of 20.6 in each group would have been necessary to reject the null hypothesis of no difference between groups. Participants who underwent the revised form of hypnosis rated just 1 of the 10 CIS items lower than participants who underwent ordinary group hypnosis, see figure 6.5. Table 6.1 shows the mean score for each group on each of the 10 CIS items.

CIS item	Group (A)	SD	Group (B)	SD
1. Arm heaviness	2.5	1.0	2.6	0.9
2. Hand levitation	2.4	1.1	2.6	1.1
3. Finger anaesthesia	2.2	1.2	2.1	1.1
4. Water hallucination	2.0	1.0	2.3	1.1
5. Olfactory / gustatory	1.9	1.0	2.4	1.3
6. Music hallucination	2.2	0.9	2.4	1.1
7. Temperature	2.2	1.1	2.4	1.2
8. Time distortion	2.0	0.9	2.2	0.9
9. Age regression	2.2	1.2	2.0	1.0
10. Mind/body relaxation	2.4	1.1	2.6	1.2

Table 6.1 Group mean item scores for the ten items of the CIS.

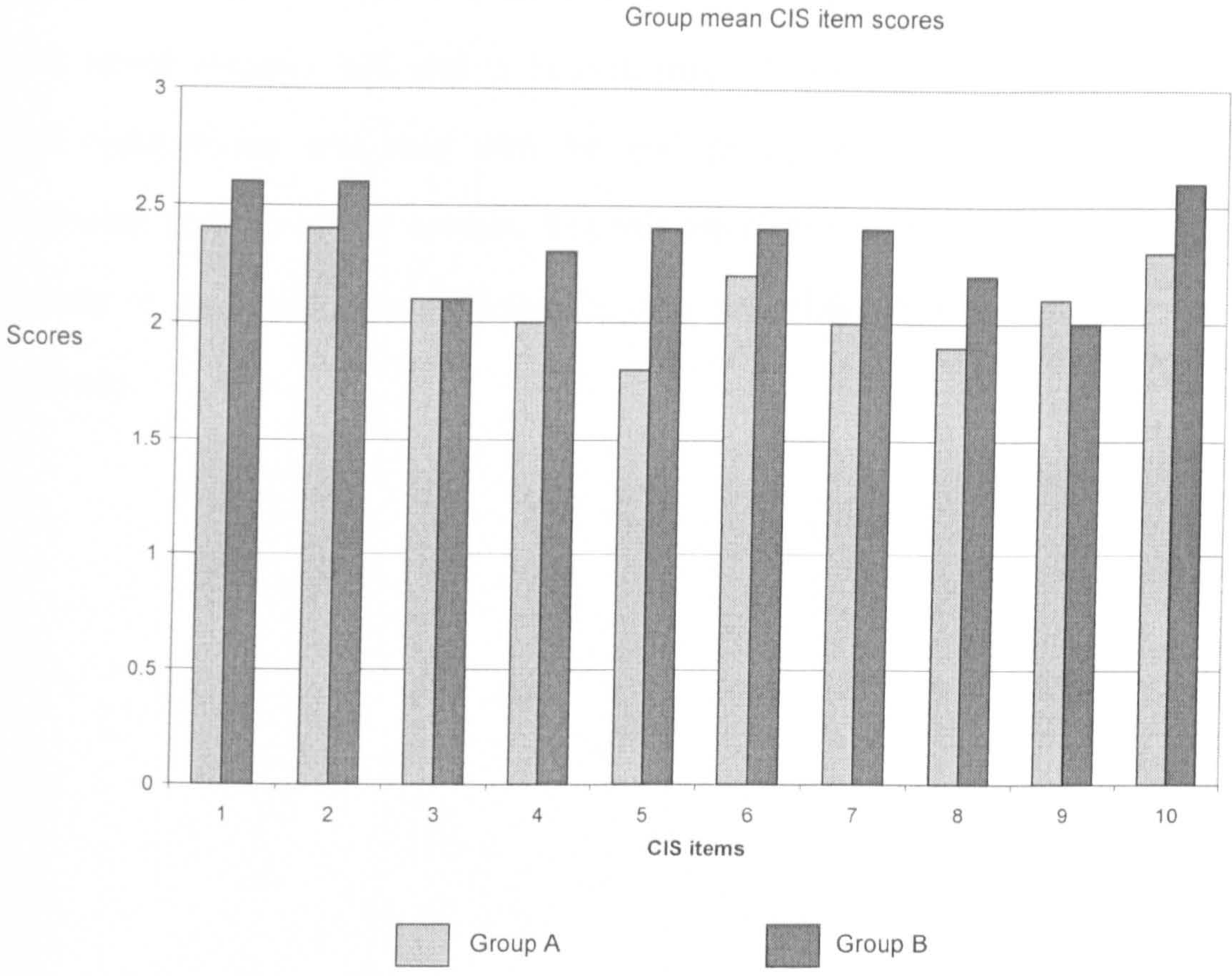


Fig 6.5 CIS group mean item scores.

Stage 2 conclusions

Whilst of course it is not possible to prove the null hypothesis, the lack of a significant difference between the two groups in overall CIS scores can be taken as evidence that hypnosis which incorporates the equipment generates a hypnotic response no less effective than normal group hypnosis. The power calculation indicated that the sample size was sufficient to detect a significant difference based on the observed group means. Whilst the aim of this aspect of the empirical work has been met it is worth mentioning also that the participants who underwent the revised form of group hypnosis (group B) scored more highly on 80% of the CIS items (see figure 6.5) than those who underwent normal group hypnosis (group A). Although this difference was not sought pragmatically it does lend further support and encouragement to the

feasibility of one-to-one hypnotherapy in a group setting. The worry has been that patients would respond less well to hypnotherapy if they were asked to listen to it through headphones and may also be put off by the general methodological requirements of the revised system. But this worry has now been largely allayed particularly if the outcomes achieved in the empirical work so far are taken cumulatively.

Empirical work stage 3

Aim

This study was carried out to extend the developmental outcomes of stages 1 and 2 by performing group hypnotherapy with the equipment in an ecologically valid setting to control hyperphagia for hospital outpatients with type-2 diabetes and obesity. Although the primary motive for conducting the study continued to be developmental and experiential it was also viewed as an opportunity to gather pilot data to help guide experimental work planned for the future which is outlined at the end of the thesis. A genuine clinical group was required for the study in the expectation that they would exert authentic demands and pressures on the new system of hypnotherapy which in turn would help prepare it for future use in the real world. Type 2 diabetics were selected as participants because of the implications of obesity on their disease and because it was believed that motivation to take part and do well in research to alleviate obesity would be particularly high in this population. Although the treatment provided during the study was a genuine attempt to ameliorate obesity it was done on the basis of taking the new system of hypnotherapy to its next stage of development.

Design

A scheme was designed in which the clinical aim was to use group hypnotherapy incorporating the equipment to generate positive changes in the eating and exercise related attitudes and behaviour of overweight and obese adults. The overarching objective of the hypnotherapy was to bring patients' usually unconscious obesogenic attitudes and behaviours into their conscious awareness thereby allowing them to engage in self-appraisal and introspection. Fundamentally the treatment strategy was designed around six further objectives:

1. De-construct patients' misleading belief in the 'diet = weight loss' paradigm.
2. Re-organize daily food intake into a regular eating pattern.
3. Control between-meals snacking.
4. Generate a critical attitude to the weight gain potential of foods.
5. Formulate a food repertoire in terms of positive and negative foods.
6. Increase participants' activity levels.

The treatment was administered in 12 sessions at the rate of 2 per week for 6 weeks. It is not unusual in hypnotherapy to plan treatments in 6 weekly cycles, particularly for chronic conditions such as adult obesity but usually patients would attend one treatment per week to limit the expense. However in the present design sessions were doubled up each week to provide enough practice time as well as ample opportunities to overcome problems which may have arisen. The decision to set the number of groups at 3 was influenced by the availability of accommodation and by the amount of time required which would be 18 hours per week. The study was partitioned into pre-treatment, treatment and follow-up periods (see figure 6.6). Figure 6.6 shows the temporal characteristics of the study ranging across a total time scale of 132 days. The treatment period extends for 40 days with the first treatment session marking the first day of the study. The design incorporates a programme of assessments to provide pilot data and to allow an impression to be gained of probable future efficacy. Assessments are indicated as pre-treatment at start day minus 3, post-treatment at day 43 and follow-up at day 129. In addition blood sugar assessments using the HbA1c test (see resources below) are indicated at days 1, 40, 60 and 120. The preliminary sessions indicated at day -3 refer to an introductory session during which participants are familiarized with the equipment and their preferential volume settings are recorded. The temporal parameters of the study were dictated mostly by 3 considerations; the first and second being the overall treatment time which would be required culminating in a suitable follow-up period whilst the third was the more fixed time scale of the HbA1c test.

Anthropometry in the form of weight, waist, hips, BMI, WHR and percentage of body fat were assessed at the pre-treatment, post-treatment and follow-up periods. Participants' between meals eating behaviour was monitored for the 6 weeks treatment period using self-report diaries designed on the basis of the Red Path Eating Plan idea (see section 6.1 of this thesis) which had clearly defined spaces in which to record between meals food intake (see appendix 6.4). Participants' between meals eating behaviour was assessed by calculating the number of food-free between meals spaces in their diaries.

Similarly participants' showed their levels of 'focused activity' by completing a weekly activity log (see appendix 6.4) for the treatment period. The term 'focused activity' was used to describe activity which participants' felt motivated to engage in specifically to help them become more active as an aid to weight control. This need not involve working out in a gym, which many obese people are reluctant to do, but could be an extension of their everyday activities such as housework, gardening, walking the dog, cleaning the car, DIY, going to the shops or doing the school run. Participants were asked at the follow-up assessment to give an account of how they were affected by their involvement in the study, transcriptions of which are in appendix 6.14. The study design provided for a psychometric assessment of eating behaviour by use of the Dutch Eating Behavior Questionnaire (DEBQ) (see resources below) which was administered at the pre-treatment, post-treatment and follow-up assessments.

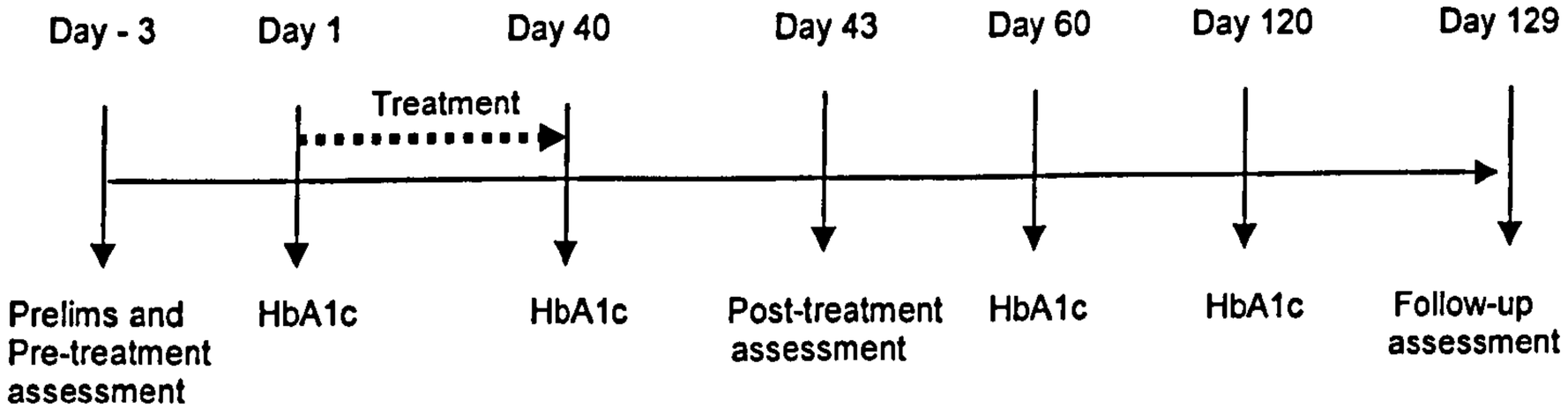


Figure 6.6 Temporal structure of study No3.

Participants

There were no special inclusion criteria governing recruitment apart from the minimum age being 18 years, alleviating the need for parental consent, and there being no prior experience of hypnosis. Also volunteers had to be above BMI 25 and state themselves to be keen to gain control of their eating behaviour. People appeared to be reluctant to volunteer for the study when they knew it would require them to undergo hypnosis. Initially 127 out-patients from the diabetic clinic at the Wrexham Maelor Hospital were sent letters inviting them to apply to take part in the study. Sixty-seven patients responded and were invited to attend an interview wherein the details of the study would be explained. Forty-six patients agreed to attend the interview but only 41 actually attended. Eventually just 22 patients or approximately 17% of those initially invited by letter to volunteer agreed to take part in the study. After a token telephone survey of non responders attrition seemed to be due to a number of issues: a) reluctance to undergo hypnosis b) the duration of the study c) the costs to the patients of attending on twelve occasions as no funding was available to reimburse travel or other costs d) planned holidays e) child care problems f) illness and g) motivational issues. The participants who eventually took part in the study were 22 females aged between 30 yrs and 61 yrs (mean age 52 yrs; SD 7.9 yrs) who were all type 2 diabetic and were under the care of a NHS consultant endocrinologist. 18 of the final volunteers were clinically obese (BMI > 30) and three were clinically overweight (BMI > 25 <30).

Resources

The resources for the study were organised into three categories:

1. Documentation.
2. Assessments.
3. Treatment.

Documentation

- A patient information sheet (see appendix 6.4) providing patients with information about the research and their rights to decline or drop out.
- Patient consent form (see appendix 6.4) to gain written authority from the participants to subject them to the procedures of the study.
- Participant attendance register (see appendix 6.4) to record participants' attendances at each of the twelve treatment sessions.
- Group positions record sheet (see appendix 6.4) to ensure participants have the same seating position at each of the twelve treatment sessions.
- Equipment settings form (see appendix 6.3) to record participants' preferred volume settings.
- Participant code of behaviour (see appendix 6.7) which is a list of do's and don'ts during treatments.

Assessment

- BIO-RAD HbA1c capillary collection system and a person to carry out and process the tests.
- Two metre staff vertically wall mounted and marked off in mm and cm.
- Tape measure.
- Weighing scales.
- Tanita TBF-521 Body Fat Analyser (see appendix 6.10)
- Self-report food diary (see appendix 6.4) for participants to record their daily food intake.
- Self-report activity diary (see appendix 6.4) for participants to record their daily (focused) physical activity
- Anthropometrical record cards (see appendix 6.4) to record participants' various bodily measurements.

- Personal observations form (see appendix 6.14) used by the participants to recount their personal view of their experiences and progress during and after the study.
- Dutch Eating Behaviour Questionnaire (DEBQ) (see appendix 6.9)

Treatment

- Chairs etc.
- Notices.
- Equipment as listed in section 6.1 of this thesis.
- Treatment scripts.
- Music resources.

The HbA1c or glycosylated haemoglobin test allows diabetic control to be viewed overall irrespective of short term changes in blood sugar levels. Sugar that is not utilized for energy remains in the blood where it attaches itself to the haemoglobin, which is the part of a red blood cell that carries oxygen, in a process called glycosylation. The degree of glycosylation is proportional to the amount of sugar in the blood at any time. Because red blood cells live in the blood stream for about four months the HbA1c test shows the average percentage of blood sugar for the past several months. The percentage that occurs in people without diabetes is usually about six percent. In diabetics eight percent might be considered *not too bad*, ten percent *not good* and thirteen percent *dangerous.* The tests were carried out using the BIO-RAD HbA1c capillary collection system (see appendix 6.11) which obviates the need for venipuncture by facilitating the capillary collection of 5µL of blood from a finger or ear lobe after piercing with a sterile lancet. It was decided to monitor the participants' blood sugar closely because it is such an important factor in the course of their diabetes and is directly implicated with their eating behaviour.

Self-report food diaries have frequently been used by cognitive behavioural therapists when treating adult obesity and studies have shown them to be effective in limiting food intake by raising patients' immediate awareness of their eating behaviour. In contrast however a tendency to underreport food intake and over report physical activity has also been noted (Mulheim *et al.,* 1998; Mulheim, 1996; Klesges *et al.*, 1995; Fricker *et al.,* 1992).

The DEBQ (Van Strien, Frijters, Bergers and Defares, 1986) is a psychometric instrument for assessing eating behaviour in three dimensions: restrained eating, emotional eating and external eating (see section 3.2 of this thesis for an explanation of these concepts). Van Strien *et al.* have reported that the scales of the DEBQ have high internal consistency and external validity which has been confirmed by others e.g. Halvarsson and Sjödén (1997) who reported an internal consistency of alpha coefficient 0.83 for the DEBQ total and subscale alpha values ranging from 0.77 to 0.86.

Procedures

Prelims

The 22 participants were formed into two full groups of 8 and one part group of 6 participants. The groups were identified as TG3-01, TG3-02 and TG3-03 and each participant was assigned to a numbered place in their group between 1 and 8. Individual participants could be identified by their complete number e.g. TG3-01-7 would indicate that a person was part of the third cohort recruited for the empirical work and that they had position No7 in group No1. Three days before the first treatment session all the participants attended a pre-treatment session in their individual groups where they were introduced to the equipment. During these sessions the participants took part in exercises similar to those described in the previous studies to pre-set their required volume levels in dual and single binaural input modes. They were also

familiarized with the IMR procedures, including using the red IMR wand as an alarm, and the signal tone process.

Assessments

After the familiarization process the participants underwent the pre-treatment assessment by a qualified female assistant. Firstly waists, hips and heights were measured then percentage of body fat was assessed with the Tanita TBF-521 Body Fat Analyser. Finally BMI and WHR calculations were performed before the Dutch Eating Behavior Questionnaire (DEBQ) was administered. This array of assessment procedures was repeated two more times at post-treatment and follow-up by the same assistant. On day one of the trial just prior to the first treatment session a member of the Maelor Hospital biochemistry team took blood from each participant for HbA1c testing which was repeated three more times during the trial on days 40, 60 and 120. Prior to leaving the treatment room each participant was given a copy of the patients' code of behaviour plus six food diaries and one focussed activity record book. The participants were asked to record all the food and drink they consumed from day one of the trial using the relevant sections of one diary each week and to return each as it was completed. Similarly they were asked to keep a record of what they considered to be increases in their levels of daily physical activity, specifically to help weight loss, (referred to in this thesis as focused activity), during the 6 weeks treatment period and to hand it in at the post-treatment assessment.

Treatment

Twelve sessions of group hypnotherapy were delivered over a period of six weeks at the rate of two treatments each week. The same induction and arousal scripts were used in all twelve treatment sessions whilst the specific treatment scripts outlined briefly below were produced for each session. All the scripts are presented in full in appendix 6.8 and each is clearly identified according to the session in which it was

used. The overall procedure remained similar for each of the twelve sessions and followed practices developed during stage 1 of the empirical work.

Treatment week 1

Script 1

This treatment aimed to stimulate participants' cognitive self-appraisal of how their obesity acts as a negative influence in their lives and about their feelings towards their physical and mental selves in view of their obesity.

Script 2

This treatment aimed to a) stimulate participants' cognitive retrospective self-appraisal about the development of their obesity and about their particular reasons for eating fattening foods and b) address participants' potential hyperphagic ambivalent attitude.

Treatment week 2

Script 1

This treatment aimed to a) focus participants' minds on the ineffectiveness of dieting and on the counterproductive effects which they have experienced in the past and b) to stimulate participants to critically appraise their personal history of dieting, lapsing and relapsing behaviour.

Script 2

This treatment aimed to a) promote the idea of hyperphagic ambivalence as participants' having two personalities one motivated by slimness and the other by food, b) how the ambivalent conflict functions in reality for them and c) how they might act to control it.

Treatment week 3

Script 1

This treatment aimed to a) stimulate participants to review their current and historical eating behaviour to identify their usual pattern of daily food intake, b) review the level of 'food grazing' and eating between meals they usually engage in, c) describe the pattern of eating behaviour a slim person might engage in, and d) get participants to acknowledge that they need a completely new approach based on gaining slimness rather than losing weight.

Script 2

This treatment aimed to redefine participants' cognitive orientation with regard to weight management by a) replacing the idea of *losing* weight with one of *gaining* slimness and b) introducing the notion of their emancipation through metamorphosis.

Treatment week 4

Script 1

This treatment aimed to build on participants' commitment to change by setting a plan for a daily eating pattern which would protect against between-meals snacking and the counter regulatory effects of restraining food intake (see section 3.2 of this thesis). Participants were encouraged to perceive their days in terms of the Red Path eating Plan (see section 6.1 of this thesis).

Script 2

This treatment aimed to a) stimulate participants to think of what they ate each day in terms of their food repertoire, b) to appraise their food repertoire and to identify the contents as providing either positive or negative support for their commitment to metamorphose mentally as well as physically into a slim person.

Treatment week 5

Script 1

This treatment aimed to continue the metamorphosis analogy by a) reinforcing the idea that before participants can become slim people they must first learn to think like slim people, and b) stimulating the participants to conduct a mental audit of their lives to identify the main areas where changes in mentality where needed.

Script 2

This treatment aimed to stimulate participants to apply their new slim mentality to become more active on a daily basis by engaging in 'focused physical activity' as opposed to structured physical exercise. Examples of focused activity might be whilst out walking the dog to add on an extra half a mile or so at a faster pace, to include a range of body movements into daily housework routines, to walk to the shops instead of using the car or to do the school runs on foot instead of using the car.

Treatment week 6

Script 1

This treatment aimed to a) consolidate and reinforce the idea of mental metamorphosis into a slim person as a prerequisite for physical metamorphosis, b) determine if there are any areas where mental metamorphosis is still required and c) strengthen participants' commitment to change in all the necessary areas they have identified.

Script 2

This treatment aimed to review all the main aspects of the treatments and to stimulate participants to a) be aware of the things that trigger lapses and relapses for them personally, b) understand the need to re-commit to their metamorphosis at the start of each day until they know they are thinking like a slim person and c) to assess their progress not in terms of weight reduction but by the control they exert over their food intake and pattern of eating each day.

The general treatment procedure

The treatment room was set out in the sociofugal seating formation with the hypnotherapist's equipment in the centre. Notices asking for quiet were located in the corridors around the treatment room and window blinds were closed to ensure privacy. The equipment was assembled and pre-set for each participant according to their recorded requirements. After entering the treatment room participants took their designated positions in the group and sat quietly listening to the Medwyn Goodall music through their headphones. This music was continued for approximately five minutes after the last participant was seated to ensure everyone in the group was settled. After forewarning the participants the equipment was reset for single binaural voice only operation which meant that they could no longer hear the music but could hear the hypnotherapist's voice. The participants were welcomed and thanked for attending the session after which they were asked to show if they would allow themselves to become hypnotised by sending out a green IMR response for yes or a red for no after which their panel LEDs were neutralised ready for re-activation. In the event that a participant would indicate they were not ready to be hypnotized they would be spoken to in person and if necessary asked to leave the treatment room and to attend a meeting at a future time. The participants were reminded that they should activate the red IMR wand and wait quietly to be spoken to if they wished the proceedings to stop for them. They were also reminded that should they hear the signal tone it would indicate they were about to be spoken to. The Medwyn Goodall music was changed for Steven Halpern's Higher Ground composition and the equipment was reset for dual binaural operation. The participants were left listening to the music for five minutes after which the same hypnotic induction was administered as in sessions 5 of stage 1 (see appendix 6.8) whilst they continued to hear the music. At this point the specific treatment script for the particular session was applied (see appendix 6.8). After completing the script the participants were left listening to the music for a further five minutes. They were then sent a signal tone and the arousal script was administered

(see appendix 6.8). The participants were asked to indicate if they felt free of hypnotic effects by indicating green for yes or red for no with their IMR wands. Recalcitrant participants responding with a red IMR underwent individual arousal procedures similar to those described in session 7 of stage 1. Participants were thanked for their attendance and asked to contact the researcher if they experienced any negative post-hypnotic effects after leaving. They were asked to place their IMR wands and headphones on their chairs and to leave the treatment room after which the post-clinical procedure was carried out.

Outcomes

SPSS ANOVA

The data from the 5 areas of assessment i.e. anthropometry, blood sugar, self-report diaries, focused activity diaries and DEBQ, were subjected to one way within subjects repeated measures ANOVA using SPSS. Significant omnibus tests were followed up with pairwise comparisons with Bonferroni adjustments. Of the anthropometrical variables reductions in weight, waist and hip measurements were statistically significant whilst reductions in BMI, WHR and body fat were not. Other statistically significant reductions occurred for HbA1c, between meals eating and the 3 scales of the DEBQ whilst the overall level of focused activity increased but was not significant. The ANOVA results are presented in table 6.8 (for SPSS outputs and raw data see appendices 6.13 and 6.12 respectively). Tables 6.2, 6.3, 6.4, 6.5 and 6.6 show the group means and standard deviations for blood sugar, episodes of between meals eating, episodes of focused activity, anthropometry and DEBQ respectively.

	Day 1	Day 40	Day 60	Day 120
Mean HbA1c	9.26	9.12	8.68	8.46
Standard deviation	1.54	1.49	1.52	1.47

Table 6.2 HbA1c group means and standard deviations.

	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6
Mean episodes of between meals Eating behaviour.	4.1	3.7	3.0	2.8	2.1	2.0
Standard deviations.	3.5	3.5	3.1	2.7	2.1	2.8

Table 6.3 Episodes of between meals eating behaviour group means standard deviations.

	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6
Mean number of times focused activity occurred.	3.8	3.9	3.6	4.1	4.0	4.2
Standard deviations.	2.1	2.1	2.1	2.0	2.3	2.5

Table 6.4 Episodes of focused activity group means and standard deviations.

Assess Item	Pre treat	SD	Post treat	SD	Follow-up	SD
Weight	201.5	38.2	196.7	36.6	195.1	35.7
Body fat %	45.7	4.9	44.9	4.4	44.3	4.5
Waist	43.7	5.1	42.4	5.1	41.4	5.1
Hip	44.4	4.8	43.3	4.0	42.2	3.8
BMI	36.2	6.1	35.3	5.8	33.8	9.0
WHR	0.9868	.07	0.9855	.08	0.9814	.08

Table 6.5 Anthropometrical group means and standard deviations.

DEBQ item	Pre treat	SD	Post treat	SD	Follow-up	SD
DEBQ - R	3.1	0.7	3.6	0.9	3.4	0.8
DEBQ - E	3.1	0.9	2.0	0.8	2.0	0.8
DEBQ - Ext	3.0	0.7	2.1	0.8	2.1	0.7

Table 6.6 DEBQ group means and standard deviations.

Anthropometry

Weight

Whilst weight reduction was statistically significant across the study (see table 6.8) examination of the SPSS pairwise comparisons tables (see appendix 6.13) suggests that the amount of active weight reduction was significant during the treatment period but not during the follow-up period although significant weight reduction was maintained to the end of the study (see table 6.5). The percentage mean weight reduction during the treatment period was approximately 2.4% which increased to approximately 3.2% during the follow-up period with weight reductions being achieved by 95% and 82% of the participants respectively during these periods (see table 6.9). Examination of the raw data (see appendix 6.12) reveals that of the 19 participants who lost weight during the study eleven or 58% achieved reductions of between 5lbs and 13lbs during the six week treatment period which almost matches or exceeds the recommended requirement of 1lb per week (see section 4.2 of this thesis). In addition three participants, or almost 16%, had reduced their weight by between 17lbs and 21lbs at the seventeen week follow-up assessment; each of whom exceeded the recommended minimum requirement. Weight reduction did not occur for three participants during the study one of whom gained 2lbs. The number of participants who reduced their weight by less than the recommended minimum requirement was 8 at the post-treatment assessment and 16 at the follow-up assessment. However 14

participants, or almost 74% who reduced their weight, had managed to maintain or increase their weight reduction at the follow-up assessment.

Waist and hips

At the post-treatment and follow-up assessments waist and hip reduction was statistically significant (see table 6.8) and was achieved by approximately 91% of the participants in both cases during both periods (see table 6.9). The mean percentage waist reduction at the post-treatment assessment was approximately 3% which had increased to approximately 5% at the follow-up assessment. Similarly the mean percentage hip reduction was approximately 2.5% at the post-treatment assessment and approximately 5% at the follow-up assessment. During the study reductions in waist and hip measurements of up to 6.5 inches and 7 inches respectively were recorded.

BMI

BMI reduced significantly across the treatment period, ($F [1, 21] = 37.164$, $p < 0.01$) but examination of the relevant SPSS pairwise comparison table (see appendix 6.13) shows this was not sufficiently maintained during the follow-up period (see table 6.8). At the post-treatment assessment approximately 95% of the participants had reduced their BMI and at the follow-up assessment this proportion had reduced to 86% (see table 6.9). There was a percentage mean reduction in BMI of approximately 2.5% at the post-treatment assessment and 6.7% at the follow-up assessment.

WHR

Reductions in WHR were not statistically significant (see table 6.8). The percentage mean reduction in WHR was approximately 0.1% at the post-treatment assessment and 0.5% at the follow-up assessment. At the post-treatment assessment 64% of the

participants had reduced their WHR whilst at the follow-up assessment this proportion had reduced to 45% (see table 6.9).

Percentage of body fat

The reduction in percentage of body fat during the study was not statistically significant (see table 6.8). At the post-treatment assessment the mean percentage reduction in percentage of body fat was approximately 1.8% which increased to approximately 3.1% at the follow-up assessment. At the post-treatment assessment approximately 82% of the participants reduced their percentage of body fat whilst this proportion increased to 86% at the follow-up assessment (see table 6.9).

Blood sugar

There was a significant reduction in blood sugar across the study (see tables 6.8 and 6.2) with approximately 86% of the participants experiencing a reduction at the end of the HbA1c test cycle. Mean percentage reductions in HbA1c of approximately 3.2%, 7.5% and 9.7% were recorded at the assessments on days 40, 60 and 120 respectively.

Between meals eating

There was a significant reduction in the amount of between meals eating behaviour during the treatment period (see tables 6.8 and 6.3) and examination of the SPSS pairwise comparison tables (see appendix 6.13) indicates this resulted predominantly from the difference between weeks 1 and 5. The overall mean percentage reduction in episodes or between meals eating behaviour was approximately 51 % (see table 6.9). Twenty of the twenty-two participants completed the full range of food diaries with 14 participants or 70% achieving reductions in their between meals eating behaviour. Of the 6 remaining participants who completed food diaries satisfactorily 3 managed not to eat between meals whilst 3 experienced an increase.

Week 2	Week 3	Week 4	Week 5	Week 6
10%	27%	32%	49%	51%

Table 6.7 Percentage rates of reduction in episodes of between meals eating behaviour.

Focused activity

Whilst there was an overall increase of approximately 10% in the level of participants' focused activity during the treatment period (see table 6.4) changes were not consistent week on week and were not statistically significant (see table 6.8). Examination of the raw data (see appendix 6.12) indicates that 47% of the participants increased their level of focused activity, 35% maintained the same active level of focused activity whilst 18% of participants reduced their level of focussed activity during the treatment period.

DEBQ - Restrained eating scale

Scores on the restraint scale increased significantly across the study, (see table 6.8), with approximately 14% and 9% increases over the pre-treatment score being recorded at the post-treatment and follow-up assessments respectively (see table 6.6). Despite this approximately 27% of the participants had reduced their restrained eating score at the post-treatment assessment which had decreased to approximately 23% by the follow-up assessment. On balance however this meant that at the post-treatment and follow-up stages approximately 73% and 77% of participants respectively had increased restrained eating scores which represented a negative outcome as a reduction in feelings of restraint is sought.

DEBQ - Emotional eating scale

Scores on the emotional eating scale reduced significantly across the study, (see table 6.8), with a reduction in scores of approximately 36% at the post-treatment assessment

which was maintained at the follow-up assessment (see table 6.6). In total approximately 95% of the participants reduced their emotional eating score at the post-treatment assessment and 91% at the follow-up assessment (see table 6.9).

DEBQ - External eating scale

Scores on the external eating scale reduced significantly across the study, (see table 6.8), with a reduction in scores of approximately 30% at the post-treatment assessment which was maintained at the follow-up assessment (see table 6.6). In total approximately 95% of the participants reduced their external eating score at the post-treatment assessment and 91% at the follow-up assessment (see table 6.9).

Personal observations

During the post-treatment and follow-up assessments the participants were requested to provide their written personal observations about what effects the study had had on them. Twenty-one participants responded and a full verbatim transcript of their observations is provided in appendix 6.14. Close examination of the participants' testimonies suggest that the benefits they feel they received from the treatment can be categorised generally in 8 ways:

1. Improved eating pattern.
2. Feelings of greater food control.
3. Fewer food cravings.
4. Feeling more motivated.
5. Development of greater self efficacy.
6. Improvement in blood sugar count.
7. Feeling healthier.
8. Feeling more active.

None of the participants made any negative comments about the treatment or about their response to it but it was clear that a number were disappointed that their weight reduction had not been greater.

Assess Item	One-way within subjects ANOVA
Weight	F (2,42) = 20.429, p < 0.01
Waist	F (2,42) = 38.018, p < 0.01
Hip	F (2,42) = 18.311, p < 0.01
BMI	F (2,42) = 2.260, p > 0.05
WHR	F (2, 42) = 2.097, p > 0.05
Body fat %	F (2,42) = 0.989, p > 0.05
HbA1c	F (3,45) = 10.397, p < 0.01
Between meals eating (by food diary)	F (5, 95) = 3.687, p < 0.01
Focused activity (diary)	F (5, 80) = 0.753, p > 0.05
DEBQ restraint scale	F (2,42) = 4.793, p < 0.05
DEBQ emotional scale	F (2, 42) = 23.594, p < 0.01
DEBQ external scale	F (2,42) = 35.034, p < 0.01

Table 6.8 ANOVA results.

Assessment item	Post treatment	Follow-up
Weight	95%	82%
Waist	95%	91%
Hips	91%	91%
BMI	95%	86%
% of body fat	82%	86%
WHR	64%	45%
Restrained eating	27%	23%
Emotional eating	86%	95%
External eating	95%	91%

Table 6.9 Percentage of participants achieving post treatment and follow-up reductions.

In terms of the primary motive for the study i.e. increasing experience at incorporating the equipment into group hypnotherapy with real patients, the study provided some good opportunities to refine the operational methods developed in the 2 previous studies. All 3 groups challenged the sociofugal environment during the study but one group in particular cohered together around one individual. This participant seemed to have a dominant outgoing personality and natural leadership qualities. Her gregarious attitude seemed to stimulate the other group members to chat and joke with each other to the detriment of the intended sociofugal arrangement of the group. Whilst the participants observed the rules set out in the code of behaviour during the actual treatment part of the process they often compromised their own confidentiality by volunteering intimate details about their condition, about their lives and about their feelings and thoughts during hypnotherapy to one another before and after the treatments. It seemed on a number of occasions that whilst entering and leaving the treatment room the participants' behaved as if they were all members of a club. A further test of the management process and one which indicated a weakness in the system occurred because some participants had medical conditions, often related to their diabetes and obesity, which caused them pain, discomfort and restricted movement. This raised a comfort factor issue not previously considered and meant that some members of the groups required special attention before treatment sessions could begin. This issue raised awareness about the need to include provision for patients with special needs and to consider the potential effects pain and discomfort etc. might have on the efficacy of hypnotherapy for adult obesity. Another important factor which came to light through the ecological validity of the third study was the biopsychosocial implications of the participants' mixed socioeconomic backgrounds. Some of them, probably from the lower end of the social scale, seemed vulnerable to considerable financial and environmental stressors in their daily lives which would almost certainly be influential in their emotional hyperphagia and obesity; and of course in their diabetes. In contrast it was apparent that other participants felt equally stressed

but had concerns less related to their financial or environmental situation but to do with relationships, careers and so on, whilst others spoke of anxieties in all these areas. Becoming aware of the seemingly high level of negative affect in the lives of the participants during the study, particularly in relation to money, had a reinforcing effect on the motivation to develop one-to-one hypnotherapy in a group setting to make it more affordable.

During the study the time required to conduct the pre-clinical procedures was reduced from between 45 minutes and 1 hour reported during the stage 1 work to 30 minutes. Similarly the time to conduct the post-clinical phase procedure was reduced from 30 minutes to 20 minutes. Cumulatively these savings equate to about 30 minutes on each treatment session. During the clinical phase the control panel adjustment and group management protocols became much easier. In the latter case this was due mainly to the production and provision of the patients' code of behaviour (see appendix 6.7). Other aspects of the clinical phase that became noticeably easier were the IMR and alarm procedures and the process of dealing with recalcitrant participants. In contrast to stages 1 and 2 the participants taking part in stage 3 seemed to require a considerable degree of personal attention which was a further indication that a clinical assistant would be a useful inclusion. The participants all seemed to demonstrate a conscientious attitude to completing and handing in their food and focused activity diaries. In terms of doing hypnotherapy with the equipment - by treatment sessions 8 or 9 there seemed to be little noticeable difference to conducting normal group hypnotherapy. The main difference was felt when conducting IMR procedures which are not usually intrinsic to group hypnotherapy. The assumption ensued from the third study that a greater difference would be apparent when conducting one-to-one hypnotherapy in a group setting in study No 4 which would involve much more use of the control panel to create dual binaural inputs and greater use of the holding mode. Further to observations made during the stage 2 study the participants' outward

general demeanour during hypnosis was similar to that which would be expected during normal hypnosis as were their reactions to their experiences afterwards.

Stage 3 conclusions

Whilst the rules of inferential statistical analysis prevents any inferences of treatment effects from being made, the outcomes of study No 3 are thought to be a reliable indication, particularly when viewed in conjunction with the previous two studies, that hypnotherapy is not hindered in any way by the incorporation of the equipment or its associated methods. Despite its developmental orientation and the absence of a control group the study provided useful pilot data to help guide the direction of planned future experiments which are outlined in Chapter 7. In this context, and given the inferential caveat, a number of conclusions can be drawn from the results. The amelioration of between meals eating behaviour which occurred for 70% of the participants coupled with the increase in focused activity for 47% of them suggests that overall a shift did occur in eating and exercise related attitudes during the study which coincided with the aim. Whilst there will always be a degree of uncertainty about the validity of self-report based data this conclusion is supported by the improvements indicated by the scales for emotional eating and external eating of the DEBQ and by the transcripts of participants' personal observations. Furthermore it does not compromise the nature of inferential analysis to conclude that the improvements in anthropometry and blood sugar were probably associated with these attitudinal shifts especially in relation to eating behaviour. After organizing the participants' personal observations into 8 categories it would seem that the changes which occurred were behavioural, biological or psychological in nature with the greatest emphasis being on the latter. Alterations in eating patterns and blood sugar would be behavioural and biological respectively whilst psychological alterations would describe feelings of greater food control, motivation and self efficacy as well as having fewer food cravings and feeling healthier and more active. On numerous occasions enhanced self-efficacy

was evident amongst participants for, although their actual weight reduction was small, their observations suggested that they felt positive, upbeat and optimistic about their ability to control their eating behaviour and to ultimately reverse their obesity. The greater emphasis placed on psychological issues by the participants lends support to the view held by this thesis that adult obesity is essentially a psychologically based condition which requires a psychologically based treatment. The DEBQ was found to be an easy instrument to administer and to process although it was not used in its full capacity in this study. Customarily, when used in a clinical setting, patient's scores on the three DEBQ scales would be compared with standardised norms in order to guide the orientation of their treatment with regard to restrained eating, emotional eating or external eating. Using the DEBQ in this study has resulted in the view that it would be a useful tool for hypnotherapists attempting to tackle adult obesity by facilitating insight into the complex psychology of hyperphagia.

Although conducting group hypnotherapy using the equipment seemed no more difficult on this occasion than previously during stages 1 and 2 the ecological validity of this study presented greater challenges which highlighted the need for additional provision within the treatment protocol. It is apparent from this study that the logistical and methodological aspects of the developing treatment must make provision for obese patients who are in pain or discomfort firstly with regard to their physical accommodation and secondly by using hypnotherapy for pain relief and comfort prior to treating their obesity. It was also clear from the study that in addition to the physical and psychological problems caused by chronic pain and discomfort some participants will require treatment for a variety of socially based anxieties and worries. With normal group hypnotherapy it would be impractical to contemplate providing for individual special needs in this way however the opposite is true for one-to-one hypnotherapy in a group setting which is being developed in this thesis. Scripts could be modified so that the various special needs of patients in the group would be attended to in addition to

treating the circumstances underpinning each one's hyperphagia. This original concept which provides the primary motivation for this thesis is the focus of the fourth and final study in this programme of empirical work.

Empirical work stage 4

Aim

The aim of the fourth study was to utilize and extend the outcomes from the 3 previous studies, particularly those of session 6 in stage 1, to gain ecologically valid experience of performing one-to-one hypnotherapy in a group setting toward 3 clinical objectives: a) reduce between meals eating behaviour, b) improve eating patterns and c) generate weight reduction.

Design

The study was designed to provide a one month treatment period followed by a three month follow-up period with assessments at pre-treatment, post-treatment and follow-up (see figure 6.7). The number of treatments and length of follow-up period was governed by the available resources at the time although the follow-up period is slightly longer than in study No.3. Anthropometrical assessments gauged if changes occurred for participants with regard to: weight, waist, hips, BMI and WHR and, in addition, similarly to study No.3, between meals eating behaviour was monitored by self-report eating diaries each week during the treatment period. Blood sugar, DEBQ and focused activity assessments were not included on this occasion to limit the degree of intrusion for the participants. Logically one-to-one hypnotherapy in a group setting must consist of two domains a) the group or common domain and b) the one-to-one domain. The group domain requires: a) a hypnotic induction procedure, b) a hypnotic group management procedure, c) a retrieval procedure and d) a holding procedure (see sections 5.2 and 6.1 of this thesis). The one-to-one domain requires: a) a treatment procedure for each individual participant and b) a procedure for extracting hypnotised patients from and returning them to the holding mode. Treatment scripts necessarily need to be short because when one patient is being treated the other patients in the group are being kept on hold. Subsequently in view of their brevity and in order to be

effective, treatment scripts used in the context of this thesis would have to be highly focused on specific issues that are essential to patients' hyperphagia. Whilst most of these issues had been worked on previously, particularly during session 6 of stage 1, it remained necessary to gain genuine clinical experience of carrying out one-to-one hypnotherapy in a group setting in line with the fourth aim of the empirical work set out at the beginning of this section.

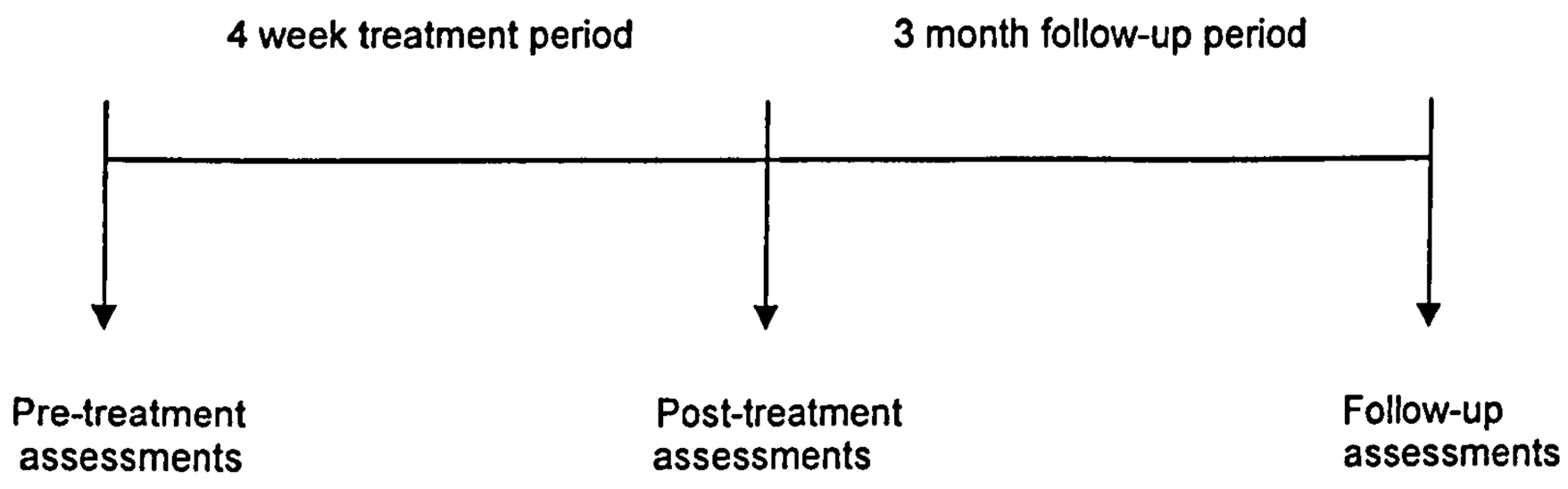


Figure 6.7 Temporal structure of study No4.

Participants

During the follow-up assessment meeting for stage 3 the participants were canvassed about their willingness to take part in stage 4 and all of them agreed to do so. However by the time stage 4 commenced 7 participants had changed their minds which meant that only 15 participants took part. This degree of attrition, at almost 32%, may not be so surprising for two reasons. Firstly it is probably the case that participants who felt disappointed at not achieving their personal slimming ambitions during stage 3 were reluctant to help out any further and secondly it was made clear to participants that, similarly to the third study, weight loss was not guaranteed which may also have put some of them off. The volunteers were all females aged between 41 years and 60 years (mean age 52.5, SD 6.5 yrs).

Resources

- Equipment as listed in section 6.1 of this thesis.
- Treatment scripts.
- Music resources.
- Weighing scales.
- Tanita TBF-521 Body Fat Analyser
- Two metre staff vertically wall mounted and marked off in mm and cm.
- Tape measure.
- Chairs etc.
- Notices and documentation similar to study No.3.

Procedure

The volunteers attended a meeting prior to the start of the study were they were formed into 2 treatment groups one of 8 participants and one of 7. Each participant was given an identification number e.g. TG4-1-4 which would indicate position 4 in group 1 of the fourth study. The study was explained to the participants and described as an extension of the work done during stage 3 which they had all been a part of. They were re-acquainted with the equipment and reminded about the various procedures of which they would again experience. Treatments were programmed for a Thursday each week for 4 weeks with group1 attending at 09.30 and group 2 at 11.30.

For group hypnotherapy the equipment was set for dual binaural operation whereby the whole group was able to hear both the music and the hypnotherapist's voice. For administering one-to-one hypnotherapy all except the participant who was to receive treatment were switched to a single binaural setting in which they would hear the music but not the hypnotherapist's voice. The participant to be treated remained on a dual binaural setting and was given confidential individualised treatment. After being treated

the patient was returned to the holding mode by switching them back to a single binaural setting in which only the music was audible to them. This procedure was repeated for each patient in the group after which the group was returned commonly to a dual binaural setting ready for further group work. The one-to-one scripts were limited to two minutes each to minimise the amount of time participants spent in the holding mode. Participants on hold were spoken to as a group between every other treatment, or approximately every 4 minutes, to reassure them that they should continue to relax whilst listening to the music. The one-to-one treatment scripts were written to reflect the participants' personal observations during study No.3 (see appendix 6.14) with the intention of rendering them as highly specific to each individual as possible.

The treatment room was set out and the equipment was assembled and set to the volume requirements previously recorded for each participant during stage 3. As they entered the treatment room participants were asked to sit quietly whilst listening to the Medwyn Goodall music through their head phones. Once all the participants had arrived and were seated the music was left playing for approximately 5 minutes to allow them all to settle. The Medwyn Goodall music was changed for Steven Halpern's Higher Ground composition and after confirming via their IMR wands they were happy to continue the group were induced into hypnosis using the same procedure described in sessions 5 of stage 3. Each participant then underwent one-to-one hypnotherapy in the way described above and an example of an individualized script is presented below. The participant's actual verbatim comments on which the one-to-one insertion is based is presented prior to the script and for the purposes of confidentiality the participant's real name has been omitted.

"Much easier to resist. Sugar levels down from 15-20 to 4-8. Being able to see myself as others see me."

"My diabetes levels are dramatic from Insulin of 30 units night and morning to 12 units night and morning – sugar levels 15-20 to 4-8. My 'trying' abilities are increased."

The personal observations of TG3-01-4 submitted during the stage 3 study.

<u>An example of the personalised one-to-one script in this case for participant TG3-01-4.</u>

"Name...you have noticed that you can now resist fattening foods much more easily than before...and you have reported your sugar levels are down from the usual of between 15-20 to being 4-6...you also reported needing less insulin and that instead of using 30 units at night and in the morning you now use 12 units each time...these changes have happened because you are making the change we called metamorphosis...you must be thinking like a slim person more and more now...you have mentioned also that your view of yourself has changed too...and that you now see yourself as others see you...it would seem also from what you have said that you feel a greater ability to try and succeed at things...you called it your trying ability...all these changes are occurring within you because you are changing who you are...well done Blodwyn...you really deserve to be successful in your wish to think like a slim person...which will allow you to become a slim person...I want you to relax even more now...sink even deeper into the music...allow the music to take over completely...as you imagine yourself completely in control of your eating behaviour...visualize what you will look like as a slim person...imagine what you will think like as a slim person...picture yourself thinking and behaving like the slim person...you are determined to become...imagine that as you become a slim person your diabetes becomes much less troublesome...imagine your doctor telling you how very much better you are as a slim person...see yourself as a slim person...completely in control of your eating behaviour...and much less dependent on medications...now I want you to remain quietly listening to the music as I talk to the next person in the group...allow yourself to drift off more and more as you continue listening to the music...and as you

do so you should maintain the image of yourself thinking and behaving like the slim person you are becoming...just rest now until you hear the signal tone when I will speak to you again..."

As each participant completed the one-to-one aspect of their treatment they were returned to the holding mode to be replaced by the next participant in the group. Once all the individual treatments were complete the group were led through the range of procedures applied and described in study No.3 to achieve psychological reinforcement, arousal from hypnosis and, where necessary, relief from hypno-recalcitrance. Finally participants were thanked for attending the session and reminded to contact the researcher if they experienced any negative post-hypnotic effects. After the participants had left the treatment room the equipment disassembly procedure was carried out. The remaining 3 treatment sessions of the trial were conducted similarly with the only difference being the variation in individuals' weekly one-to-one scripts which are available in appendix 6.8.

Outcomes

SPSS ANOVA

The data for weight, waist, hips, BMI and WHR and between meals eating behaviour was subjected to one way within subjects repeated measures ANOVA using SPSS. Significant omnibus tests were followed up with pairwise comparisons with Bonferroni adjustments. Of the anthropometrical variables all except hips reduced significantly with a significant reduction also occurring in episodes of between meals eating behaviour (see table 6.12 for ANOVA results and appendices 6.12 and 6.13 respectively for raw data and SPSS outputs). Means and standard deviations for anthropometry and between meals eating behaviour are presented in tables 6.10 and 6.11 respectively. Table 6.13 shows the percentage of participants who achieved reductions at the post treatment and follow-up assessments.

Assess item	Pre treat	SD	Post treat	SD	Follow-up	SD
Weight	187.8	27.2	184.4	27.6	189.1	27.4
Waist	41.7	4.0	40.5	4.3	41.1	4.3
Hips	42.3	3.1	42.3	3.1	42.5	3.1
BMI	33.4	4.6	33.0	4.6	33.9	4.6
WHR	0.98	8.5 E-02	0.96	8.8 E-02	0.96	8.6 E-02

Table 6.10 Anthropometrical group means and standard deviations.

	Wk 1	Wk 2	Wk 3	Wk 4
Mean episodes of between meals eating	4.2	2.2	2.2	2.1
Standard deviations	3.4	2.1	2.6	2.4

Table 6.11 Episodes of between meals eating behaviour group means and standard deviations.

Anthropometry

Weight

At the follow-up assessment of study No. 3 the mean weight of the 15 volunteers taking part in the present study was 186.4 lbs with a standard deviation of 26.7 lbs. At the pre-treatment assessment of the present study these figures had increased to 187.8 lbs and 27.2 lbs respectively indicating that in the 2 intervening months the participants' mean weight and standard deviation had increased by 1.4 lbs and 0.5 lbs respectively (see the relevant SPSS descriptive statistics table in appendix 6.13). In the present study significant weight reduction occurred during the treatment period but shifted in the opposite direction during the follow-up period (see tables 6.12 and 6.10 and the relevant SPSS pairwise comparison table in appendix 6.13). At the post-treatment

assessment a percentage mean weight reduction of 1.8% was recorded however at the post-treatment assessment this had reversed to become a gain on mean starting weight of 0.7%. At the post-treatment assessment 93% of the participants had achieved weight reduction but this proportion had reduced to 67% at the follow-up assessment (see table 6.13). Six participants or 40% achieved weight reductions equal to or in excess of the minimum requirement of 1 lb per week with reductions of between 4lbs and 8 lbs over the treatment period.

Waist

There was a statistically significant reduction in waist measurement at the post-treatment assessment (see table 6.12) but this was not maintained at the follow-up assessment (see table 6.10 and the relevant SPSS pairwise comparison table in appendix 6.13). The percentage mean reduction in waist measurement was approximately 2.9% at the post-treatment assessment and approximately 1.4% at the follow-up assessment with 93% and 53% of participants reducing their waist size at each assessment respectively (see table 6.13).

Hips

Hip reduction was not statistically significant during the study (see table 6.12); however 47% of the participants did achieve a reduction at the post-treatment assessment which reduced to 13% at the follow-up assessment (see table 6.13). The mean percentage reduction in hip measurement was 0.1% at the post treatment assessment which had reversed at the follow-up assessment to become an increase on the starting mean hip measurement of 0.3%.

BMI

BMI reduced significantly at the post-treatment assessment but this was not maintained at the follow-up assessment (see table 6.12 and the relevant SPSS pairwise

comparison table in appendix 6.13). The percentage mean reduction in BMI was 1.2% at the post-treatment assessment which had reversed at the follow-up assessment to become an increase on the starting BMI of approximately 1.4%. At the post-treatment assessment 87% of the participants had a reduced BMI but at the follow-up assessment this proportion had reduced to 20% (see table 6.13).

WHR

WHR reduced significantly at the post-treatment assessment (see table 6.12) which was maintained at the follow-up assessment. The percentage mean reduction in WHR was approximately 1.8% at the post-treatment assessment and 2.2% at the follow-up assessment. At the post-treatment assessment 67% of the participants had a reduction in WHR which had reduced to 47% at the follow-up assessment (see table 6.13).

Between meals eating behaviour

There was a significant reduction in episodes of between meals eating behaviour during the treatment period (see tables 6.10 and 6.12) with 100% of participants maintaining either zero episodes of between meals eating behaviour or a reduction in the number of episodes during weeks 2 to 4 against the number recorded in week 1

Assess item	One-way within subjects ANOVA
Weight	$F(2, 28) = 14.757, p < 0.01$
Waist	$F(2, 28) = 6.965, p < 0.01$
Hips	$F(2, 28) = 0.761, p > 0.05$
BMI	$F(2, 28) = 13.039, p < 0.01$
WHR	$F(2, 28) = 7.702, p < 0.01$
Between meals eating	$F(3, 33) = 5.727, p < 0.01$

Table 6.12 ANOVA results.

Assess item	Post treatment	Follow-up
Weight	93%	67%
Waist	93%	53%
Hips	47%	13%
BMI	87%	20%
WHR	67%	67%

Table 6.13 Percentage of participants achieving post treatment and follow-up reductions.

Stage 4 conclusions.

Once again it is not possible to infer any treatment effects in the absence of a control group but nevertheless a number of positive and supportive conclusions can be drawn from the outcomes. The first and undoubtedly the most important conclusion is that one-to-one hypnotherapy in a group setting is now a tangible strategy which presents a real opportunity to reduce costs for patients. In this study fifteen genuine patients were treated confidentially, in the presence of their group peers, with hypnotherapy which addressed personal issues associated with their hyperphagia. Secondly the reduced anthropometry and reductions in between meals eating behaviour which occurred during the study are taken as an indication that a shift in attitudes relating to eating behaviour did take place during the study. Similarly to study No.3 this is taken as a strong suggestion that the treatment, in this case one-to-one hypnotherapy in a group setting, at the very least did not hinder the clinical objectives from being achieved.

When comparing the present outcomes with those of study No.3 it is reasonable to suggest that on balance greater reductions may have been realised in the present study. Although the present group received only 4 treatment sessions compared to study No.3 who received 12 in mean percentage terms they achieved: almost a 2% greater reduction in between meals eating behaviour, 75% of the weight reduction in study No.3, equal waist reduction, 50% of the BMI reduction in study No.3 and 2%

more WHR reduction. In addition reductions in BMI and WHR were statistically significant in the present study (see table 6.11) in contrast to study No.3 in which they were not (see table 6.7). Despite issues of treatment validity the greater outcomes of the present study were achieved in a situation which used fewer resources generally than in the third study which is suggestive of higher cost-effectiveness. However in order to maintain a balanced view it could also be said that by this time this study may have had a highly self-selective group who were likely very highly motivated. Consequently this might lead to a very real question of how far findings may be generalized in a real world setting. In defence of the findings though dieters in research are by definition a highly self-selective group of often well-motivated people who are involved in a process from which findings are consistently generalized to the real world. From a practical, if subjective, viewpoint performing one-to-one hypnotherapy in a group setting was initially more complex than performing normal group hypnotherapy but was no more difficult once the necessary practical routines had been mastered, and it is envisaged that the same would be the case for any hypnotherapist who wanted to use this method in the future. The process of moving patients between the holding facility and one-to-one treatment was easily manageable as was operating the IMR facility and swapping between single and dual binaural auditory modes.

It was noted at the start of this section that a mean weight increase of 1.4 lbs had occurred for the participants in the 2 month interim period since they completed study No.3. The figure of 1.4 lbs was calculated by subtracting participants' mean weight at the end of study No.3 from their mean weight at the start of the present study (see the relevant SPSS descriptive statistics table in appendix 6.13). Closer examination of the data suggests that one participant's particularly high weight loss of 21.5 lbs may have skewed the data. Of the remaining fourteen participants one maintained the same weight between the two studies whilst the thirteen others lost between 0.5 lbs and 4.5 lbs. If these two confounding participants were removed a recalculation indicates that

the mean weight increase between the two studies would be 3.5 lbs which may be a truer figure.

Discussion

The empirical work described in this chapter has produced a range of findings which support the main ideas underlying the thesis, indicate where improvements need to be made to the developing system prior to it facilitating a new hypnotherapy for adult obesity and taking it forward to the next stage of development. The commissioning process during stage 1 suggested that, although improvements are required to the volume control and signal tone facilities of the equipment, all other aspects worked satisfactorily and as intended during its design stage. Concerns about participants being able to keep hold of their IMR wands whilst hypnotised were shown to be unfounded which supported the prior reasoning suggesting that this would be the case (see sections 5.1 and 5.3 of this thesis). Stage 1 of the empirical work yielded valuable insight into the best ways to operate the equipment during the various stages of its use but most importantly during the clinical process whilst exercising direct patient contact. Important appreciations to emerge from the stage 1 work ranged from basic safety issues like managing the tripping hazard posed by trailing microphone and IMR wires to the complex requirements posed by achieving and maintaining the required balance in volume settings for each person in a group. Also at a basic level was the realization that a code of behaviour was necessary to help manage the treatment groups as well as a clinical assistant to supervise patients during each aspect of the process. Whilst there were no difficulties with the IMR procedure, the stage 1 process revealed that patients will need to be closely monitored to ensure they attend to the correct handedness of the wands and that they are reminded of this prior to answering any questions. This is an interesting observation because it is not common practice to worry about IMR handedness in this way in normal hypnotherapy which raises concerns about a possible anomaly which previously may have gone un-noticed. A

particular achievement during the stage 1 work was the competence developed in operating the various auditory modes facilitated by the equipment, which on this occasion were 15 in all, as it is this provision by the equipment which will afford the facility to try to overcome food-related attitudinal ambivalence in future research. During the hypnotic elements of the stage 1 work participants raised the issue of feeling like they might emerge from their trance condition prematurely whenever the alpha rhythmic music was switched off and this potential problem must be marked for future investigation. In a similar vein the problem of hypnotic recalcitrance seemed more pronounced with the revised system of hypnosis than has been observed with normal hypnosis in the past and this too will require further attention. Lastly with regard to stage 1 of the empirical work another major contribution to the ultimate aims of the research was the achievement in setting up and maintaining a holding mode. Just as the auditory versatility of the equipment is central to tackling food-related attitudinal ambivalence, the achievement of the holding facility is the key to conducting one-to-one hypnotherapy in a group setting, which in turn may result in reduced costs for patients. On a broader note probably the most fundamental aspect to come out of the stage 1 work is that a basic operating routine was established which provided the foundation for the next three studies as well as for any future studies.

In stage 2 of the empirical work, after taking the efficacy of hypnotic suggestion given by normal means as a basic standard, hypnosis induced with the new system was shown by inferential analysis to be no less effective with regard to responsiveness to suggestions. This indicates that in terms of its development the new system of hypnotherapy for adult obesity is commencing from a position of 'equal footing' with the normal system which to date has shown only limited efficacy for obesity. On this basis it is reasoned that, should the new system result in better clinical efficacy for adult obesity, this would also be an improvement over the normal system. Despite the obvious inferential orientation of the third and fourth studies attention should focus

firstly on the opportunity they provide to extend previous experience of working with the new system, which was gained with non patient groups, by using it in a more 'real world' setting i.e. with obese patients. During these more pressurised stages neither the basic operating routine nor any of the various operating procedures previously developed were shown up as defective in any significant way and by the culmination of the empirical work the concept of one-to-one hypnotherapy in a group setting had become a tangible procedure. The realization emerged during study 4 that participants experienced differing patterns of exposure to alpha rhythmic music during one-to-one hypnotherapy in a group setting. Table 6.14 illustrates how in this type of hypnotherapy the temporal pattern of exposure to EEG sonic entrainment would split a group receiving two minute dyadic sessions into two halves – each of which is a mirror image of the other. It is clear from the table that whilst each participant in the group receives a cumulative 14 minutes of pre-treatment and post-treatment EEG sonic entrainment, they vary in their pattern of exposure. It should be noted that the scenario depicted in table 6.14 involves a group with an even number of participants but the pattern will be different for a group with an odd number of participants. Table 6.15 illustrates how in a group with uneven occupancy the participant in the middle position would experience equal pre- and post-treatment exposure to EEG sonic entrainment. A future study should investigate if discrepant exposure to sonic entrainment affects the hypnotic condition of participants unduly and at the same time it could also be established whether exposure to sonic entrainment affects the hypnotic induction process or hypnotherapy *per se*. This enquiry is based on reasoning which suggests that the relaxation effects of alpha rhythmic music may be similar to those of the hypnotic induction process which conceivably might rescind the need for a normal inductive procedure in the future.

Group position	1	2	3	4	5	6	7	8
Pre-treatment holding (minutes)	0	2	4	6	8	10	12	14
Post-treatment holding (minutes)	14	12	10	8	6	4	2	0

Table 6.14

The table illustrates the temporal pattern of exposure to EEG sonic entrainment in a group with an even number of participants.

Group position	1	2	3	4	5
Pre-treatment holding (minutes)	0	2	4	6	8
Post-treatment holding (minutes)	8	6	4	2	0

Table 6.15

The table illustrates the temporal pattern of exposure to EEG sonic entrainment in a group with an odd number of participants.

In terms of the inferential aspects of stages 3 and 4 of the empirical work the aim was to generate a positive shift in behaviours related to obesity; by using the equipment to deliver standard group procedures in study 3 and one-to-one procedures in a group setting in study 4. Whilst most of the variables did alter in the required direction on both occasions, in the absence of control groups a formal attribution of treatment effects was not possible. However, informally the significance of the anthropometrical and psychometric reductions as well as the reduction in episodes of between meals eating behaviour all lead to a reasonable view that the treatment was responsible for the improvements observed. Consequently studies 3 and 4 have provided valuable pilot data on which future hypotheses of similar aims can confidently be made and tested under randomised controlled conditions. The participants' personal observations of ways the study helped them has provided a qualitative insight into possible treatment effects – the greater proportion of which appear to be psychological in nature. It is interesting to speculate how participants' improved psychological state may be linked

with reductions in their level of emotional eating and improved diabetic status due to reductions in blood sugar levels, both achieved in the study, however such speculations remain very much beyond the scope of this thesis. The procedural format of one-to-one hypnotherapy in a group setting was established further in study 4 by structuring it into a common or group domain and a one-to-one domain each with a range of specific inherent procedures to be attended to during planning and treatment.

Although the practical feasibility of one-to-one hypnotherapy in a group setting was demonstrated earlier in study 1 its practical credibility as a working procedure was established beyond doubt in study 4 when 15 obese participants were treated in a group format with hypnotherapy which was comparable in every way with the individual method. The absence of any mention in the literature of this being done before suggests that one-to-one hypnotherapy in a group setting is an original achievement which now offers a viable means to reduce the cost of hypnotherapy for adult obesity for patients.

Chapter Seven

Discussion and conclusions

General outline of the thesis

The strategy of presenting this thesis in two distinct parts, the first concerned to explore the problem and the second to move towards a solution to the problem, was adopted to provide clearly defined boundaries within which the complex issues of adult obesity could be discussed with clarity and a minimum of ambiguity. The problem under discussion in the thesis has been broadly identified as the intractability of adult obesity to hypnotherapy. However, in more specific terms the thesis considered the problem from the perspective of two main issues: firstly the need to widen access to hypnotherapy for adult obesity for the less well-off by reducing costs, and secondly the need to control the usually ambivalent attitude of adult obese patients towards their consumption of fattening foods. The problem has been considered from three overarching angles under the heading: "The nature of the problem". Chapters 2 and 3 were concerned to explore issues directly related to obesity whilst Chapter 4 was concerned specifically with hypnotherapy for adult obesity. In Chapter 2 the nature of adult obesity and its prevalence and financial implications for England were explored and consideration was given to the ways in which the NHS has responded to the obesity problem. Chapter 3 examined issues thought to be pertinent to the intractability of adult obesity to intervention generally, whilst Chapter 4 was similarly concerned but with specific regard to hypnotherapy. In Part 2 under the heading: "Toward a solution to the problem" Chapter 5 was concerned with 'reasoning through' and conceptualising solutions to the two primary issues outlined above whilst Chapter 6 was concerned with producing and evaluating a tangible system to apply them.

Conclusions drawn from the research

Research for Part 1 of the thesis has shown that despite numerous initiatives, investigations and official reports the British government seems unable to curb the increasing prevalence of obesity in England or in the U.K. as a whole. At the present time, despite the enormity and serious implications of the problem, obesity does not yet have official disease status even though it has been referred to by Parliament as "the biggest public health threat of the twenty-first century". In financial terms the costs associated with obesity in England are escalating remorselessly and uncontrollably and as yet there are no indications that the intractability of obesity can even be halted let alone reversed. Parliament has been severely critical of the National Health Service for not taking obesity seriously enough in the past and has expressed doubt about whether future initiatives will isolate obesity for special attention. Research for the thesis has suggested that this failure may be fundamentally the result of a paradoxical situation in which historically obesity has been viewed from the perspective of the interventionist biomedical paradigm, even though the medical profession has had little success in addressing it. The government's current hope of addressing the obesity problem in England rests with the National Institute for Health and Clinical Excellence which they have asked to produce definitive guidance on the prevention, identification, management and treatment of obesity by 2007. Education and training in obesity has been clearly identified in the thesis as an urgent requirement at the primary care level for general practitioners and practice nurses. But a concern remains about the validity of knowledge with regard to best practices in obesity which might be tapped as the basis for teaching. The thesis has argued that focusing interventions on food consumption *per se* whilst largely ignoring the implications of psychological issues underlying overeating has been partly responsible for the continuing intractability of adult obesity. Whilst contemplating the relatively poor efficacy of hypnotherapy as an intervention in hyperphagia food-related attitudinal ambivalence has been reasoned to be the cause of resistance to hypnotherapy aimed at controlling this problem. An

enduring impression gained from developing this thesis is of a paradoxical situation in which the fortitude of the biomedical paradigm of adult obesity has continually obscured, to a large degree, the aetiological implications of behavioural and cognitive psychology. A fair assumption would be that progress in tackling adult obesity would be enhanced if the current biomedical paradigm was extended to include the relevant areas of behavioural and cognitive psychology in relation to hyperphagia. It may then become apparent that the most effective biomedical contribution to obesity has traditionally been made in response to its associated illnesses rather than to its underlying causes. Low calorie dieting has been identified by meta-analytical evaluations to be the single most effective method of achieving weight reduction particularly when used in conjunction with psychotherapy and this fact alone should encourage a more sympathetic response to psychology by the medical profession. The research conducted for this thesis suggests that if the premise that obese people overeat in contravention of their unequivocal desire to be less fat is valid, food-related attitudinal ambivalence should be identified as an underlying factor in adult obesity. In this case the question which drives the development of treatments should be: why can't obese men and women, who unequivocally want to reduce their weight, refrain from eating foods which they know maintains or increases their fatness? Presently there is no unequivocal evidence to show that hypnotherapy is an effective treatment for adult obesity but the review of studies carried out in Chapter 4 suggests that hypnotherapy has strong potential as an adjunct to the dieting method. The potential effectiveness of hypnotherapy at the present time seems to stem from an adjunctive role to dieting perhaps in protecting dieters from lapsing and keeping them motivated and focused on their goals. The view emerged during this study that the ability of hypnotherapy to protect against diet lapsing would be considerably more reliable than at present if food-related attitudinal ambivalence could be controlled. When considering how best to widen access to hypnotherapy for adult obesity for financially less well off patients it was reasoned that group hypnotherapy offered the most obvious way of reducing

costs. However it was also clear from the research carried out during the study that treatments would need to be able to address personal issues confidentially and interactively which was only possible with one-to-one hypnotherapy at the time. This realization resulted in the first task which was to develop a way of providing one-to-one hypnotherapy in a group setting. After reasoning through, in Part 1, how food-related attitudinal ambivalence might be the cause of resistance to hypnotherapy designed to stop hyperphagia the second task emerged which was to develop a system through which food-related attitudinal ambivalence and the ensuing hypnotic resistance could be controlled.

The conclusion that food-related attitudinal ambivalence is the probable cause of resistance to hypnotic suggestions aimed at stopping hyperphagia led to further reasoning in Part 2 that cerebro-specific EEG sonic entrainment could be used to block resistance thereby allowing hypnotherapy to ameliorate hyperphagia. At the time of writing there had been no previous consideration given to these ideas in the literature and consequently there was no means of testing them. To cater for this requirement the design of the equipment, initially developed to provide one-to-one hypnotherapy in a group setting, was extended to provide a test facility for the future. Thus the aims of the present project were fulfilled and there was an awareness that, because of the ethical and moral implications of experimenting to overcome resistance to hypnotic suggestion – which essentially means removing patient volitional control – future work in this area would require a new design which would necessarily be subject to separate ethical and academic scrutiny to ensure that maximum safeguards were in place prior to any participants being recruited. Reasoning which led to the concept of cerebro-specific EEG sonic entrainment suggests that it is unlikely to have the potential to compromise free will completely; for instance if a person is wholeheartedly against behaving in some way it is likely that what is regarded as their “free will” would always remain intact. However for an ambivalent person free will is divided between two

courses of action and it can be argued that their negative ambivalent domain can be restricted in favour of their positive ambivalent domain. In effect therefore the integrity of patient volitional control would be upheld unless challenged by suggestions that were only partially acceptable to the person, which raises an ethical concern. The present research is orientated towards blocking the negative and irrational motivations of some slimmers to continue eating fattening foods by supporting the positive ambivalent domain which, it is reasoned, is motivated toward abstinence. But the question remains what if, in a different situation, a person was partially in favour of committing some antisocial or illegal act? Could the hypnotic cerebro-specific EEG sonic entrainment technique be used in a perverse way to attenuate, rather than support, their partial moral fortitude? If so this would present a moral dilemma.

With benefit of hindsight there are evidently ways in which the research might have been improved. With regard to the high level of recruitment attrition which occurred during studies 3 and 4 a better tactic may have been to persevere with the recruitment process. In this way randomised controlled experiments would have been possible which, in view of the outcomes presented here, could have provided stronger evidence of treatment effects thereby placing future research on a much firmer footing. Retrospectively the study should perhaps not have gone ahead until seating which was more adequate for the task was available especially in view of the difficulty some participants had during studies 3 and 4 in getting comfortable because of their obesity and related conditions. It is not known how, or if, this had a negative effect on the outcomes, but it may have done. Lastly an opportunity to extend the follow-up period of study 3 by a further two months was missed. This could have gone on for the participants who took part in study 4 for the period between the two studies. Also in retrospect it may have been better to have taken the time to seek research funding rather than conduct a self-funded PhD as resource constraints resulted in a much longer period of study than would otherwise have been the case. Threats to validity can

arise due to maturational factors and/or undetected environmental variables which could have been reduced and explored in more detail with a larger research "team". One could say the same though for any single researcher project that entails longitudinal elements and with therapeutic interventions. Indeed, as has been discussed more fully elsewhere, there are many problems for research design in maintaining mundane realism in field experiments for therapeutic interventions (Iphofen, Corrin and Ringwood-Walker, 2005). These are related to establishing appropriate 'units of study' (populations or people), how randomised and controlled such trials can be, the standardisation of interventions, and threats to validity and reliability in the context of "real world" research needs and the provision of patient care in a health service with multiple competing resource demands (for example see: Gatchel and Maddrey, 1998; Iphofen, 2003; Hufford, 1996; Trotter, 2000).

Further research

Further study is necessary to test the hypothesis referred to earlier that one-to-one hypnotherapy in a group setting which incorporates cerebro-specific EEG sonic entrainment will have greater efficacy in stopping hyperphagia than one-to-one hypnotherapy in a group setting alone. As an illustration such a study would have to incorporate a randomised controlled design and should involve 3 groups of participants: a no treatment or attention-control group, a dyadic-group hypnotherapy group and a dyadic-group hypnotherapy group plus cerebro-specific EEG sonic entrainment. The study could follow a similar process to study 4 reported in Chapter 6 of this thesis with the two treatment groups receiving one-to-one hypnotherapy in a group setting in which the one-to-one elements would be focused specifically on personal issues related to participants' hyperphagia. In the hypnotherapy plus entrainment group however participants' treatment would be administered using the dichotic listening technique to present alpha rhythmic music to participants' left ears and therapeutic suggestions to their right ears. This could be expected to result in right

brain alpha rhythm entrainment for each participant effectively switching off their right side cognition which in turn is expected to block their resistance to the hypnotherapy. At this stage the equipment developed during the study would be being used to its full capacity by facilitating both one-to-one hypnotherapy in a group setting and cerebro-specific EEG sonic entrainment simultaneously. In a similar way to study 4 treatment effects would be gauged across four general areas:1) eating behaviour 2) focused activity, 3) anthropometry and 4) psychometrics. The study could utilize a dedicated dietary support programme (such as the Red Path Eating Plan, outlined later) as a means to aid a regular eating pattern and to protect against counter regulation, as well as the associated self-report food diary and focused activity log. The DEBQ could be used again to obtain insight into participants' eating behaviour and further psychometric questionnaires may be used to gauge the implications of stress and emotional factors on eating behaviour. The same system of anthropometrical assessments could be used as in study 4. When setting the objectives of the next study reductions in anthropometry should be targeted in relation to weight reduction which exceeds the minimum requirement of 1lb per week or 10% of body weight after six months whichever is the greater. The follow-up period of the study should be at least six months and behavioural improvements and weight reduction along with other physiological benefits would be expected to continue, or at least be maintained after the treatment, throughout the follow-up period. The empirical work done during the present study has provided some useful findings which will provide guidance and experience for subsequent studies. For instance there will need to be provision to cope with any special needs which participants may have. Also an assistant will be required to help with the management of the groups. During the present study it seemed as if participants might come out of hypnosis when the alpha rhythmic music was stopped and a small trial would be needed ahead of subsequent studies to ascertain if this is likely to happen or not. The one-to-one scripts in a subsequent study should be written with regard to issues which seem to motivate participants' hyperphagic behaviour in

contrast to study 4 where scripts were based on participants' feelings about the post-treatment effects of study 3. If the outcomes of study 4, which on balance are believed to be better than for study 3 (see stage 4 conclusions), are the result of the one-to-one hypnotherapy in a group setting this focus may enhance effects further in a future study.

It may also help future research, which seeks to control food-related attitudinal ambivalence, to consider techniques which may have been shown to be successful for other appetitive conditions such as smoking and alcohol consumption. At the time of writing, despite a substantial literature on the measurement of attitudinal ambivalence, there were no measures available which could be used to gauge food-related attitudinal ambivalence which would be the overarching dependent variable in the planned future study outlined above. In order to rectify this situation thought has been given to ways in which the problem might be overcome for the benefit of future research and subsequently two possible methods are proposed below. Whilst both methods are intended to provide an indication of food-related attitudinal ambivalence they do so using different formats with method 1 presenting in numerical form and method 2 in graphic form. When conceptualizing ways of gauging food-related attitudinal ambivalence the intention was to appeal to the cognitive style of both sides of the brain; i.e. one numerical and sequential and one spatial and holistic. In method 1 (see figure 7.1) it is reasoned that the 4 statements should closely represent what has been identified as the positive and negative domains of food-related attitudinal ambivalence so far in the thesis i.e. that weight reduction is desirable and a facet of the positive domain whilst food abstention is not desirable and is a facet of the negative domain. Statement 1 is concerned with ambivalence in relation to full abstinence whilst statement 2 is concerned with ambivalence in relation to partial abstinence. It is believed that writing the statements in this way adds an element of complexity which will protect against acquiescent responses. Participants would be required to score

each 'X' and 'Y' statement on the appropriate scale after which their statement 1 and 2 scores would be calculated from the formula below.

$$\text{Food related ambivalence score} = \frac{xy}{100}$$

Where X = the rating for the X statement group and Y = the rating for the Y statement group.

The intention is that total item ambivalence will be indicated by an index score of 1 whilst an index score of 0.1 would indicate an absence of item ambivalence. As an example: if a patient indicated an X score of 10 and a Y score of 3 the food-related attitudinal ambivalence score would be 0.3 indicating low ambivalence. Alternatively if the same patient indicated a Y score of 10 their score would be 1.0 showing complete food-related attitudinal ambivalence.

Method 1

Statement group 1

X – I do want to shed all my excess weight.
(10 = completely true, 1 = completely false).

X										
	1	2	3	4	5	6	7	8	9	10
Y										

Y – I do not want to stop eating all the foods that make me fat.
(10 = completely true, 1 = completely false).

Statement group 2

X – I want to shed some excess weight.
(10 = completely true, 1 = completely false).

X										
	1	2	3	4	5	6	7	8	9	10
Y										

Y – I do not want to stop eating some the foods that make me fat.
(10 = completely true, 1 = completely false).

Figure 7.1 Statement groups 1 and 2 for numerical assessment of food related attitudinal ambivalence.

Method 2 (see figure 7.2) would require participants to respond in analogue form to the same four statements used in method 1. Each statement in Figure 7.2 is represented by a line with the letter 'A' at one end and 'B' at the other. Participants must regard the 'A' position as meaning the statement is completely true and the 'B' position as completely false. Participants will be asked to express their feelings about each statement by placing a mark along the line in relative proximity to 'A' or 'B' (see figure 7.2 below). The intention with method 2 is that an indication of a participant's food-related attitudinal ambivalence would be determined by measuring the length of the line as it tends away from 'A'. If participants feel that a statement is completely true or completely false they would circle either 'A' or 'B' respectively. Greater acuity could be encouraged by presenting method 1 scores proportionally as a coloured pie chart and the method 2 tendency lines in the form of a coloured bar chart.

Method 2

I do want to shed all my excess weight.
A = completely true, B = completely false.

A_____B

I do not want to stop eating all the foods that make me fat.
A = completely true, B = completely false.

A_____B

I want to shed some of my excess weight.
A = completely true, B = completely false.

A_____B

I do not want to stop eating some of the foods that make me fat.
A = completely true, B = completely false.

A_____B

Figure 7.2 Analogue scales to provide visuo-spatial indications of food-related attitudinal ambivalence.

Red Path Eating Plan

A study is also required to test the efficacy of the proposed scheme referred to here as the Red Path Eating Plan (RPEP) (see appendix 7.1) which has been designed in response to ideas conceptualised in section 5.4 of this thesis so that hypnotherapists can provide support to whichever diet a patient is following. It has been designed specifically to provide dieters with protection against counter regulation and to generate greater motivational and cognitive power by recruiting their right brain abilities. The RPEP would require patients to engage in a high level of imaginative activity and would involve significant amounts of spatial and synthetic thinking as well as a considerable degree of future-orientated visualization all of which depend extensively on right brain involvement. It is envisaged that obese adults presenting for hypnotherapy to stop their hyperphagia would be asked to register with a recognised dieting system e.g. Slimmers World or Weight Watchers if they hadn't already done so. The RPEP would be administered as a support system both *in vitro* during hypnotherapy and *in vivo* as part of their day-to-day practices. Patients would be required to imagine that each day of the week consists of 5 red paths joined together by 4 green eating areas. They would be encouraged to visualize that: the first red path runs between their waking each morning to the first green eating area where they would eat breakfast, similarly the second red path runs from the first green eating area to the second one where they would eat their lunch, the third red path runs from the second green eating area to the to the third one where they would eat their dinner, the fourth red path runs from the third green eating area to the fourth one where they would eat their supper, the fifth red path runs from the fourth green eating area to their return to sleep at bed time. The green eating areas are temporally located throughout each day to suit the dieter; for example breakfast between 6.30am and 9am, lunch between 12pm and 1.30pm, dinner between 5pm and 7pm and supper between 9pm and 10.30pm. The basic idea would be for patients not to eat on any red path and to eat their meals (according to their diet) in the green eating areas. Depending on clinical requirements and ecological

influences it is possible to vary the number of food-free red paths on any day e.g. 5 of 5 or 3 of 5 etc which allows hypnotherapists the facility to prepare for counter regulatory effects by prescribing a gradual start to treatment. The RPEP would require patients on waking each morning to preview their day ahead to foresee any circumstances which will bring them into contact with food e.g. food shopping, meal preparation, socializing, taking a meal break etc. In previewing their day ahead patients would also identify anything which might encourage them to eat fattening foods e.g. external sensory stimulation or, in the case of emotional hyperphagics, negative affective states. The purpose of this early morning contemplative exercise is to promote proactivity by empowering patients to forward plan their food activities and to allow them to generate a preventative awareness of the pitfalls of each day before they reach them. Similarly when patients return to bed at the end of each day they would be required to undertake a retrospective review of their journey along the 5 red paths that day. They would have to try to be aware which if any red paths they ate on and analyse what compelled them to eat on that particular red path. Patients would be encouraged to look for a pattern in their between-meals snacking or nibbling behaviour and to gain familiarity with the aspects of their lives that acted to trigger it. The red paths which patients managed to cross without eating would be a focus for their celebration whilst the ones on which they slipped should be reflected upon and learnt from. At this time patients would also be required to retrospectively scrutinize whether or not they have behaved sensibly (stuck to their diet) in the green eating areas; they would need to raise their analytical awareness about the appropriateness of the foods they used for their meals. In order to soften any feelings of restrained eating and counter regulation their diet may cause, patients using the RPEP would simply be asked to engage in eating behaviour which is entirely sympathetic with their overall aims at meal times. This places a responsibility on patients to be proactive by taking a hand in regulating food selections and meal proportions themselves rather than becoming dependent on their diet system. Patients who demonstrate an inability to regulate these aspects of their behaviour would be

reinforced during their hypnotherapy to help them do so. It is believed that patients will be protected against counter regulation by the modular construction of the RPEP; they would be told that if they are compelled to eat on a red path it will only affect that particular path and they must then strengthen their resolve not to eat on the next red path. Each red path presents a separate and fresh opportunity for patients to win which means they have 35 opportunities every week. Usually dieters experience counter regulation after a diet-lapse which tends to result in the 'what-the-hell effect' for the rest of the day or longer. The flexibility to effect multiple corrections within any one day is an important feature of the RPEP and has been designed to take account of the argument made by Westenhoefer about counter regulation (see section 3.2 of this thesis). The RPEP incorporates the use of a daily food and drink diary which in itself is a common feature of some cognitive behavioural weight control programmes especially in research. The major criticism of food intake diaries is that patients tend to underreport their food consumption (Prentice *et al.*, 1989) which raises a question about the validity of this method. However just as the modular construction of the RPEP is intended to afford protection against counter regulation it is also intended to provide some protection against inadvertent underreporting by patients. Each day is divided into 9 separate parts by the RPEP and patients are required to report their food and drink intake for each period. Apart from the sleeping period the longest time patients would expect to go without eating would be approximately 5 hours which is not considered to be an unreasonable requirement. It has been reasoned in the present study that requiring patients to focus on each day in 9 separate parts will render any omissions highly apparent to them as well as making them acutely aware of any red path infringements, which should be a welcome facility for motivated and committed patients. The validity of the self-reporting process is further reinforced by the retrospective review last thing each night and the prospective preview first thing each morning. Underreporting in the green eating areas is also thought unlikely as patients would be told to record their green area consumption before embarking on the next red

path. And once again this aspect will form an important item in their daily prospective and retrospective reviews. The Red Path food diary makes provision for patients to record how they feel on each red path and in each green eating area which will provide clinicians and patients alike with important indications about the pattern of their daily well being. A further feature of the right brain orientation of the RPEP is that patients can immediately gauge their overall percentage progress simply by reviewing the number of red paths successfully travelled. This audit of red paths could be carried out for a day, a week or a month. For instance a patient who had succeeded in achieving 30 food-free red paths in a week would, by calculating: 30 food free red paths + 35 red paths, realize they had been 86% successful for that week. This kind of proportional representation of patients' effectiveness could then be presented to them as a colour coded pie chart, which would have high right brain appeal. With this approach patients could gain quick and easy access to their daily, weekly or monthly progress.

During the course of the present study whilst deliberating about the lack of a standard method of clinical assessment for adult obesity an idea emerged for an integrated assessment process which uses a multifactor profiling approach to provide a comprehensive overview of individual cases. The intention was to devise a method of assessment, based on the belief that obesity is a multifactorial condition which presents in each case with individual characteristics, which would enable obesity interventions to be highly specific to the needs of individuals. The outcome was a process which could best be described as obesity profiling. Presenting cases of adult obesity would first be assessed on the basis of macrofactors then microfactors (see below) together these would form the filtering mechanism through which cases of obesity could be examined in detail. Figure 7.3 shows the filtering process through which obesities could be put prior to treatment.

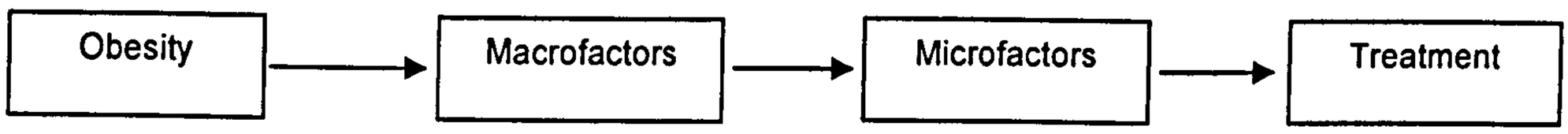


Figure 7.3 the flow of obesity profiling

Examples of macrofactors and microfactors are:

Macrofactors

- Weight.
- Waist.
- Hips.
- BMI.
- WHR.
- Body fat deposition.
- Percentage of body fat.
- Grade of obesity.

Microfactors

- Medical assessment.
- Psychological assessments.
- Dietary and nutritional assessment.
- Assessment of physical activity.

Aspects in the macrofactor domain are intended to provide a broad based view of cases of obesity which can then be refined further by considering the aspects listed in the microfactor domain. Obesity profiling is intended to be an integrated clinical approach designed to provide an assessment strategy for a primary care medical practice. Each presenting case of obesity could be classified by a practice nurse according to the macrofactor checklist and in minor consultation with the doctor who would determine the likelihood of an endogenic cause for the obesity. If an endogenic aetiology was ruled out at the macrofactor stage a classification of psychogenic obesity

would be applied and the principal role would then be handed to an appropriately trained psychologist. The psychological microfactor profile would provide information about the form and function of contributory hyperphagia possibly using DSM-IV definitions to describe eating behaviours although the classification 'Eating Disorders Not Otherwise Specified' would be much too obscure for this purpose. Psychologists would need to generate new ways to describe eating behaviour based on antecedent motivations such as negative affect; anger or dysphoria etc and instruments like the DEBQ used in this study could give insight into hyperphagic behaviour. The sociological microfactor profile could provide an overview of patients' lifestyles including their relationships, employment, housing, finances and future prospects so as to suggest possible hyperphagic triggers. A sociologist or suitably trained psychologist could explore patients' backgrounds to highlight past significant events and track the development of their obesities and previous attempts to manage it. The medical microfactor profile conducted by a physician could provide information about the effects of the obesity on the patient's health and about any existing co-morbidity. The physician may also provide details about medicines being taken by the patients and about likely effects with regard to their obesity and related factors.

Further research is also clearly required using principles of health economics to establish the proportion by which patient fees might be reduced by one-to-one hypnotherapy in a group setting and to formulate a unit cost per group session of treatment. There is a need generally to subject hypnotherapy for different ailments to financial scrutiny in the form of, for example: cost-effectiveness analysis and cost-benefit analysis to assess cost-ratio in relation to its effectiveness to ameliorate conditions and the broader benefits generally of applying this type of therapy. The financial integrity of hypnotherapy should be considered as part of the larger exercise of gauging its worth in terms of evidence based medicine. At a fundamental level and

once capital costs have been covered the new system should incur savings by virtue of treating eight patients at one session and by splitting costs between eight patients.

Achievements of the research

In the introduction to this thesis two questions were asked:

1. How can hypnotherapy for adult obesity be made more accessible to the less financially well off members of society for whom obesity is most prevalent?
2. If an obese patient who unequivocally wants to reduce their weight is attitudinally ambivalent about curtailing their hyperphagia how can hypnotherapy be effective if it can not compromise free will?

The first question has resulted in the most significant achievement, so far, of the present research namely the development of "dyadic-group hypnotherapy" – a shorter term for "one-to-one hypnotherapy in a group setting". It is now possible to provide a group of 8 obese adult patients with hypnotherapy which has been specially designed to address their personal needs in relation to their eating behaviour whilst maintaining their total confidentiality from the rest of the group and affording them with full IMR facilities. This is in direct contrast to the 'one-size-fits-all', non-confidential, non-IMR approach to obesity which limited group hypnotherapy in this context prior to this project. The essence of this achievement stems from the opportunity which is now presented to reduce the cost of hypnotherapy for adult obesity which in turn will make it more accessible to those who might require it most. At the time of writing dyadic-group hypnotherapy appears to be an original way of treating adult obesity and it is hoped that its development has added to the cumulative knowledge which underlies hypnotherapy. The second question has led to the second achievement of the project namely the development of a system through which the effects of food-related attitudinal ambivalence might be controlled with hypnotherapy. The system which facilitates dyadic-group hypnotherapy has a secondary or parallel system designed to

facilitate a dichotic form of hypnotherapy which will incorporate what has been called cerebro-specific EEG sonic entrainment. *This refers to a technique conceived*, as part of this work, to modulate the electrical frequency of one side of the brain independently of the other in order to switch off cognition on that side. The future research outlined above will test whether this will allow hypnotherapists to check resistance to suggestions which aim to stop hyperphagia.

Appendices

Towards a new system of group hypnotherapy for adult obesity.

As part of the thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in the University of Wales **20 April 2006.**

Alan Rowland Corrin

University of Wales, Bangor

School of Nursing, Midwifery and Health Studies.

APPENDIX 4.1

A Boolean search of PsychINFO was conducted at the outset to establish the range and publication rate for the peer reviewed articles having a specific and unitary focus on either hypnotherapy or hypnosis as a treatment for obesity. The search was expanded to include terms associated with obesity i.e. overweight, weight management and weight control. A final search was conducted within the same parameters on 31/03/06 to pick up more recent additions to the literature. A tabulated summary of the findings is presented below.

Hypnotherapy	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2004	2004-2006
And obesity	0	0	1	5	1	0	0
And overweight	0	0	0	0	0	0	0
And weight management	0	0	0	0	0	1	0
And weight control	0	0	0	1	0	0	0

Hypnosis	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2004	2004-2006
And obesity	1	2	5	5	4	1	0
And overweight	0	0	0	1	0	0	0
And weight management	0	0	0	1	0	0	0
And weight control	0	0	0	5	0	0	0

Fri Sep 17 09:18:15 2004
Cambridge Scientific Abstracts
Database: PsycINFO (1840-Current)
Query: TI=(hypnosis and weight and control)
Your Comments:

Record 1 of 5

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Eclecticism & hypnosis in the treatment of weight control: A case study
AU: Author
Pearce, Martin
SO: Source
Australian Journal of Clinical Hypnotherapy & Hypnosis. Vol 9(1), Mar 1988, pp. 9-11

Record 2 of 5

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Effects of self-hypnosis audiotapes on weight loss: Relationships with ego strength, motivation, anxiety and locus of control
AU: Author
Farrington, Gordon N
SO: Source
Dissertation Abstracts International. Vol 46(6-B), Dec 1985, pp. 2048

Record 3 of 5

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Four hypnosis scripts from the Macquarie Weight Control Programme
AU: Author
Walker, Wendy-Louise; Collins, John K; Krass, Jeanette
SO: Source
Australian Journal of Clinical & Experimental Hypnosis. Vol 10(2), Nov 1982, pp. 125-133

Record 4 of 5

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnosis and weight control: A preliminary report on the Macquarie University programme
AU: Author
Collins, John K; Jupp, James J; Krass, Jeanette
SO: Source
Australian Journal of Clinical & Experimental Hypnosis. Vol 9(2), Nov 1981, pp. 93-99

Record 5 of 5

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnosis in a self-control behaviour modification programme for weight reduction

AU: Author
Channon, Lorna D
SO: Source
Australian Journal of Clinical & Experimental Hypnosis. Vol
May 1980, pp. 31-36

Fri Sep 17 09:13:20 2004
Cambridge Scientific Abstracts
Database: PsycINFO (1840-Current)
Query: TI=(hypnosis and obesity)
Your Comments:

Record 1 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
A comprehensive program design utilizing hypnosis in the treatment of obesity
AU: Author
Theoharis, Dimitra
SO: Source
Dissertation Abstracts International: Section B: The Sciences Engineering. Vol 64(8-B), 2004, pp. 4067
RL: Resource Location
[URL:http://www.il.proquest.com/umi/]

Record 2 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnosis as an adjunct to cognitive-behavioral psychotherapy for obesity: A meta-analytic reappraisal
AU: Author
Allison, David B; Faith, Myles S
SO: Source
Journal of Consulting & Clinical Psychology. Vol 64(3), Jun 1996, pp. 513-516

Record 3 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Clinical update on eating disorders and obesity: Implications for treatment with hypnosis
AU: Author
Coman, Greg J; Evans, Barry J
SO: Source
Australian Journal of Clinical & Experimental Hypnosis. Vol 23(1), May 1995, pp. 1-13

Record 4 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Obesity, multiple personality disorder, and hypnosis
AU: Author
McDanal, Clarence E
SO: Source
American Journal of Psychiatry. Vol 150(8), Aug 1993, pp. 1274

Record 5 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnosis in the treatment of obesity

AU: Author
Levitt, Eugene E
SO: Source
Rhue, Judith W.; Lynn, Steven Jay; et al. (1993). Handbook of clinical hypnosis (pp. 533-553). Washington, DC, US: American Psychological Association. xxv, 765 pp.

Record 6 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
A comparison of hypnosis and behavioral treatments for obesity with one year follow-up
AU: Author
Haynes, Judith A
SO: Source
Dissertation Abstracts International. Vol 47(10-A), Apr 1987, pp. 3704

Record 7 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Self-hypnosis and problem solving in the treatment of obesity
AU: Author
Sanders, Shirley
SO: Source
Psychotherapy in Private Practice. Vol 4(3), Fal 1986, pp. 35-41

Record 8 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Correcting perceptual abnormalities, anorexia nervosa and obesity by use of hypnosis
AU: Author
Gross, Meir
SO: Source
Journal of the American Society of Psychosomatic Dentistry & Medicine. Vol 30(4), 1983, pp. 142-150

Record 9 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnosis: A group treatment for smoking, obesity and the perception of stress
AU: Author
Hill, Robert W
SO: Source
Dissertation Abstracts International. Vol 42(3-B), Sep 1981, pp. 1148-1149

Record 10 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Covert modeling-hypnosis in the treatment of obesity
AU: Author

Bornstein, Philip H; Devine, David A
SO: Source
Psychotherapy: Theory, Research & Practice. Vol 17(3), Fal 1980, pp. 272-276

Record 11 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Obesity and hypnosis: A review of the literature
AU: Author
Mott, Thurman; Roberts, Joan
SO: Source
American Journal of Clinical Hypnosis. Vol 22(1), Jul 1979, pp. 3-7

Record 12 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnosis and covert modeling in the treatment of obesity
AU: Author
Devine, David A
SO: Source
Dissertation Abstracts International. Vol 38(7-B), Jan 1978, pp. 3389

Record 13 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Brief group treatment of obesity through ancillary self-hypnosis
AU: Author
Aja, Joaquin H
SO: Source
American Journal of Clinical Hypnosis. Vol 19(4), Apr 1977, pp. 231-234

Record 14 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
New insights in the treatment of obesity, with restricted food allowance, medication and hypnosis
AU: Author
Jennings, G Scott
SO: Source
Journal of the American Institute of Hypnosis. Vol 16(1), Jan 1975, pp. 32-34

Record 15 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Obesity: Its causes treated by hypnosis
AU: Author
Smith, Theodore J
SO: Source
Journal of the American Institute of Hypnosis. Vol. 13(4), Jul

1972, pp. 180-184

Record 16 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
THE TREATMENT OF OBESITY BY INDIVIDUAL AND GROUP HYPNOSIS
AU: Author
HANLEY, F W
SO: Source
Canadian Psychiatric Association Journal. 12(6), 1967, pp. 549-551

Record 17 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnosis with a positive approach in the management of "problem" obesity
AU: Author
Oakley, Ruth P
SO: Source
Journal of the American Society of Psychosomatic Dentistry & Medicine. 7, 1960, pp. 28-40

Record 18 of 18

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnosis in the treatment of obesity
AU: Author
Hershman, Seymour
SO: Source
Journal of Clinical & Experimental Hypnosis. 3, 1955, pp. 136-139

Fri Sep 17 09:16:04 2004
Cambridge Scientific Abstracts
Database: PsycINFO (1840-Current)
Query: TI=(hypnosis and overweight)
Your Comments:

Record 1 of 1

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Cognitive therapy and hypnosis as treatment modalities with overweight individuals
AU: Author
Stevens, Michael R
SO: Source
Dissertation Abstracts International. Vol 43(3-B), Sep 1982, pp. 887

Fri Sep 17 09:17:09 2004
Cambridge Scientific Abstracts
Database: PsycINFO (1840-Current)
Query: TI=(hypnosis and weight and management)
Your Comments:

Record 1 of 1

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Effectiveness of hypnosis as an adjunct to behavioral weight management
AU: Author
Bolocofsky, David N; Spinler, Dwayne; Coulthard-Morris, Linda
SO: Source
Journal of Clinical Psychology. Vol 41(1), Jan 1985, pp. 35-41

Fri Sep 17 09:19:43 2004
Cambridge Scientific Abstracts
Database: PsycINFO (1840-Current)
Query: TI=(hypnotherapy and obesity)
Your Comments:

Record 1 of 7

DN: Database Name
PsycINFO (1840-Current)
TI: Title
The (limited) possibilities of hypnotherapy in the treatment of obesity
AU: Author
Vanderlinden, Johan; Vandereycken, Walter
SO: Source
American Journal of Clinical Hypnosis. Vol 36(4), Apr 1994, pp. 248-257

Record 2 of 7

DN: Database Name
PsycINFO (1840-Current)
TI: Title
The role of hypnotherapy and hypnotizability in the treatment of obesity as part of a comprehensive weight reduction program
AU: Author
Yetter, Jackie G
SO: Source
Dissertation Abstracts International. Vol 46(7-B), Jan 1986, pp. 2471

Record 3 of 7

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnotherapy and client suitability for the treatment of obesity
AU: Author
Cochrane, Gordon J
SO: Source
Dissertation Abstracts International. Vol 45(12-A), Jun 1985, pp. 3582

Record 4 of 7

DN: Database Name
PsycINFO (1840-Current)
TI: Title
The therapeutic effectiveness of hypnotherapy and systematic desensitization in the treatment of obesity as an anxiety disorder
AU: Author
Gabriel, Joseph J
SO: Source
Dissertation Abstracts International. Vol 42(6-B), Dec 1981, pp. 2527

Record 5 of 7

DN: Database Name
PsycINFO (1840-Current)
TI: Title
The treatment of obesity by hypnotherapy
AU: Author

Andersen, Marianne S
SO: Source
Dissertation Abstracts International. Vol 41(8-B), Feb 1981, pp. 3166

Record 6 of 7

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Variables predictive of success in treatment of obesity by group hypnotherapy
AU: Author
Blaylock, Mary W
SO: Source
Dissertation Abstracts International. Vol 40(12-B, Pt 1), Jun 1980, pp. 5801

Record 7 of 7

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnotherapy and therapeutic education in the treatment of obesity: Differential treatment factors
AU: Author
Wick, Erika; Sigman, Robert; Kline, Milton V
SO: Source
Psychiatric Quarterly. Vol. 45(2). 1971. pp. 234-254

Fri Sep 17 09:21:17 2004
Cambridge Scientific Abstracts
Database: PsycINFO (1840-Current)
Query: TI=(hypnotherapy and weight and control)
Your Comments:

Record 1 of 1

DN: Database Name
PsycINFO (1840-Current)
TI: Title
Hypnotherapy for weight control
AU: Author
Davis, Sally; Dawson, Joseph G
SO: Source
Psychological Reports. Vol 46(1), Feb 1980, pp. 311-314

Fri Sep 17 09:22:21 2004
Cambridge Scientific Abstracts
Database: PsycINFO (1840-Current)
Query: TI=(hypnotherapy and weight and management)
Your Comments:

Record 1 of 1

DN: Database Name
PsycINFO (1840-Current)
TI: Title
The thin book: Hypnotherapy trance scripts for weight management
AU: Author
Brickman, Hal
SO: Source
Phoenix, AZ, US: Zeig, Tucker & Co., Inc.. (2000). xv, 108 pp.

APPENDIX 6.1

alan.corrin

From: Alan <alan.corrin@lineone.net>
To: John Sambrook <J.P.Sambrook@bangor.ac.uk>
Sent: 31 March 2000 21:20
Subject: Audio Octogon System

Hi John
Firstly thanks for spending time with me today I really appreciate it. I was thinking about the controls arrangement as I was driving home and I think that I will need the following for each patient linked to the system this arrangement multiplied by at least eight.

Per individual

- Volume control No1 with settings to control mic output
- Switch to turn off mic output
- Volume control No2 with settings to control linked music output from player
- Switch to turn of music output
- Green light for hand held **yes** push button
- Red light for hand held **no** push button
- Push to cancel green and red lights from hand held push buttons
- Push to send out brief musical tone to headphones
- One set of well cushioned headphones with large ear pieces
- Two push buttons one marked red and one marked green

Common items
There will also need to be a common push to send out a musical tone to all headphones simultaneously.
We will need about 5 or 6 mtrs of leads to each patient's position.
Microphone headset

It would be good if I could play music behind my voice to specific patients but not always to them all. - is this practical??

Hope this helps
Thanks
Alan

alan.corrin

From: John <J.P.Sambrook@bangor.ac.uk>
To: Alan <alan.corrin@lineone.net>
Sent: 14 April 2000 12:38
Subject: Audio unit

Starting to look in to your project

Not clear on a few points

Per individual

"Volume control No1 with settings to control mic output " Should this be head set input.

"Switch to turn off mic output " Should this be head set input,

"Volume control No2 with settings to control linked music output from player " Is this for each individual to control or on the common main unit with one master volume control.

"Switch to turn of music output " Is this for each individual on the common main unit or on for each individual to control unit.

"Green light for hand held **yes** push button " OK

"Red light for hand held **no** push button " OK

"Push to cancel green and red lights from hand held push buttons " If both held down together will cancel the lights or on the common main unit.

"Push to send out brief musical tone to headphones " Is this for each individual on the common main unit or on for each individual to control. This can be a momentary switch which will gives out music while held down or for a given amount of time.

"One set of well cushioned headphones with large ear pieces " Mono units

"Two push buttons one marked red and one marked green" Part of the light OK?.Do the lights have to be repeated on the common main unit.

Common items

"There will also need to be a common push to send out a musical tone to all headphones simultaneously. " OK

"We will need about 5 or 6 mtrs of leads to each patient's position." OK

"Microphone headset" will head set output be normal common signal.

It would be good if I could play music behind my voice to specific patients but not always to them all. - is this practical?? This is possible and the same question is asked as above on who has the control. The music could be generated by a melody generator "I'd Like To Teach The World To Sing" or a tape input.

alan.corrin

From: Alan <alan.corrin@lineone.net>
To: John <J.P.Sambrook@bangor.ac.uk>
Sent: 14 April 2000 14:24
Subject: Re: Audio unit

Hi John

Yes volume control No 1, as you say, should be head set input - will be x 8 or more.

Yes again switch to turn off head set input - will be x 8 or more.

With regard to music - I would like to be able to pass music from a tape machine or C.D. via the common panel to all the headphones simultaneously and to be able to adjust the volume to suit each patient individually whilst also to being able to block the music to individual headsets as required. For instance I might want to put music behind my voice and be able to adjust both separately or I might want to place some individuals on hold and play them music - will be x 8 or more.

The red and green lights, indicating the activation by the patient of either the right or left hand held push buttons, need to be mounted on my panel and should stay on until I cancel them via a common push button for each set of red and green lights - will be x 8 or more sets of red and green lights and x 8 or more cancel push buttons.

I need to send out a musical tone to each head set simultaneously but I also need to be able to block this to selected head sets as required - so maybe a common tone out button and x 8 or more blocking buttons one for each head set.

Headphones need to be stereo

The hand held push buttons have no lights on them. They simply provide the patients with the facility for pressing right/ green push button for yes or left/ red push button for no which will then illuminate co-ordinated LEDs on my panel. For example I might ask an individual patient or a number of them a question and they can respond either negatively or affirmatively. In order to do this I will need to be able to block the headsets of the ones I am not talking to and it would be useful to put music into the ones on hold during such times.

Microphone headset output will be common signal unless blocked to selected positions from my panel.

With regard to the background music - it will need to come from a tape or CD because it will need to be specially selected for different occasions as well as being music which is specifically compatible with hypnosis.

AFTER THOUGHT
Is it possible to control left and right headphones individually to each patient from my panel for both volume and blocking so that I can explore and take advantage of the diversity between left and right brain functioning. This would need two volume controls and on/off switches for each set of headphones. Separate volume controls and on/off switches are necessary so that I can temporarily block the signal without interrupting the volume setting. Having to re-set volume settings would not be possible during treatment sessions as patients will not be awake.

I hope I have answered your questions sufficiently for you to make progress John. If not please feel free to contact me as often as you need. Thanks for getting on with things so quickly, I really appreciate it.

All the best
Alan.

alan.corrin

From: John <J.P.Sambrook@bangor.ac.uk>
To: Alan <alan.corrin@lineone.net>
Sent: 14 April 2000 16:30
Subject: Re: Audio unit

Hi Alan

"Yes volume control No 1, as you say, should be head set input - will be x 8 or more. "
Are the volume control on the common main unit

"Yes again switch to turn off head set input - will be x 8 or more."
Are the switches on the main common unit.

"AFTER THOUGHT
Is it possible to control left and right headphones individually to each patient from my panel for both volume and blocking so that I can explore and take advantage of the diversity between left and right brain functioning. This would need two volume controls and on/off switches for each set of headphones. Separate volume controls and on/off switches are necessary so that I can temporarily block the signal without interrupting the volume setting. Having to re-set volume settings would not be possible during treatment sessions as patients will not be awake."
This can all be done but it will push the cost up.

When will you be back in this area so as to go over details.
Regards
John

alan.corrin

From: Alan <alan.corrin@lineone.net>
To: John <J.P.Sambrook@bangor.ac.uk>
Sent: 14 April 2000 17:39
Subject: Re: Audio unit

Hi John
Yes all volume controls and switches are on the main common unit apart from the two hand held pushes for each patient. Yes let's go for the afterthought stuff too. How about meeting on any of the following mornings about 10-30am - Tue 25 Apr,
Thur 26 Apr or Fri 27 Apr.
Cheers
Alan

---- Original Message ----
From: John
To: Alan
Sent: Friday, April 14, 2000 4:30 PM
Subject: Re: Audio unit

Hi Alan

"Yes volume control No 1, as you say, should be head set input - will be x 8 or more. "
Are the volume control on the common main unit

"Yes again switch to turn off head set input - will be x 8 or more."
Are the switches on the main common unit.

"AFTER THOUGHT
Is it possible to control left and right headphones individually to each patient from my panel for both volume and blocking so that I can explore and take advantage of the diversity between left and right brain functioning. This would need two volume controls and on/off switches for each set of headphones. Separate volume controls and on/off switches are necessary so that I can temporarily block the signal without interrupting the volume setting. Having to re-set volume settings would not be possible during treatment sessions as patients will not be awake."
This can all be done but it will push the cost up.

When will you be back in this area so as to go over details.
Regards
John

From: John <J.P.Sambrook@bangor.ac.uk>
To: Alan <alan.corrin@lineone.net>
Sent: 17 April 2000 09:55
Subject: Re: Audio unit

Hi Alan
I will be about on Thursday 26 April only 11am onwards
Regards
John

> ---- Original Message ----
> **From:** Alan
> **To:** John
> **Sent:** Friday, April 14, 2000 5:39 PM
> **Subject:** Re: Audio unit
>
> Hi John
> Yes all volume controls and switches are on the main common unit apart from the two hand held pushes for each patient. Yes let's go for the afterthought stuff too. How about meeting on any of the following mornings about 10-30am - Tue 25 Apr,
> Thur 26 Apr or Fri 27 Apr.
> Cheers
> Alan
>
> > ---- Original Message ----
> > **From:** John
> > **To:** Alan
> > **Sent:** Friday, April 14, 2000 4:30 PM
> > **Subject:** Re: Audio unit
> >
> > Hi Alan
> >
> > "Yes volume control No 1, as you say, should be head set input - will be x 8 or more. "
> > Are the volume control on the common main unit
> >
> > "Yes again switch to turn off head set input - will be x 8 or more."
> > Are the switches on the main common unit.
> >
> > **"AFTER THOUGHT**
> > Is it possible to control left and right headphones individually to each patient from my panel for both volume and blocking so that I can explore and take advantage of the diversity between left and right brain functioning. This would need two volume controls and on/off switches for each set of headphones. Separate volume controls and on/off switches are necessary so that I can temporarily block the signal without interrupting the volume setting. Having to re-set volume settings would not be possible during treatment sessions as patients will not be awake."
> > This can all be done but it will push the cost up.
> >
> > When will you be back in this area so as to go over details.
> > Regards
> > John

From: Alan <alan.corrin@lineone.net>
To: John Sambrook <J.P.Sambrook@bangor.ac.uk>
Sent: 17 April 2000 12:20
Subject: Audio unit

Hi John

Re: Audio unit

I have put together a sketch of how I envisage the unit might be configured and I hope to work out how to scan and email it to you today. I have shown the controls for only the first of a set of eight (or more). As you can see each of the eight control sections is divided into four areas: operator voice output, Tape/CD output, Ideomotor response and tone.

Operator voice output: This area of the panel controls the volume of my voice into the patient's left and right headphones. I am able to block my output to one or both sides of the patient's headphones without disturbing the volume control settings.

Tape/CD output: This area of the panel controls sounds played from a tape or CD. As with operator voice output, the volume can be adjusted to either side of the patient's head phones and I can block the output to either left or right headphones without disturbing the volume control settings.

Ideomotor responses: This area of the panel contains the green and red LEDs which correspond with and indicate the operation of the two hand held push buttons. As I want the LEDs to remain lit once activated I have included a switch so that I can cancel the LEDs and also test them.

Signal: This area of the panel allows me to send out a musical tone as a signal to an individual patient's headphones by pressing a button. There is also the facility to block a common group signal sent out to the rest of the group simultaneously.

Group signal: There will be a common facility on the panel to send out a musical tone as a signal to all the headphones simultaneously.

I have put Thur 26 at 11am in my diary for our next meeting.

So sketch to follow soon!!!

Regards
Alan.

alan.corrin

From: John Sambrook <J.P.Sambrook@bangor.ac.uk>
To: Alan Corrin <hsp402@bangor.ac.uk>; Alan <alan.corrin@lineone.net>
Sent: 09 June 2000 12:42
Attach: audio.bmp
Subject: Audio Octagon System

Hi Allan

Cost of parts and labour for The Audio Octagon System of Group Hypnosis is £2100.00

Consisting of one audio and logic control box, eight head set, eight hand sets, and one microphone

Delivery will be within three months from date of receiving order.

Regards John

Find attached schematic drawing of audio and logic control box

John Sambrook
Head Electronic Work Shop
Department of Chemistry
University of Wales, Bangor
Gwynedd, LL57 2UW Tel: +44 (0)1248 382520
Wales, UK Fax: +44 (0)1248 370528
E-Mail J.P.Sambrook@bangor.ac.uk

[redacted]

A RCHEB · REQUISITION

FFURFLEN ARCHEBU · ORDER FORM

Adran Gwasanaeth Electronau a/Meg Cyf

DYDDIAD · DATE: 15-6-22

CYFRIF I DALU OHONO · ACCOUNT TO BE CHARGED: [redacted]

ENW · NAME: E. Jones

RHIF YSTAFELL · ROOM NO.....
RHIF FFÔN · TEL NO.....
LLYTH-EL · E-MAIL.....

AWDURDODWYD · AUTHORISED: [redacted]

RHEOLAIDD · ACHLYSUROL
RECCURING · NON RECCURING

Eitem · Item	Disgrifiad · Description	Nifer · Qty	Amcan Gost · Est. Cost
	HYDIC COTAGON SYSTEM ORDER NO 02562 Ex Alan Gemini, Rossett	1	£2,700

DYDDIAD · DATE	RHIF ARCHEB · ORDER No	Cyfanswm Cost Anfoneb · Total Inv. Cost:	Cyfanswm Amcan Gost · Total Est. Cost:

[redacted]

Audio Octagan System Digital Board 30/11/2000

External Board

CRYSTAL

PIC16C74,1

MAX232,1

74LS374,1

74HC138,1

Decode

RDBUS

Led1_4

Led5_8

SP

R1_8

HR H5

Parts List :-

1	1 off	Audio Octagon System.
2	8 off	Headphones.
3	8 off	Sets of red and control green push buttons.
4	1 off	Operator headphone with microphone.
5	10 off	Extension leads
6	1 off	Power lead.

To order spares :- All from CPC Part Number

Headset	AV00770
Headset with microphone	AV00160
Extension lead for headsets	AV02471

For repair return to :-

John Sambrook
Electronic Work Shop
Chemistry Department
University of Wales Bangor
Bangor
Gwynedd LL57 2UW

Tel: 01248 382520

Audio Octagon System.

System operation :-

The operator has control of each channel in terms of voice volume right and left or can switch them off individually. Also has the same controls for external inputs for CD and tape. The melody tone has a master volume control which can be heard by each headphone when the individual melody switch is switched on and the master melody is also switched on. To aid the operator in preparing his headset the microphone can be switch off to avoid unnecessary noise from the microphone, the LED will illuminate when microphone is switched off. The quality of the operators voice from the microphone is controlled by the treble and base knobs. The operator can select to listen by means of the master selector switch to each output channel or the external input or melody or the microphone (self). Each set of red and green push buttons when pressed will illuminate the corresponding LED on the front panel and can be reset individually or all reset by the master reset. The master reset LED illuminates when any of the red and green push buttons are pressed.

Master Selector Switch Positions :-

0	Off
1	Channel 1 output
2	Channel 2 output
3	Channel 3 output
4	Channel 4 output
5	Channel 5 output
6	Channel 6 output
7	Channel 7 output
8	Channel 8 output
9	External input (Tape and CD)
10	Melody
11	Microphone (self)

Power on tests :-

Reset button channel 1 pressed on power on will display each LED in turn for one second.

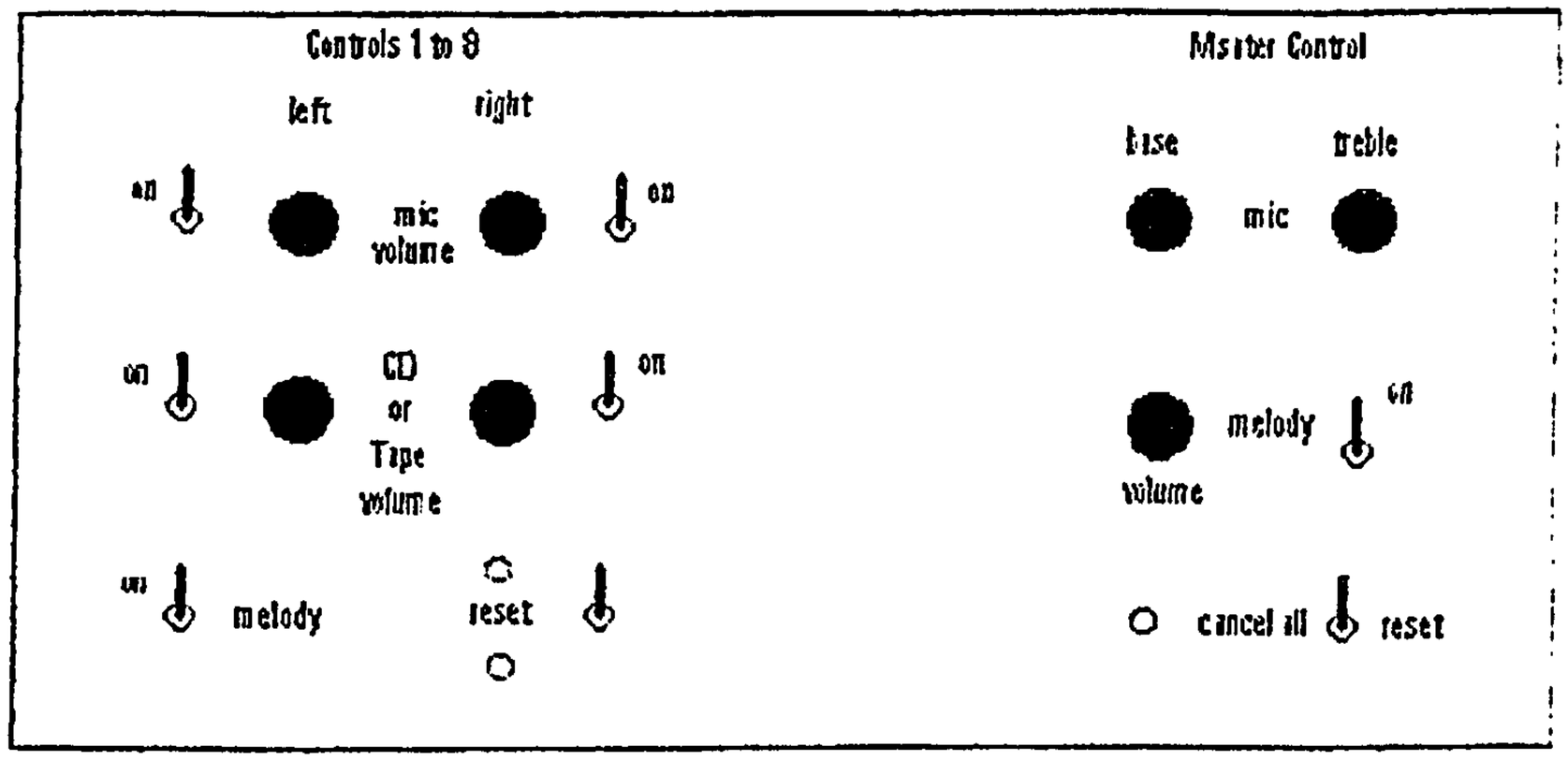
Reset button channel 2 pressed on power on will display each LED in turn for one tenth of a second.

Reset button channel 3 pressed on power will setup test for red and green push buttons 1 to 8. On pressing each button a corresponding LED will be illuminate.

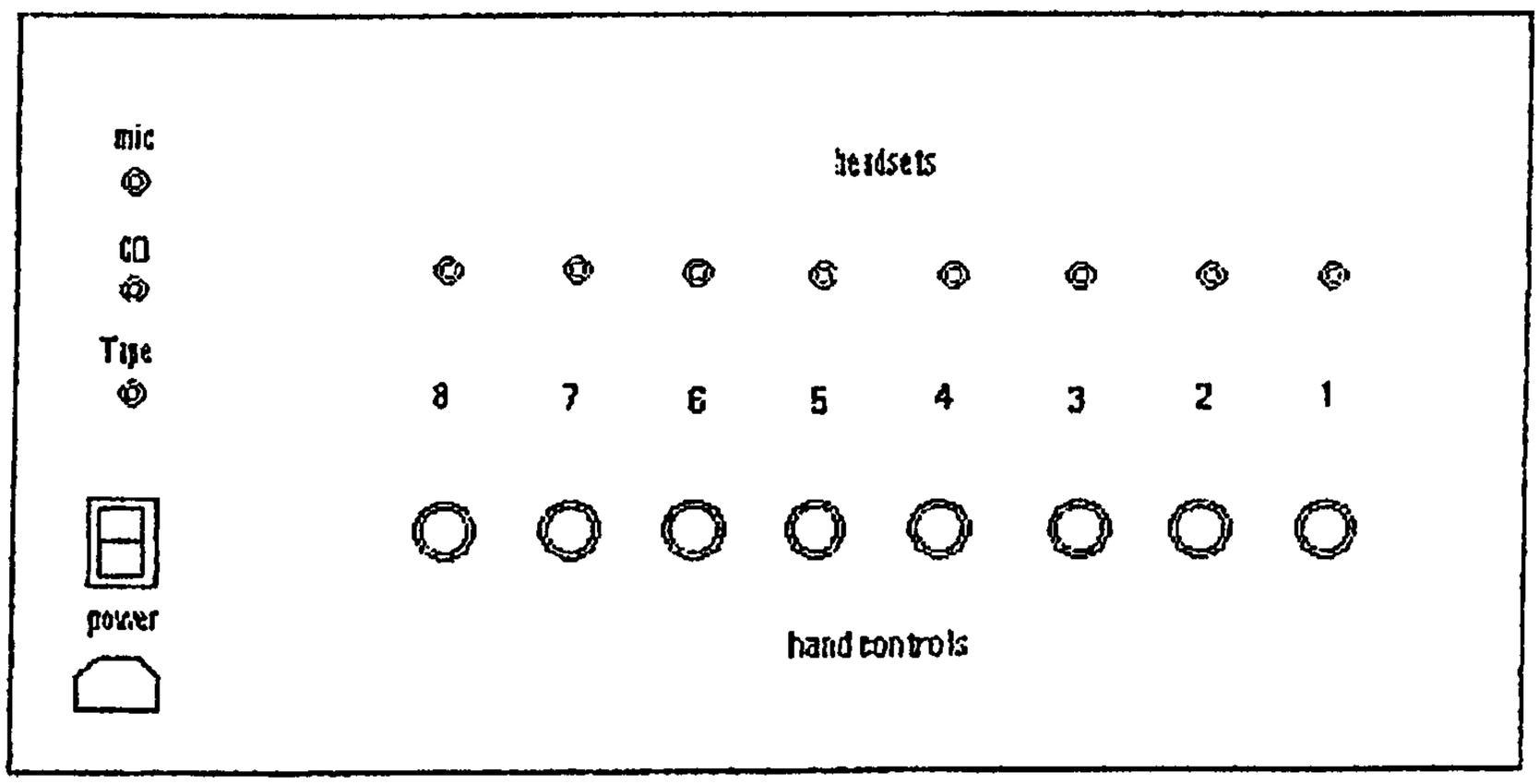
Reset button channel 4 pressed on power will setup test for front reset and switch. On pressing each button or switching switch the corresponding chose LED will illuminate.

Specifications :-

The push buttons and LED signals are controlled via a PIC device which sets the key inputs to approximately 10 milli seconds delay. This avoids spurious signals from other sources.



Schematic showing front controls



Schematic showing rear connections

Octagon Audio System Wiring Connections J2 — 27th November 2000

Front Panel to PIC Ribbon Cable

Board Connection	Channel1	Channel2	Channel3	Channel4	Channel5	Channel6	Channel7	Channel8
Red LED J2	2	7	12	17	22	27	32	37
Green LED J3	3	8	13	18	23	28	33	38
Reset J6	4	9	14	19	24	29	34	39
0V	1	10	11	20	21	30	31	40
5V	5	6	15	16	25	26	35	36

Front Panel to PIC Ribbon Cable
Control Module

Reset LED	42
Microphone LED J6	43
Reset Switch	44
Microphone Switch J20	45
0V	41

Rear Panel to PIC Ribbon Cable

	Handset1	Handset2	Handset3	Handset4	Handset5	Handset6	Handset7	Handset8
Red	49	51	53	55	57	59	61	63
Green	50	52	54	56	58	60	62	64
0V	47-48	47-48	47-48	47-48	47-48	47-48	47-48	47-48

Hand Switch to 5 pin DIN

Red (red wire)	1
Green (yellow wire)	5
0V (Screen)	2,3,4

Amplifier Board

	Channel1	Channel2	Channel3	Channel4	Channel5	Channel6	Channel7	Channel8
R Output SP	1	4	7	10	13	16	19	22
L Output SP	2	5	8	11	14	17	20	23
Gnd	3	6	9	12	15	18	21	24
R Output SW	1	4	7	10	13	16	19	22
L Output SW	2	5	8	11	14	17	20	23
Gnd	3	6	9	12	15	18	21	24

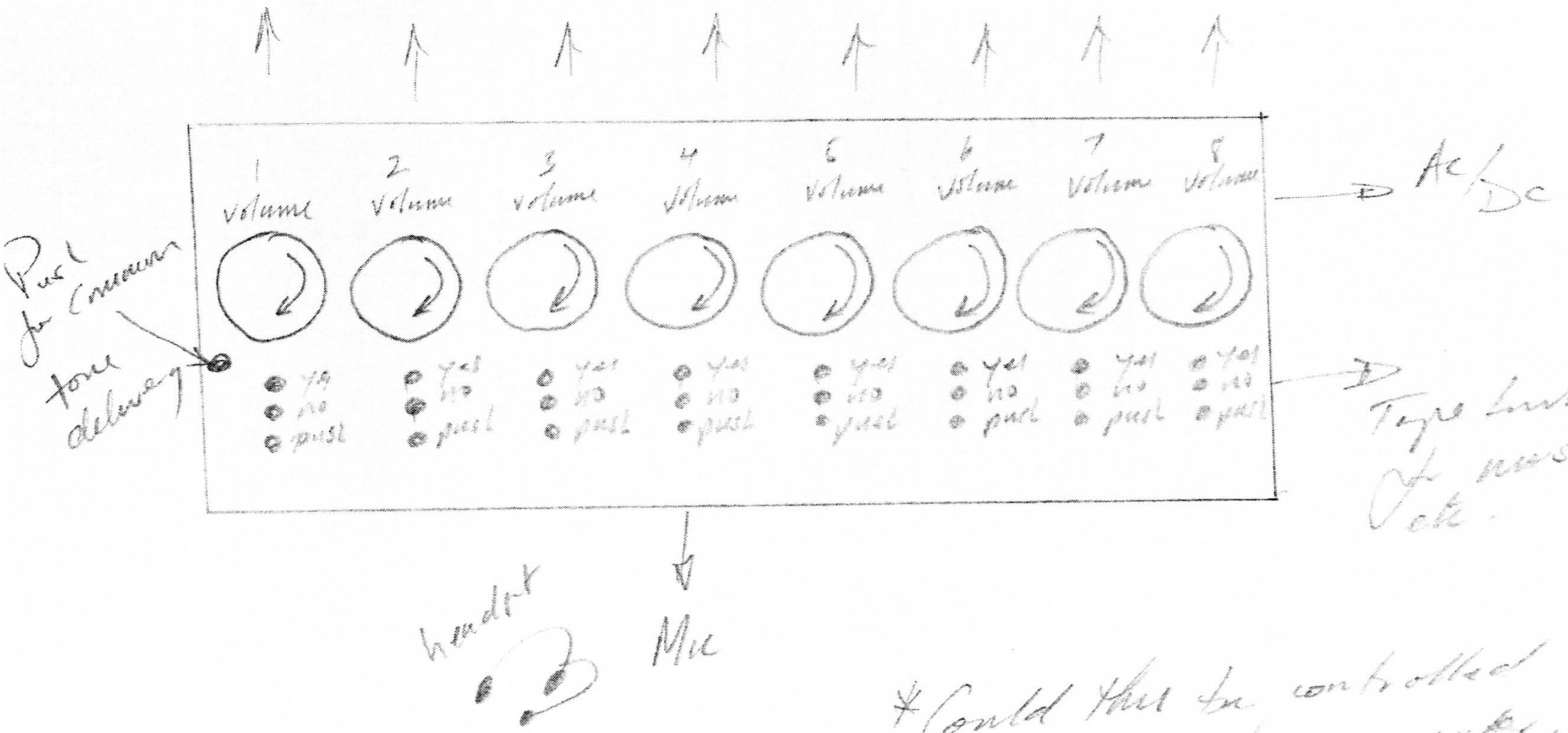
	Channel1	Channel2	Channel3	Channel4	Channel5	Channel6	Channel7	Channel8
MIC	1	1	1	1	1	1	1	1
GND	2	2	2	2	2	2	2	2
R CD-TAPE	3	3	3	3	3	3	3	3
GND	4	4	4	4	4	4	4	4
L CD-TAPE	5	5	5	5	5	5	5	5
GND	6	6	6	6	6	6	6	6
MELODY	7	7	7	7	7	7	7	7

Power Supplies

	Amplifier Boards	PIC Board
+5V	J17	J4
0V	J18	J3
-5V	J19	

Headphones (large circumaural type) with
left and right PUSH PULL buttons.

Ray
7/2



*Could this be controlled from my laptop computer?

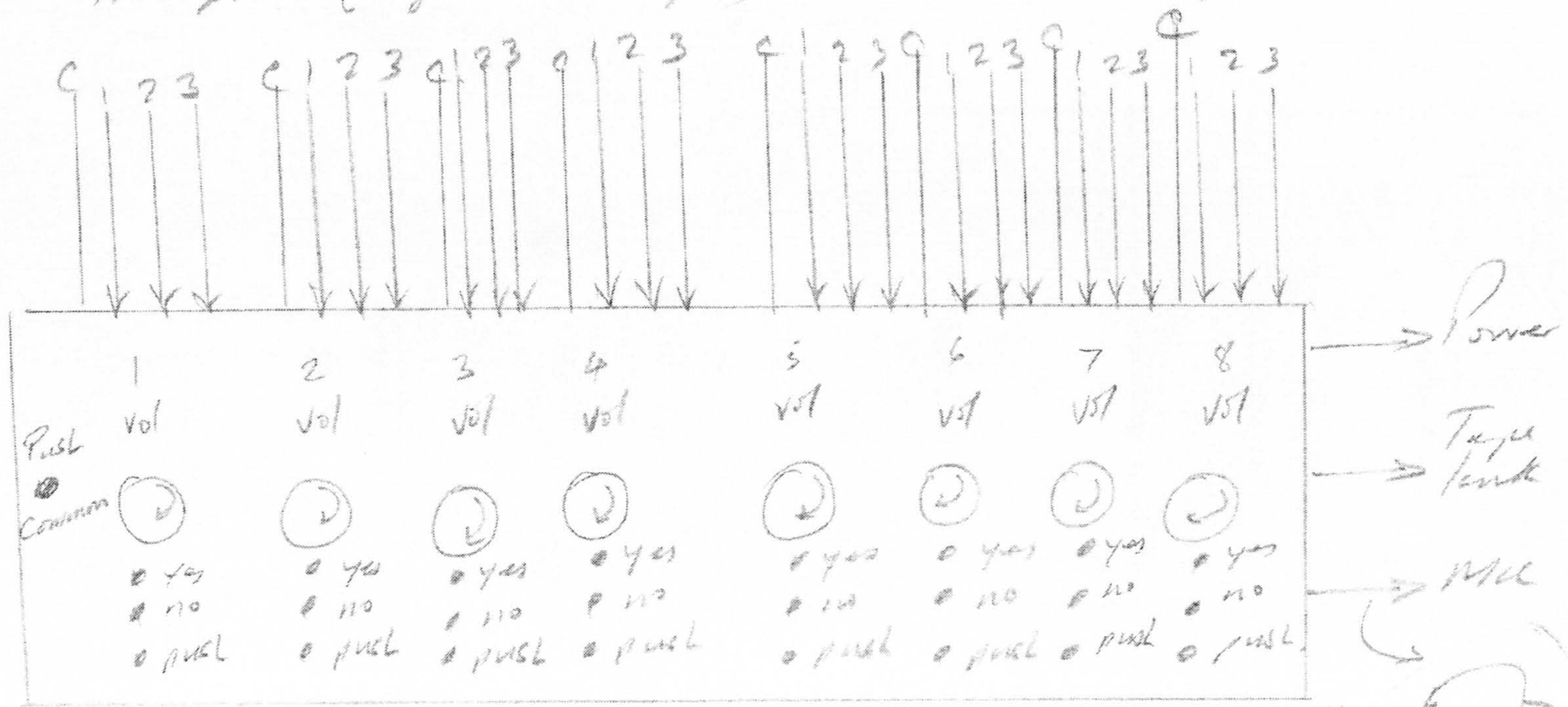
7/3/00
NKC

Common tone out
left IMR in
Right IMR in
Headphones out.

* 5V switch for each set of headphones.

Rev 2 MC
24/3/00.

Headphones (large acoustic type) and IMR left/right PWR buttons

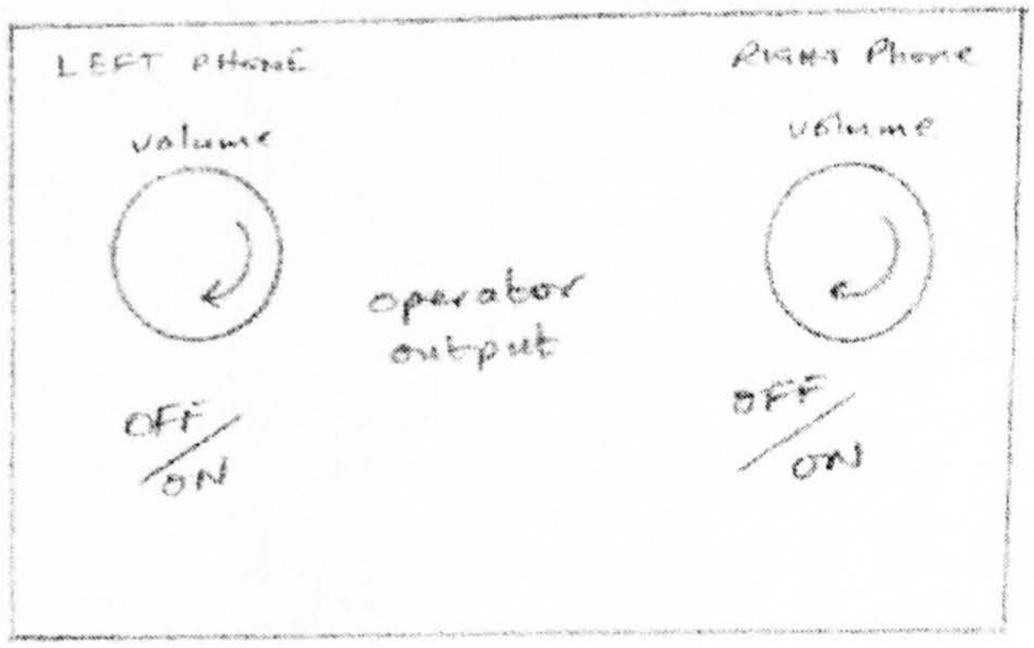


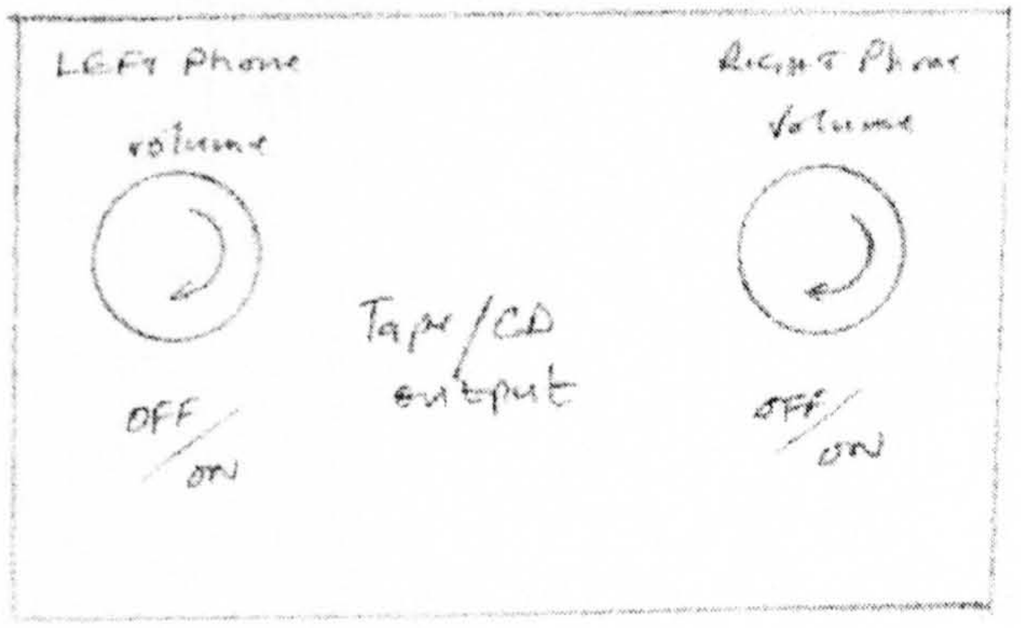
Push → Delivers tone to all headphones
Common 5mm stereo only

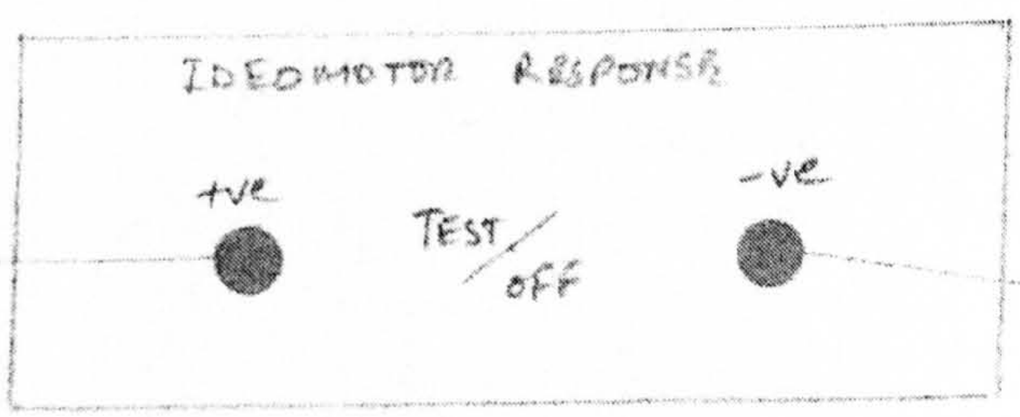
- yes - Right IMR push button
- no - Left IMR push button/headset.
- push - Tone to position.

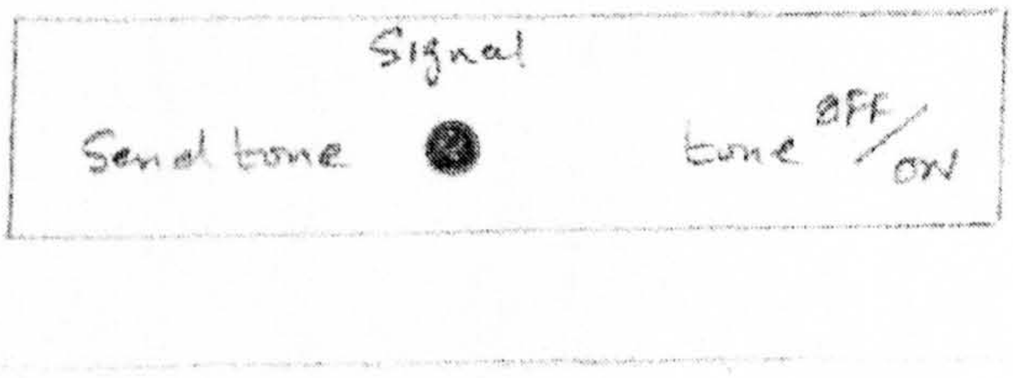
April 2000 AK

POS 1.



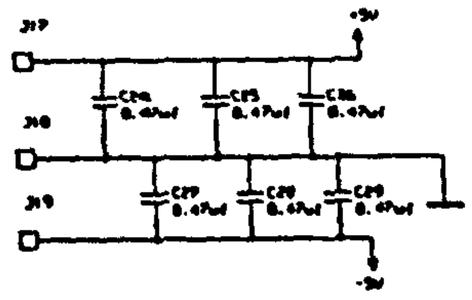


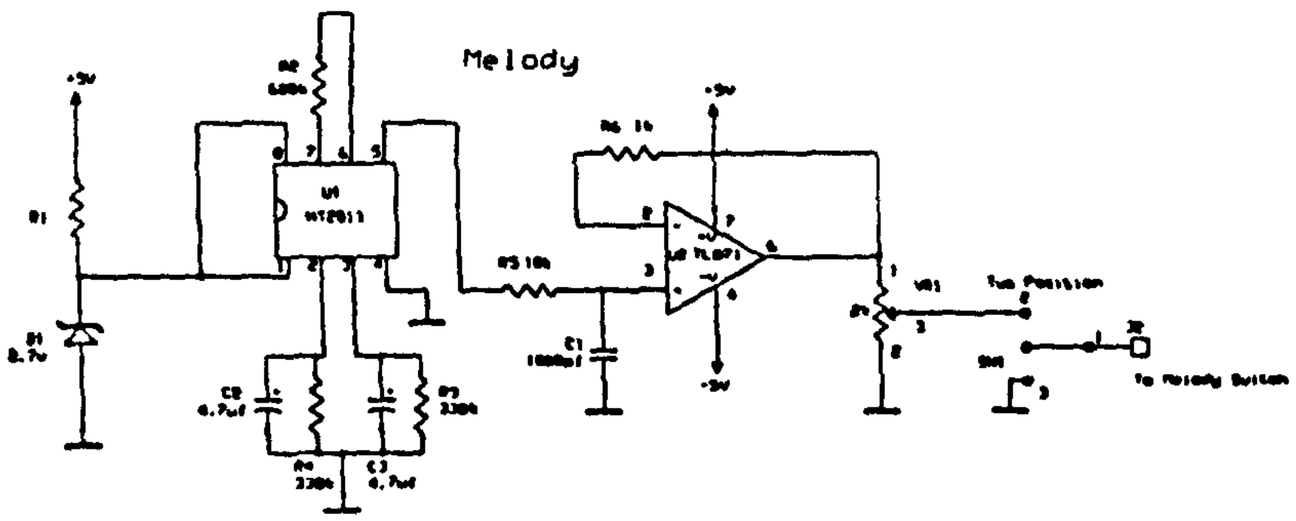


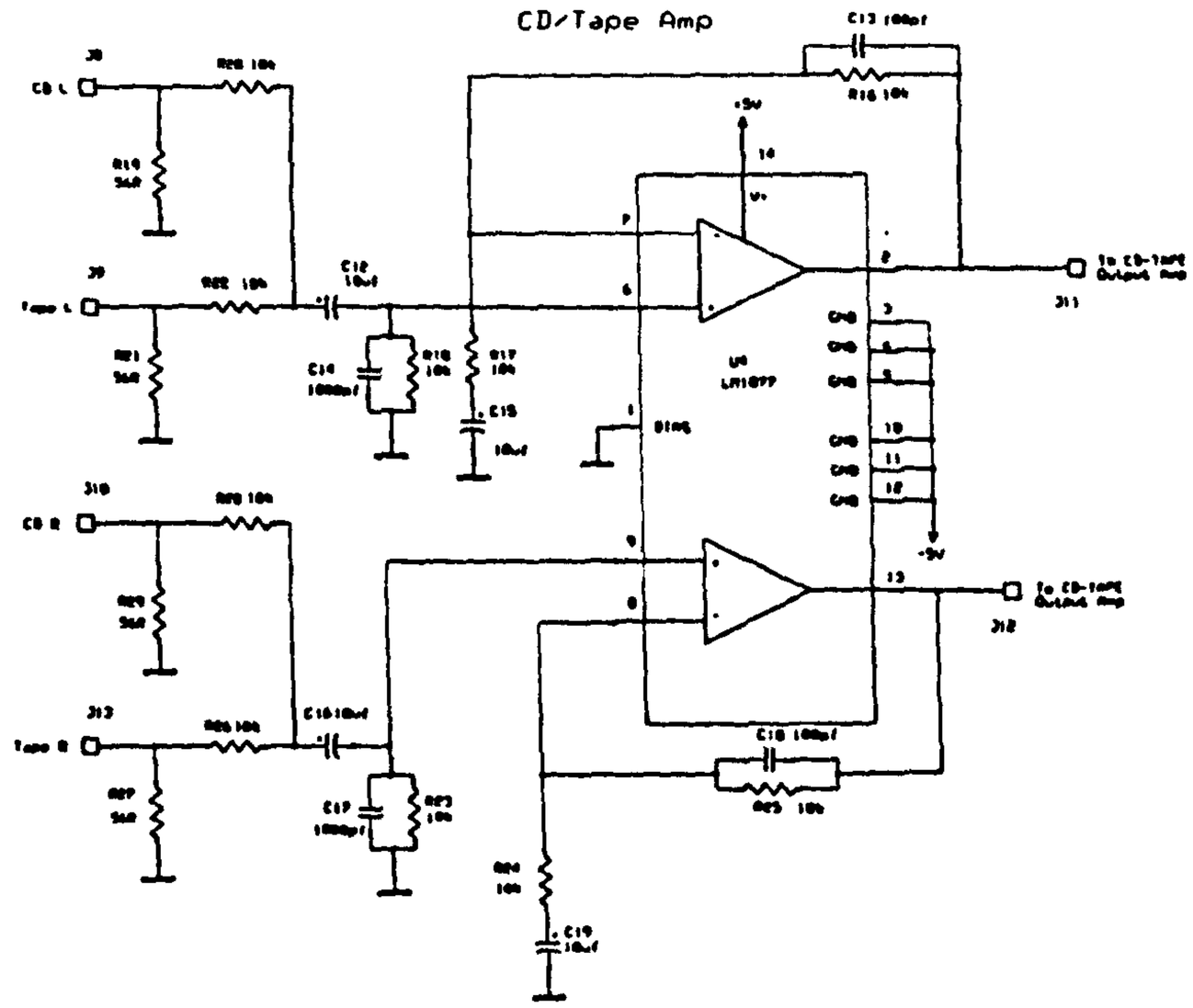


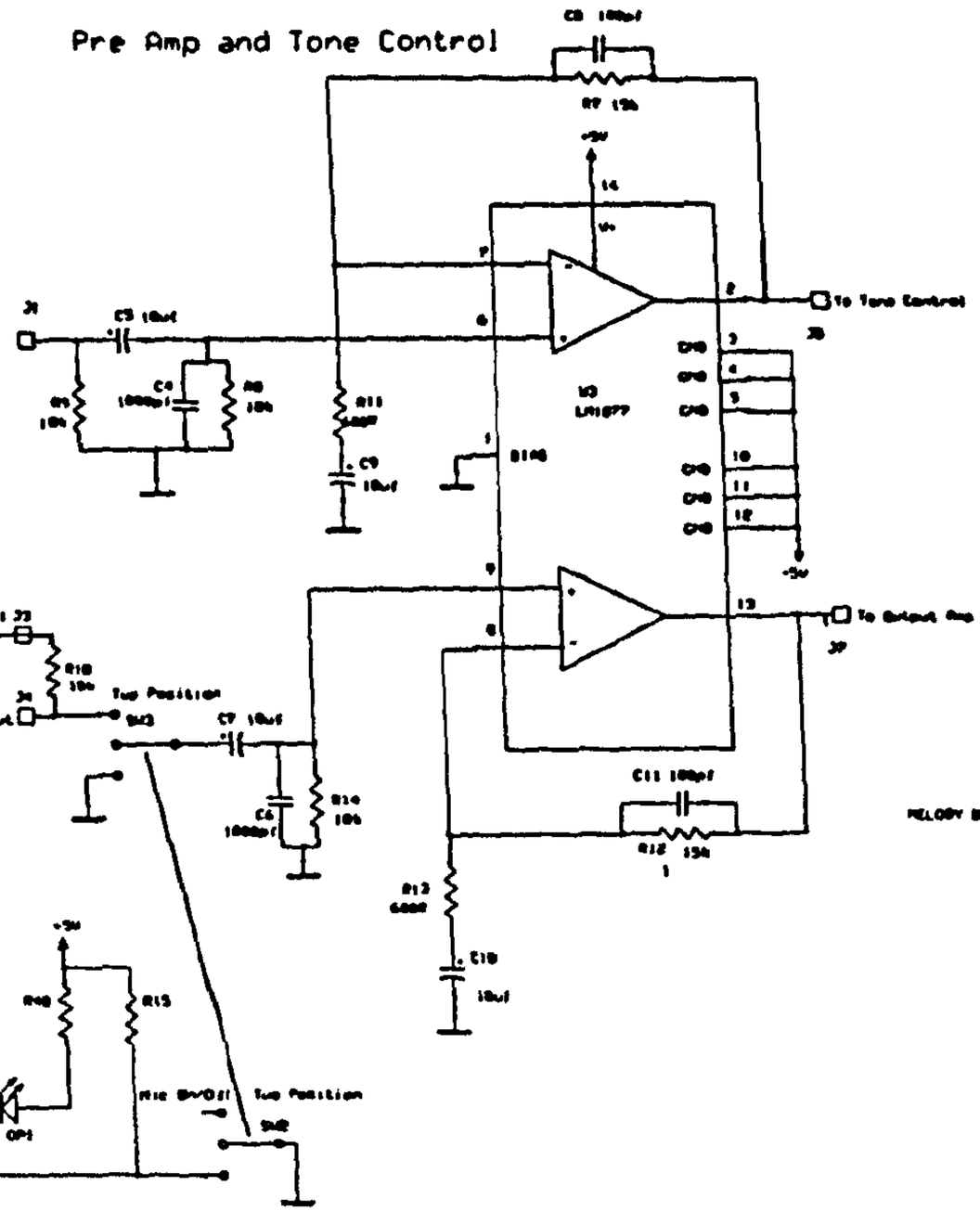
* Common Signal Somewhere on panel.

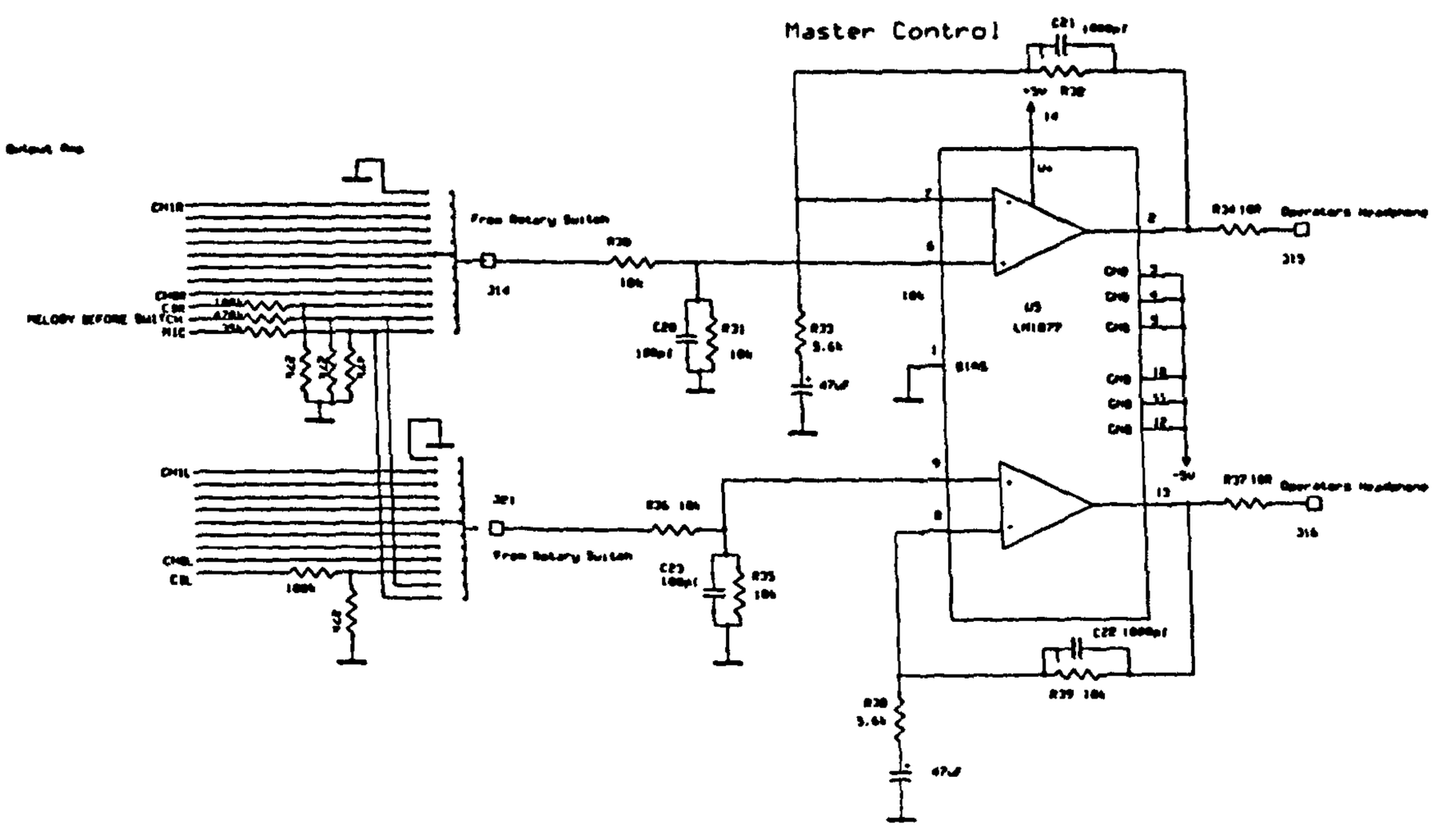
Audio System Control Module Sept 2000



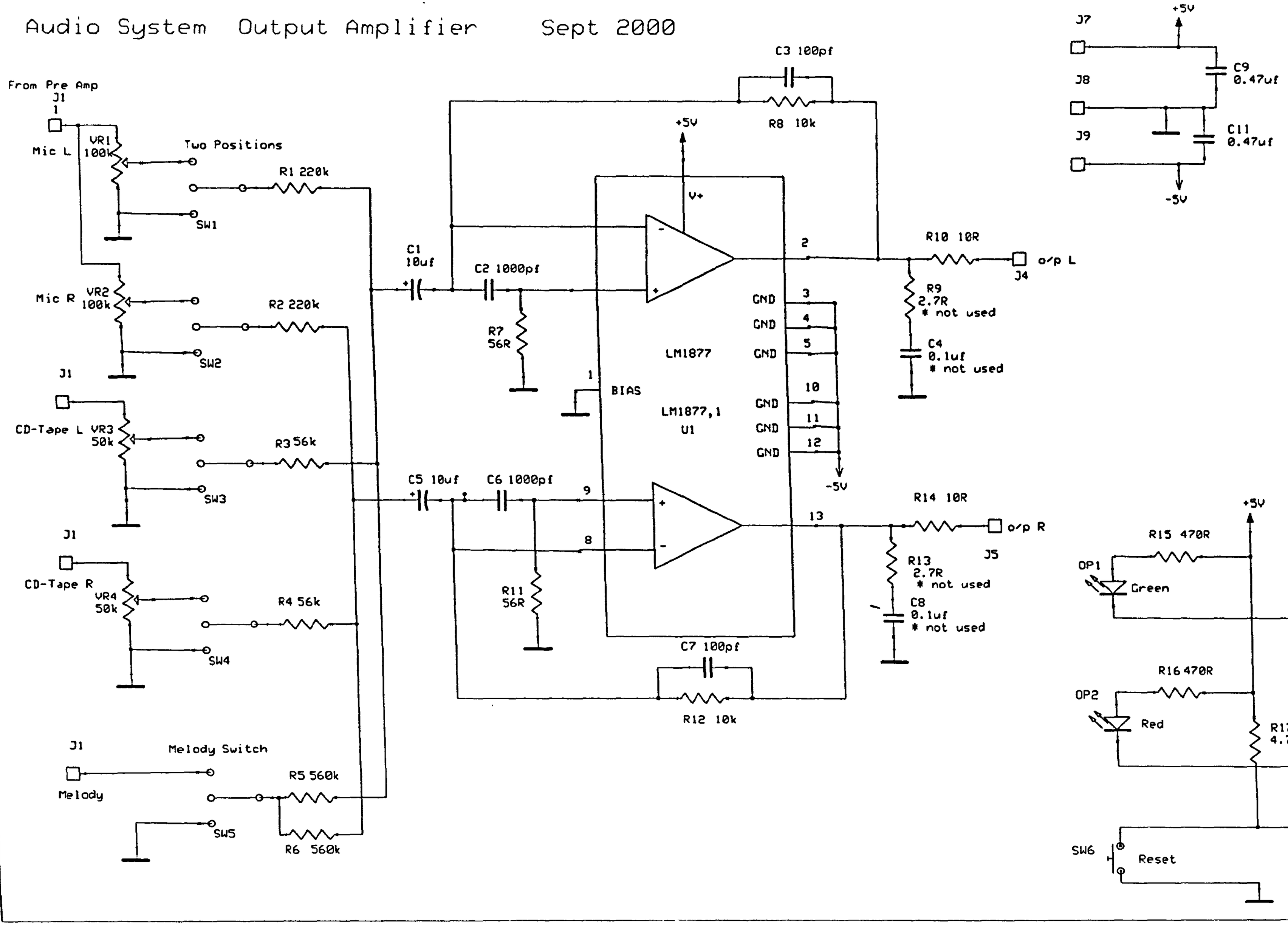








Audio System Output Amplifier Sept 2000



Images A and B show the rear and front sections respectively of the equipment control panel. Image C shows the typical set-up for the operator's control station. Image D shows 3 participants during Study No1. They are seated in the sociofugal formation and are holding their IMR wands in their hands. The researcher is operating the system and the various control cables are visible out to each group position. Image E shows a participant holding the IMR wands with thumbs poised to press the buttons. Of the wires leading to the participant the grey are for the IMR wands and the black for the headphones. Image F shows the green and red IMR wands.

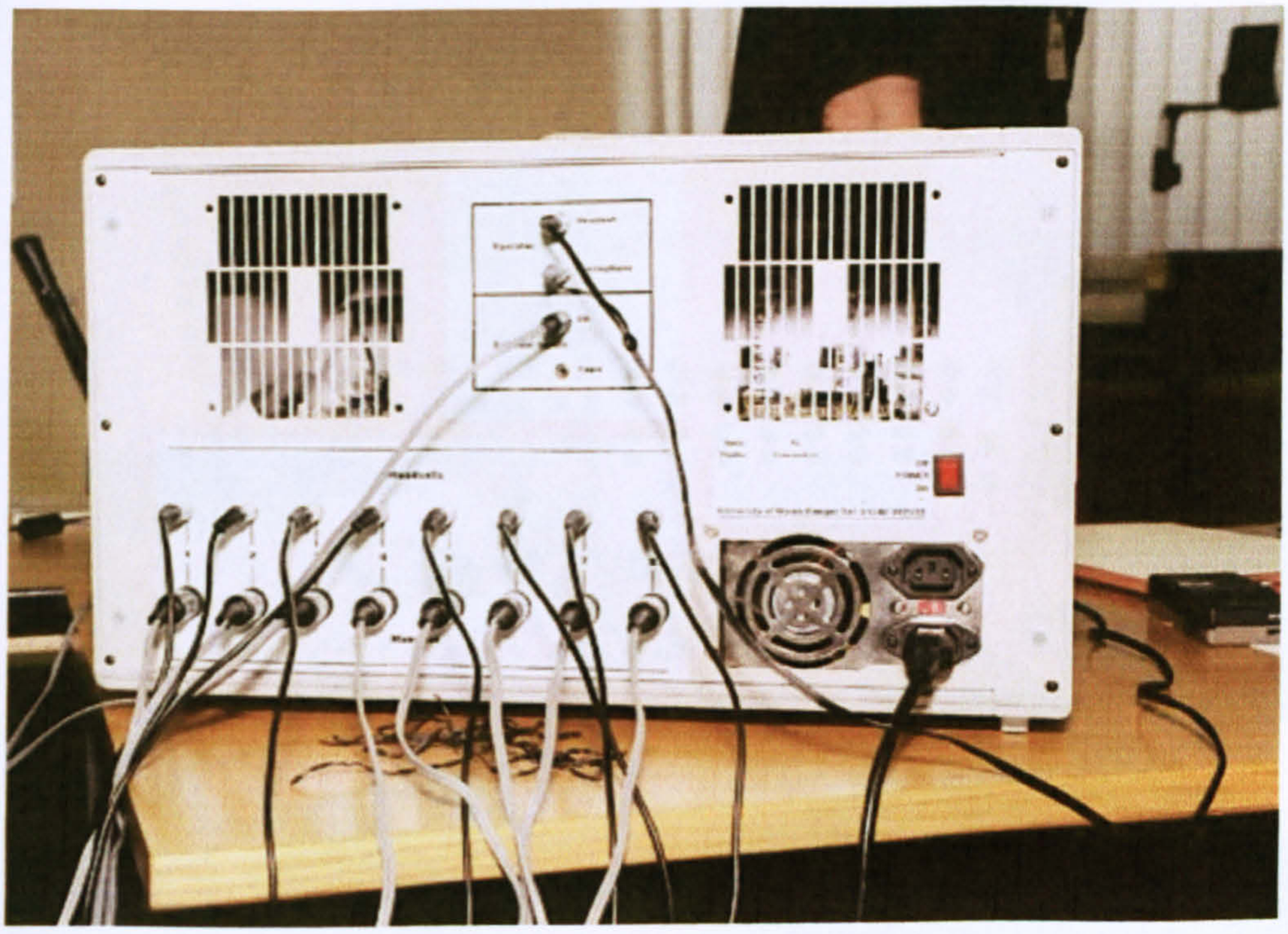


Image A

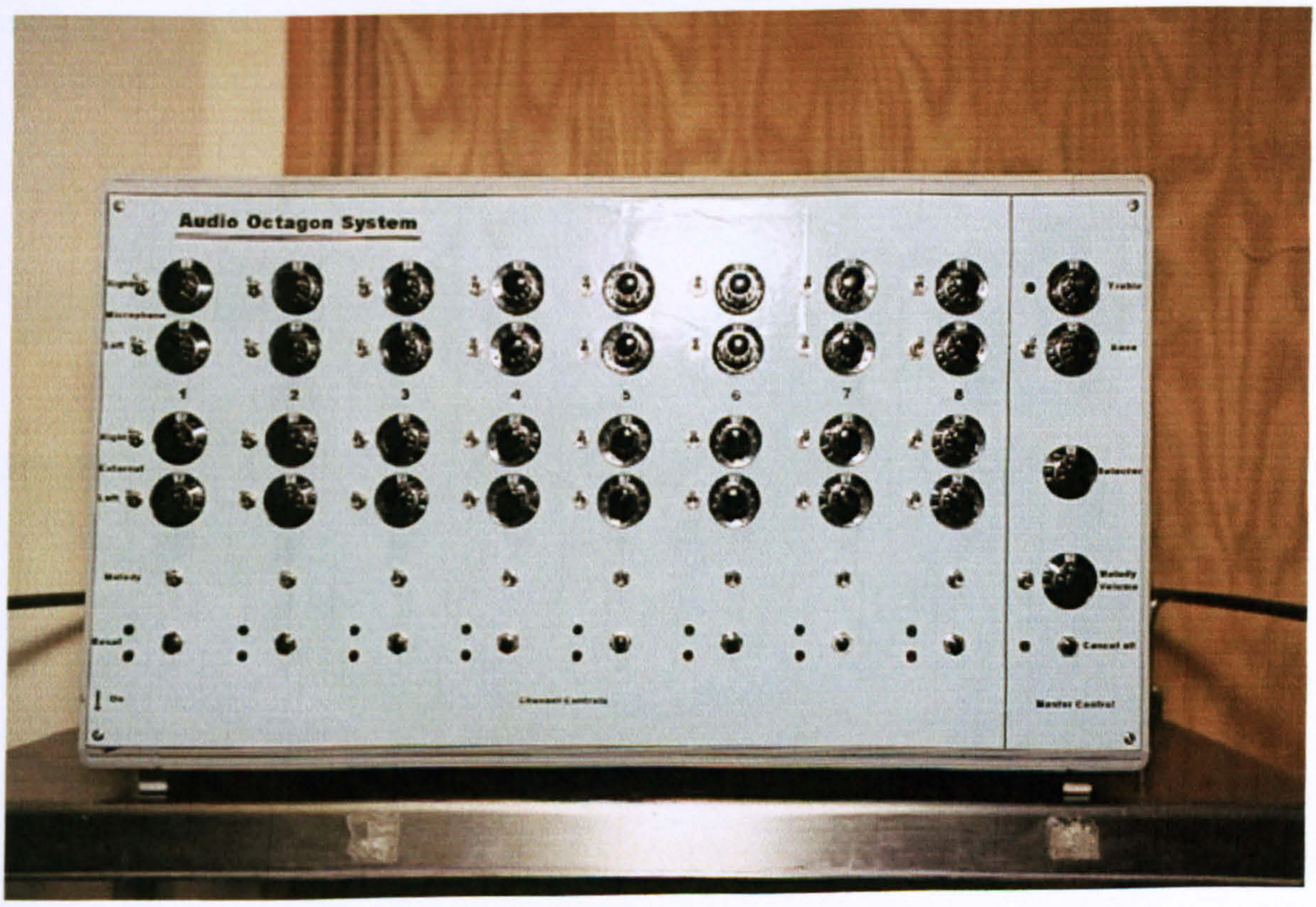


Image B

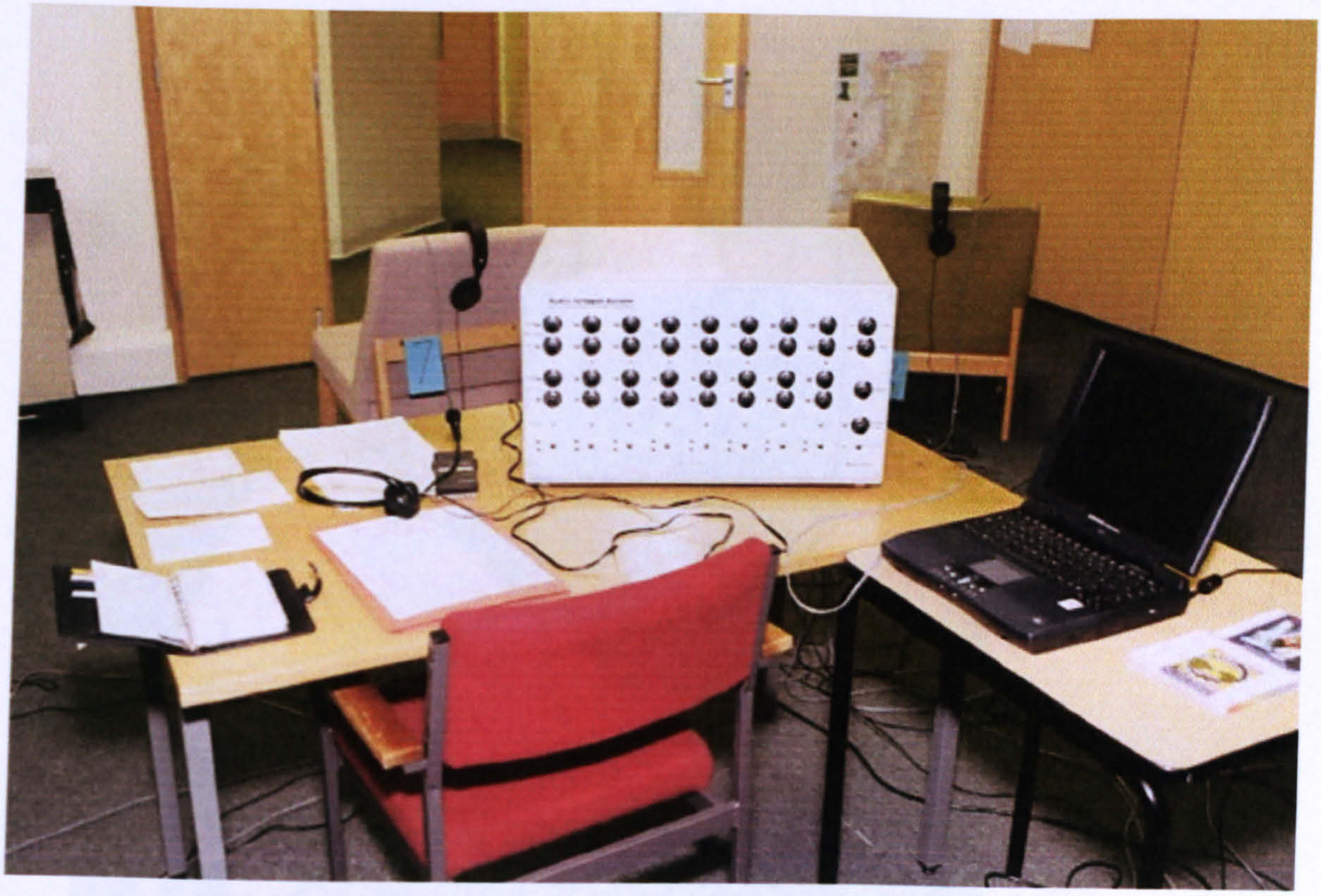


Image C

Image D

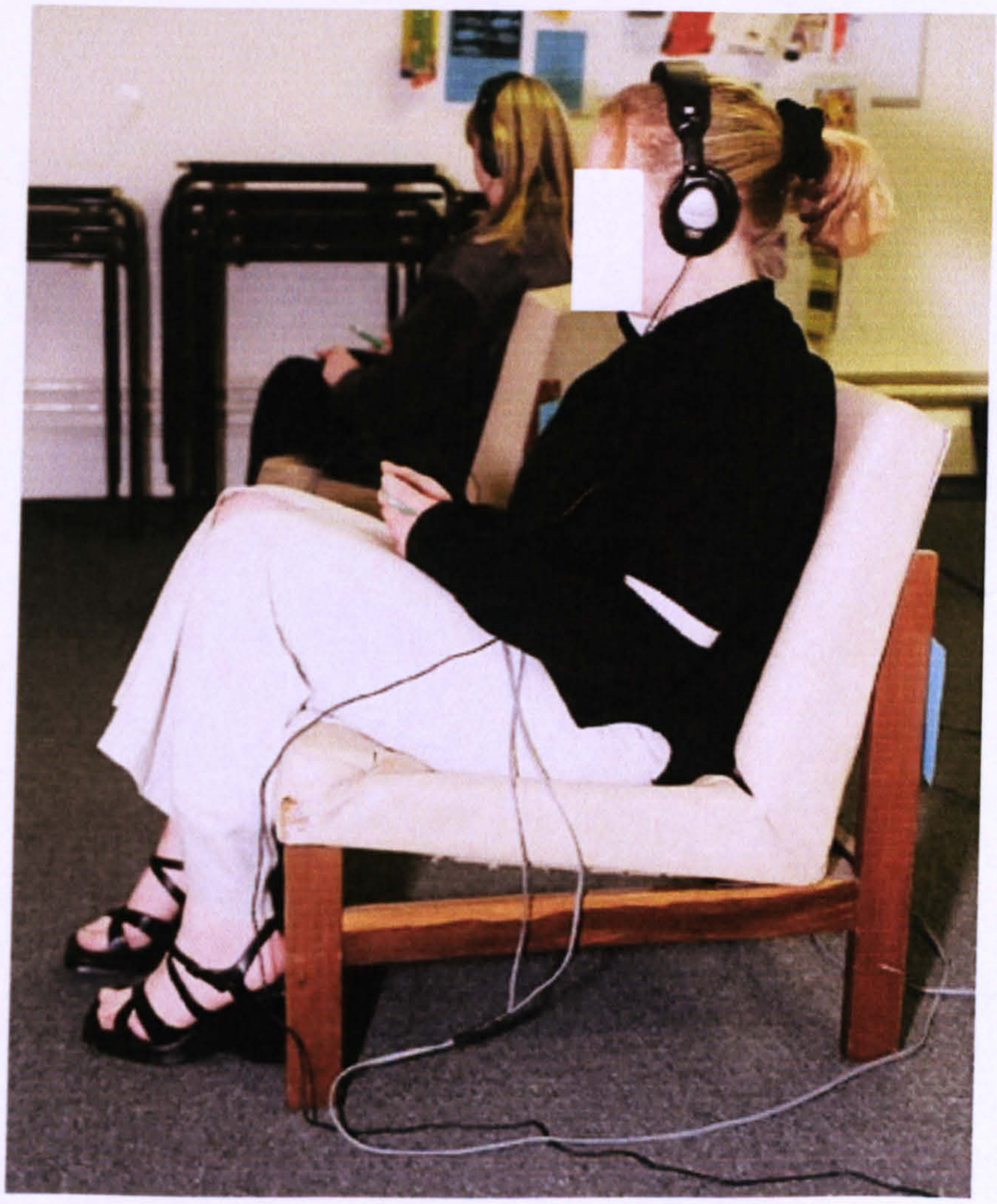


Image E

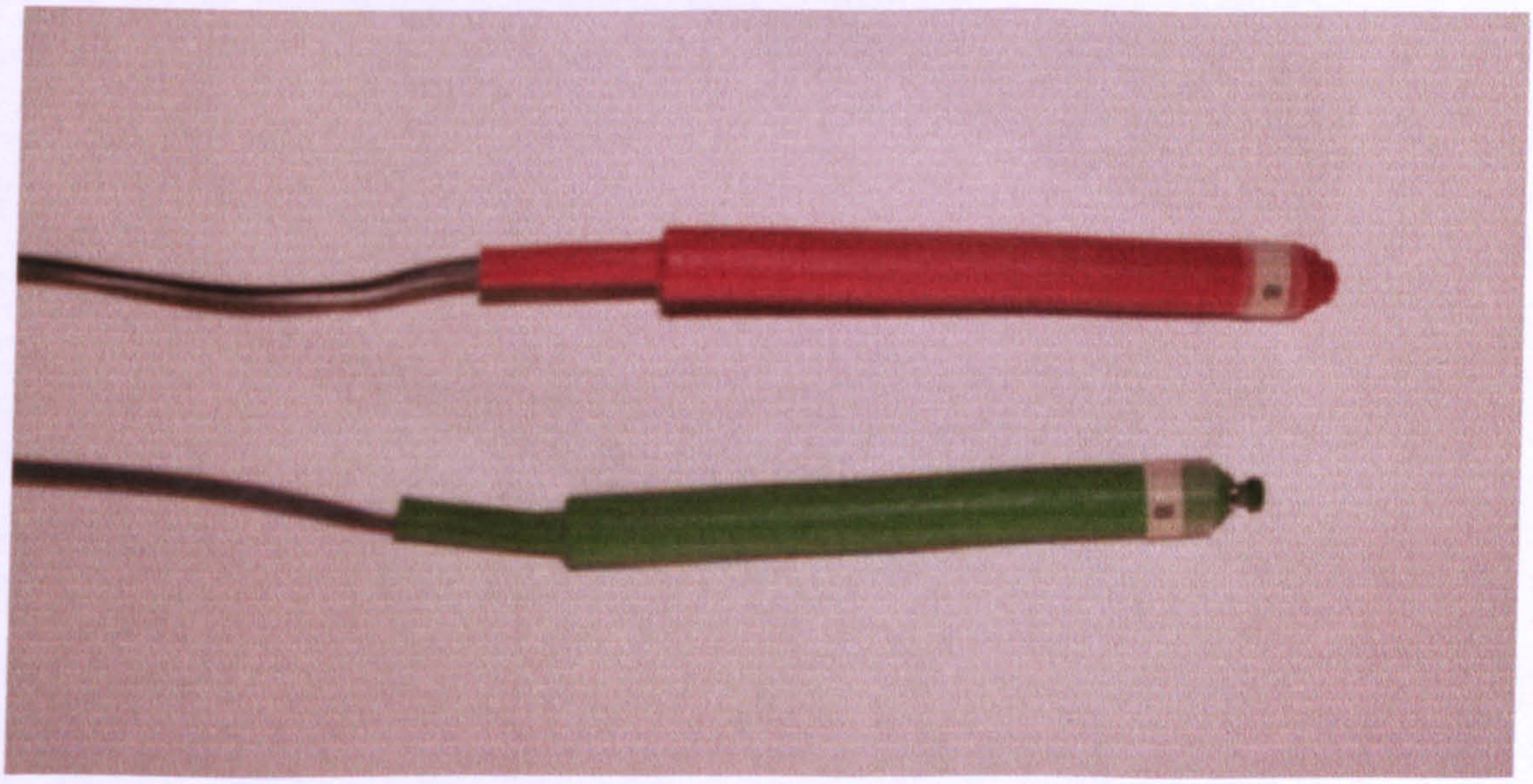


Image F

APPENDIX 6.2

Study No1

GROUP 1

DAY	DATE	TIME	ROOM
Monday	05-02-01	09.30	24
Friday	09-02-01	13.30	24
Monday	12-02-01	09.30	24
Friday	16-02-01	09.30	24
Monday	19-02-01	13.30	19
Thursday	22-02-01	09.30	19
Friday	23-02-01	13.30	19

GROUP 2

DAY	DATE	TIME	ROOM
Monday	05-02-01	XXX	24
Friday	09-02-01	XXX	24
Monday	12-02-01	XXX	24
Friday	16-02-01	XXX	24
Monday	19-02-01	11.30	19
Thursday	22-02-01	11.30	19
Friday	23-02-01	11.30	19

GROUP 3

DAY	DATE	TIME	ROOM
Monday	05-02-01	XXX	24
Friday	09-02-01	09.30	24
Monday	12-02-01	13.30	24
Friday	16-02-01	13.30	24
Monday	19-02-01	09.30	19
Thursday	22-02-01	13.30	19
Friday	23-02-01	09.30	19

APPENDIX 6.3

Assembling procedure

1) Set out chairs numbered 1-8 to octagon formation around central table.

2) Place AOS control console on table with lap top computer alongside.

3) Install numbered headphones with corresponding octagon positions.

4) Install numbered push button sets with corresponding octagon positions.

5) Install operator mic.

6) Install external CD linkage and appropriate CD.

7) Install power supply to AOS.

8) Install power supply to lap top computer.

REVERSE PROCEDURE TO DISASSEMBLE.

Pre-clinical checks procedure

1) All switches off

2) All dials at zero

3) AOS power supply ON

4) Lap top computer ON

5) Left / right ear phone volume + / - for mic input positions 1-8

6) Left / right ear phone volume + / - for CD input positions 1-8

7) Red / green push buttons, LEDs and re-set buttons positions 1-8

8) Signal tone and volume positions 1-8

9) Treble function positions 1-8

10) Base function positions 1-8

11) Intrude selector function positions 1-8

12) Individual patient mic and CD volume settings applied

13) Group treble, base and signal tone settings applied

14) All mic input switces OFF

15) All external CD input switches ON

Post clinical checks procedure

1) All switches OFF

2) All dials at zero

3) AOS power supply OFF

4) Lap top computer power supply OFF

5) CD removed

6) Modifications to any settings recorded

7) Verify individual pieces on disassembly

CLINICAL SETTINGS

POS 1-8	NAME OF SUBJECT	MIC LEFT VOL	MIC RIGHT VOL	EXT LEFT VOL	EXT RIGHT VOL
1					
2					
3					
4					
5					
6					
7					
8					

GROUP BASE:

GROUP TREBLE:

GROUP ID:

REASON FOR SESSION:

DATE:

APPENDIX 6.4

Group positions register

Research or treatment details:

Start date: **Finish date:**

Any other comments:

Position	Patient No
1	
2	
3	
4	
5	
6	
7	
8	

Trial No 3 attendance register

No	GRP	% att	1	2	3	4	5	6	7	8	9	10	11	12
001														
002														
003														
004														
005														
006														
007														
008														
009														
010														
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026														
027														

PATIENT INFORMATION SHEET

The following questions are ones that you might ask about the research I am conducting. If you have others not covered here please feel free to ask me.

Q. What if I volunteer for the research then change my mind?

A. *You do not have to volunteer for this research and if you do volunteer you are free to drop out at any time. Neither your treatment nor the way you are cared for will be affected by your decision not to volunteer for the research or your decision to drop out at a later stage.*

Q. What is your research about?

A. The research is about the psychological treatment of obesity.

Q. Why are you doing the research?

A. I am doing this research to help me achieve my PhD in applied psychology.

Q. What do you hope to achieve?

A. My ultimate objective is to provide a more effective treatment for obesity.

Q. What will I have to do if I decide to go ahead?

A. The next stage of the study after the induction meeting, where you received this information, is for you to attend a measurement session on either the 18, 19 or 20 April. At this session a female helper will measure your waist and hips whilst you are lying flat and will take your weight and percentage of body fat. After this I will ask you to complete a number of psychological questionnaires. For the treatment stage you will have to attend at the

Archimedes Centre twice per week for six weeks, between 23 April and 1 June. Immediately after the treatment has ended you will need to attend a repeat Measurement / questionnaire session and a final measurement / questionnaire session in September. You will also be expected to undertake a blood sugar test (HBA1c) on 4 occasions during the trial that will involve a finger-prick to obtain a small amount of blood.

Q. What will happen to me if I agree to this treatment?

A. If you agree to take part in the trial you will be required to attend twice each week for 6 weeks at the Archimedes Centre. During the trial you will be part of a group of 8 other people who are also participants in the research. Each week the group will undergo a new form of hypnosis and hypnotherapy designed to help you control your eating behaviour. This will involve sitting comfortably in a chair for about 1 hour whilst listening to music through headphones.

Q. What will you be measuring during the three measuring / assessment sessions?

A. A female helper will measure your waist and your hips whilst you are lying flat. You will be asked to stand on the same equipment that I used to measure your weight during our first meeting. This time the equipment will be used to measure your weight and your percentage of body fat. She will then measure your height to double check the measurement that I took during our first meeting. After completing the physical measurements you will be asked to sit in an adjoining room to complete a set of questionnaires. The questionnaires will provide information about your eating behaviour and a variety of aspects of your life and might provide clues about why you eat inappropriately.

Q. What if I do not respond to hypnosis.

A. About ninety percent of people are responsive to hypnosis to some degree. So you probably will be too.

Q. What is it like to be hypnotized?

A. If you have never been hypnotized before please don't worry it is nothing like you see on the television. Being hypnotized is very much like getting carried away by a good book, a film or piece of music, very much like day dreaming. Hypnosis has also been described as an altered state of consciousness or awareness. You are likely to feel deeply relaxed but you will remain in complete control of yourself at all times. Contrary to popular belief you can not be made to act in ways that are disagreeable to you whilst you are hypnotized. In fact like most people I am sure that you will find it a most pleasant experience.

Q. Are there any risks or side effects connected to the experimental treatment?

A. There are no risks or side effects attached to being involved in the research. Sometimes patients being treated with hypnotherapy experience a release of anxiety or tension which may cause them to become upset but this is rare.

Q. Will I get the chance to discuss my eating problems with you in private?

A. If there is ever anything you want to discuss with me related to the research you can contact me using the telephone number you have been given.

Q. Will I have to do anything else during the study?

A. You should have been given a food and drink self report diary to report your food and drink intake over a two week period from 31 March to 14 April. You must sign a consent form before the start of the trial. Because I have not yet published details of equipment I have invented for the research the University requires that you must also complete a confidentiality agreement.

Q. Will my privacy be protected?

A. Any information which is gathered about you during the trial will be treated in the strictest confidence and will be either stored on secure computer records or in a locked filing cabinet. During the research you will be referred to by an identification number for which only I will have the code. Also you can see the information which is stored about you at any time. Details which could identify you will not be released to a third party without your written consent.

Q. Will I receive any payment or expenses for taking part in the research?

A. Unfortunately fees or expenses cannot be paid to participants nor am I, as the researcher, receiving any payment for conducting the research.

Q. Will I be protected by insurance cover?

A. During the research you will be covered by my clinical hypnotherapy professional liability insurance and by insurance held by the University of Wales, Bangor. Copies of the insurance documents can be viewed on request.

Q. Will you inform my G.P that I am taking part in the research?

A. I will inform your general medical practitioner in writing about your involvement in the research if you specifically request me to.

Q. When will I have to attend at the Archimedes Centre after the induction meeting?

A. For the first measurement / questionnaire session on 18, 19 or 20 April. For treatment on April 23, 26, 30. May 3, 8, 11, 14, 17, 21, 24, 29 and June 1. The dates are still to be decided for the second and third questionnaire / measurement sessions.

Q. How can I contact you?

A. You can contact me by ringing the above telephone number Monday to Friday 9am to 5pm or if I am unavailable by talking to the research secretary Kathy Mainwaring.

THANK YOU FOR VOLUNTEERING TO TAKE PART IN MY RESEARCH

Alan Corrin

Research Psychologist

April 2001

PATIENT CONSENT FORM.

Trial N0 3

I have received and understood adequate information to enable me to make an informed decision to take part in the research being conducted by Alan Corrin in part fulfilment of his PhD entitled trial No 3 and freely agree to do so.

Patient's Name……

Hospital Number……

Patient's signature…… Date ____/____/____

Patient's name (print)……

Witness's signature…… Date ____/____/____

Witness's name (print)……

ANTHROPOMETRICAL DATA

Trial No 3

Patient's name_____ **Study No**_____

Hosp No_____ **Date**____/____/____

Weight	Height	Hips	Waist	% BF	WHR	BMI

Returned food diary yes no **Returned medication info** yes no

PERSONAL OBSERVATIONS

STUDY No_____ **DATE___/___/___**

PLEASE USE THE SPACE BELOW TO NOTE DOWN ANY CHANGES YOU HAVE NOTICED SINCE STARTING THE EXPERIMENTAL TREATMENT.

PLEASE PAY PARTICULAR ATTENTION TO YOUR PATTERN OF EATING, YOUR ABILITY TO RESIST FATTENING FOODS, YOUR MOTIVATION, ANY CHANGE IN THE AMOUNT OF FOOD CRAVINGS, YOUR LEVEL OF ACTIVITY, YOUR DIABETES AND YOUR LEVEL OF OPTIMISM REGARDING BEING ABLE TO ACHIEVE A PERMANENT WEIGHT REDUCTION.

PLEASE MENTION ANYTHING ELSE WHICH YOU SEE AS RELEVANT.

Continue over

Record of focussed activity – Trial No 3

Week commencing: **Participant number:**

Other comments:

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

DAY…… Participant No……..

DATE...../……/……

Breakfast

G
R
E
E
N

R
E
D

Lunch

G
R
E
E
N

R
E
D

Dinner

G
R
E
E
N

R
E
D

Supper

G
R
E
E
N

SLEEP-Time:

APPENDIX 6.5

AWDURDOD IECHYD GOGLEDD CYMRU
NORTH WALES HEALTH AUTHORITY
NORTH EAST WALES ETHICS COMMITTEE

Ysbyty Maelor Wrecsam
Ffordd Croesnewydd
Wrexham
LL13 7TD
Ffon: Llinell Uniongyrchol (01978 725368

Wrexham Maelor Hospital
Croesnewydd Road
Wrexham
LL13 7TD
Tel: Direct Line 01978 725368

Mr A Corrin
University of Wales, Bangor
Faculty of Health Studies
Archimedes Centre
Wrexham Technology Park
Wrexham

3rd July 2000

Dear Mr Corrin,

RE: AMELIORATING EXAGENOUS OBESITY: AN EVALUATION OF CLINICAL HYPNOSIS

The members of the Committee thank you and Mr Iphofen for attending the meeting of the North East Wales LREC meeting on Wednesday 28th June 2000 and were impressed by the novel elements of your study.

You have permission to proceed with the described protocol and we wish you success.

Yours sincerely,

DR C P WILLIAMS
Consultant Chemical Pathologist
Chairman – North East Wales LREC

APPENDIX 6.6

CREATIVE IMAGINATION SCALE

ARTICLES

****If appropriate apply hypnotic induction (attached).**

Arm Heaviness.

By letting your thoughts go along with these instructions you can make your left hand and arm feel heavy. Please close your eyes and place your left arm straight out in front of you at shoulder height with the palm facing up.

Begin timing approx 1'20"

Now imagine a very heavy dictionary is being placed on the palm of your left hand... let yourself feel the heaviness... your thought make it feel as if there is a heavy dictionary on your hand... you create the feeling of heaviness in your hand by thinking of a large heavy dictionary... now think of a second large heavy dictionary being placed on top of the first heavy dictionary... feel how very heavy your arm begins to feel as you push up on the dictionaries... push up on the heavy dictionaries as you imagine the weight... notice how your arm feels heavier and heavier as you push up on them... now tell yourself that a third big heavy dictionary is being piled on top of the other two heavy dictionaries in your hand and your arm is very... very heavy... let yourself feel as if there are three heavy dictionaries on the palm of your hand and your arm is getting heavier and heavier and heavier... feel your arm getting heavier and heavier and heavier very... very... very heavy getting heavier and heavier and heavier... very heavy

Now tell yourself that your hand and arm feel perfectly normal again and just let your hand and arm come back down and relax.

Hand levitation.

By directing your thoughts you can make your hand feel as if it is rising easily without effort. Keep your eyes closed and place your right arm straight out in front of you at shoulder height with the palm facing down.

Begin timing approx 1'10"

Now picture a garden hose with a strong stream of water pushing against the palm of your right hand... pushing up against the palm of your hand... think of a strong stream of water pushing your hand up... let yourself feel the strong stream of water pushing up against the palm of your hand... pushing it up... feel the force of the water... pushing your hand up... feel it pushing against the palm of your hand... tell yourself that the force of the water is very strong and... as you think about it ... let your hand begin to rise... feel your hand rising as you imagine a strong stream of water pushing it up... and up... and up... higher and higher... tell yourself that a strong stream of water is pushing your hand up and up... raising your arm and hand higher and higher as the strong stream of water just pushes it up... just rises and pushes and just pushes it up... higher and higher

Now tell yourself it's all in your own mind and just let your hand and arm come back down and relax.

Finger Anaesthesia.

By focussing your fingers you can make your fingers feel numb. Please place your left hand in your lap with the palm facing up. Keep your eyes closed so you can focus fully on all the sensations in the fingers of your left hand.

Begin timing approx 1'50"

Now...try to imagine and feel as if Novocain has just been injected into the side of your left hand next to the little finger so that your little finger will begin to feel like it does when it falls asleep...focus on the little finger...become aware of every sensation and the slight little changes as you think of the Novocain slowly beginning to move into your little finger...just slowly moving in...notice the slight little changes as the little finger begins to get just a little numb and a little dull...the little finger is becoming numb as you think of the Novocain moving in slowly...now think of the Novocain moving into the second finger next to the little finger...tell yourself that the second finger is getting duller and duller more and more numb as you think of how the Novocain is beginning to take effect...tell yourself that these two fingers are beginning to feel kind of rubbery and are losing feelings and sensations...as you think of the Novocain moving in faster...the fingers feel duller and duller...more and more numb...dull...numb and insensitive...keep thinking that the two fingers are dull numb and insensitive as you touch the two fingers with your thumb...as you touch the two fingers with your thumb notice how they feel duller and duller...more and more numb...more and more insensitive...dull ...numb ... rubbery and insensitive

Now tell yourself it's all in your own mind and you're going to bring the feeling back; bring the feeling back into the two fingers.

Water Hallucination.

Keep your eyes closed, by using your imagination constructively you can experience the feeling of drinking cool, refreshing water.

Begin timing approx 1'30"

First...imagine you've been out in the hot sun for hours and you're very...very thirsty and your lips are dry and you're so thirsty...now...picture yourself on a mountain where the snow is melting...forming a stream of cool clear water...imagine your self dipping a cup into this mountain stream so you can have a cool...refreshing drink of water...as you think of sipping the water tell yourself it's absolutely delicious as you feel it going down your throat...cold and beautiful and delicious...feel the coolness and beauty of the water as you take a sip...now think of taking another sip of water and feel it going over your lips and tongue...going down your throat ...down into your stomach...feel how cool...refreshing...delicious and beautiful it is as you take another sip...so cool...cold...sweet...beautiful...delicious and refreshing...think of taking another sip now and feel the cold water going into your mouth...around your tongue... down your throat. And down into your stomach...so beautiful and cool and wonderful... absolutely delicious...absolute pleasure

Olfactory – Gustatory Hallucination.

Keep your eyes closed. By using your imagination creatively, you can experience the smell and taste of an orange.

Begin timing approx1'30"

Picture yourself picking up an orange and imagine that your peeling it...as you create the image of the orange...feel yourself peeling it and let yourself see and feel the orange skin on the outside and the soft white pulp on the inside of the skin...as you continue peeling the orange...notice how beautiful and luscious it is and let yourself smell it and touch it and feel the juiciness of it...now think about pulling out one or two of the orange sections with your fingers...pull out part of the orange and bite into it...experience how juicy...luscious and flavourful it is as you imagine taking a deep...deep bite...let yourself smell and taste the orange

and notice that it's absolutely delicious...let yourself feel how delicious...beautiful...and luscious it is...just the most beautiful...juicy orange...absolutely juicy and wonderful...let yourself taste and smell the juicy orange clearly now as you think of taking another large bite of the delicious...juicy orange

Music Hallucination.

Keep your eyes closed.

Begin timing approx 0' 45"

Now...think back to a time when you heard some wonderful...vibrant music...it could have been anywhere...and by thinking back you can hear it even more exquisitely in your own mind...you make it yourself and you can experience it as intensely as real music...the music can be absolutely powerful...strong...exquisite...vibrating through every pore of your body...going deep into every pore...penetrating through every fibre of your being...the most beautiful...complete...exquisite...overwhelming music you ever heard...listen to it now as you create it in your own mind

15 second pause

You may stop listening to the music now.

Temperature Hallucination.

Keep your eyes closed and place your hands in your lap with the palms facing down and resting comfortably on your lap. By focusing your thinking you can make your right hand feel hot.

Begin timing approx 1'15"

Picture the sun shining on your right hand and let yourself feel the heat...as you think of the sun shining brightly...let yourself feel the heat increasing...feel the sun getting hotter and feel the heat penetrating your skin and going deep into your hand...think of it getting really hot now...getting very hot...feel the heat increasing...think of the sun getting very...very hot as it penetrates into your hand...getting very hot...tell yourself...the rays are increasing...the heat is increasing...getting hotter and hotter...feel the heat penetrating through your skin...feel the heat going deeper into your skin as you think of the rays of the sun increasing and becoming more and more concentrated...getting hotter and hotter...feel your hand getting hot from the heat of the sun...it's a good feeling of heat as it penetrates deep into your hand...hot...pleasantly hot...penetrating your hand now...it's a pleasantly hot feeling...pleasantly hot

Now tell yourself that it's all in your own mind and make your hand feel perfectly normal again.

Time Distortion.

Keep your eyes closed. By controlling your thinking you can make time seem to slow down.

The following is to be read progressively more and more slowly, with each word drawn out and with long, i.e., 2-6 second, pauses between statements.

Begin timing approx 1'40"

Tell yourself that there's lots of time...lots of time between each second...time is stretching out and there's lots of time...more and more time between each second...every second is stretching far...far out...stretching out more and more...lots of time...there's so much time...lots of time...every second is stretching out...there's lots of time between each second...lots of time...you do it yourself...you slow time down

And now tell yourself that time is speeding back up to its normal rate again as you bring time back to normal.

Age Regression.

Keep your eyes closed. By directing your thinking you can bring back the feelings that you experienced when you where in primary school – in the infants and the juniors.

Begin timing approx 1'20"

Think of a time going back...going back to primary school and feel yourself becoming smaller and smaller...let yourself feel your hands small and tiny...and your legs and your body...small and tiny...as you go back in time feel yourself sitting at a desk or table in your classroom...notice the floor beneath you...feel the top of the desk or table...you may feel some marks on the desk or table top...or maybe it's a smooth cool surface... there may be a pencil slot or an ink well if you are sitting at a desk...if you are sitting at a table let yourself see the children sharing your table...also observe the other children around you in your class...and the teacher...the children's work displayed around the walls...the black board or white board...the reading area or play area...you may hear the children and teacher speaking...now just observe and see what happens around you

15 second pause

Now tell yourself it's all in your own mind and bring yourself back to the present.

Mind – Body Relaxation.

Keep your eyes closed. By letting your thoughts go along with these instructions you can make your mind and body feel very relaxed.

Begin timing approx 2'05"

Read slowly

Picture yourself on a beautiful warm summer day lying under the sun on a beach of an ocean or lake...feel yourself lying on the soft...soft sand or on a beach towel that is soft and comfortable...let yourself feel the sun pleasantly warm and feel the gentle breeze touching your neck and face...picture the clear blue sky with fluffy little white clouds drifting lazily by...let yourself feel the soothing penetrating warmth of the sun and tell yourself that your mind and body feel completely relaxed and perfectly at ease...peaceful...relaxed...comfortable...calm...so at ease...at peace with the world

For non-hypnotic assessments use

Now as you open your eyes let yourself continue to feel relaxed and yet perfectly alert...peaceful...alert and normal again...open your eyes

For hypnotic assessments use

In a few moments I will count to three...at my count of three you can emerge from this hypnotic experience completely...at my count of three you can become your normal self again... fully and completely your normal self in every way...every aspect of hypnosis will have left you and your mind and body will emerge completely but you will continue to feel very relaxed but fully alert...very relaxed and fully alert at my count of three...1...2...3

HYPNOTIC INDUCTION SCRIPT

All the time I am talking to you you will be aware of the very special music playing behind my voice... This music has the power to help you to remain deeply relaxed throughout the session

Just close your eyes and listen for a few moments...allow your-self to sink into the music and to relax

If you would like to relax even more deeply...

Concentrate on the tiny muscles in your temples and around your forehead...and let these muscles relax...let them all become limp and slack...

As the tiny muscles around your temples and forehead become relaxed...so your eyes will begin to relax too...you can notice now how your eyes are beginning to feel heavy...even though your eyes are closed they seem to be getting heavier and heavier...becoming more and more firmly closed...and this feeling of relaxation will soon spread across your entire body...and you will become progressively more and more sleepy as we go on...

Next to become relaxed is your mouth and jaw...try to breath through your mouth now...notice how your tongue is becoming relaxed in your mouth...keep breathing through your mouth as you relax more and more deeply...your mouth and jaw becoming limp and slack...

Your entire head feels so light now as if it has no weight...it floats lightly and effortlessly on your shoulders like a balloon becoming even lighter with each outward breath you take...

In a moment I am going to begin counting down from ten to one... and with each reducing number the rest of your body will progressively become deeply relaxed...as I count down from one to ten I will tell you which part of your body to relax...as the rest of your body becomes more and more deeply relaxed...it will also begin to feel lighter and lighter...as if it has less and less weight...until your entire body feels as light as your head...as light as a floating balloon...as you begin to feel lighter and lighter.....you may also begin to experience a feeling of floating or drifting.....just let this happen.....allow your-self to just float or drift away.....like a balloon floating and drifting on the breeze.....

Ten...your shoulders are relaxing deeply now...feeling limp and slack...

Nine...your arms are becoming deeply relaxed now...feeling limp and slack...

Eight...your hands and fingers are becoming deeply relaxed now...feeling limp and slack...

Seven...your chest and upper back are becoming deeply relaxed now...feeling limp and slack...

Six...your stomach and lower back are becoming deeply relaxed now...feeling limp and slack...

Five...your hips and bottom are becoming deeply relaxed now...feeling limp and slack...

Four...your legs are becoming deeply relaxed now...feeling limp and slack...

Three...your feet and toes are becoming deeply relaxed now...feeling limp and slack...

Two...Your entire body feeling so deeply relaxed...every part of your body feeling limp and slack...imagine a feeling of warmth growing in your stomach...a feeling of pleasant comfortable warmth growing in your stomach...imagine this warmth radiating outwards now...to every part of your body...soothing all your aches and pains as it spreads across your entire body...as this soothing warmth spreads into a painful area of your body...your pain will just melt away...to be replaced by a warm soothing comfortable sensation.....

One...your entire body feels so very light...as if all the weight has gone from your body...your body feels as light as a balloon...imagine you are floating and drifting away on a warm breeze...just float and drift away on a warm breeze...higher and higher further and further away from where you are now...

As you float and drift away on a warm breeze you can enter a deep hypnotic asleep...as I count up from one to five...you are floating and drifting away higher and higher...becoming more and more deeply asleep with each ascending number...each ascending number between one and five helping you to float and drift away higher and higher further and further away and to go deeper and deeper asleep...

One...higher and higher...further and further away...more deeply asleep...

Two...

Three...higher and higher...further and further...deeper and deeper asleep...

Four...

Five...you are floating and drifting so high ...so far away...and you are in a deep deep sleep now...no need to wake up or open your eyes until I ask you to do so...just allow your-self to continue in this deep hypnotic sleep until I ask you to wake...

APPENDIX 6.7

Patients' code of conduct

In order to provide the best possible opportunity for the treatment to be effective you are asked to observe the following behaviour code.

- In order to avoid picking up negative influences from others during your treatments you are requested to maintain your confidentiality by not interacting in any way with other patients undergoing treatment at any time.

- Please adopt a quiet and calm disposition at all times in the vicinity of and inside the treatment room.

- Please switch-off your mobile phone before entering the treatment room.

- Please do not leave the treatment room after entering until you are told to do so. If you are likely to need to visit the lavatory you should do so before entering the treatment room.

- When you enter the treatment room please remain outside the octagon at all times.

- Upon entering the treatment room you should sit quietly in your allocated chair in the octagon until you receive further instructions about how to proceed.

- Please do not attempt to re-position your chair as it has been specifically placed in its present position.

- If you need require individual attention either before or after treatment whilst in the treatment room please remain seated and raise your hand to attract attention. If you need help during treatment you should follow the alarm procedure taught to all Hypnotronic-8 patients.

- Please do not bring any food or drink into the treatment room including sweets or chewing gum.

- Smoking is strictly forbidden in or around the treatment room.

Study No2 Grp (A) Behaviour

When you attend for the hypnotic session please enter the room quietly and wait until you are directed to a seat. After you are seated please wait quietly until everyone else has been seated and the researcher commences the procedure. As you were told previously you are involved in a study to evaluate different methods of generating hypnotic guided imagery. As you already know the procedure will involve you being hypnotised for a very short while after which you will be asked to complete a questionnaire. It is vitally important that you do not disturb the proceedings in any way so please attend to mobile phones, visits to the loo etc prior to entering the treatment room and remain quiet after the hypnosis has ended. For your own comfort you should loosen any tight clothing and even remove your shoes if you like. Please wait until after the session to talk to the researcher unless you feel you can't wait in which case raise your hand for attention.

Thank you.

APPENDIX 6.8

Standard induction script

As I talk to you now you can also hear some very special music playing behind my voice... This music will help you to relax deeply and will help you to remain deeply relaxed throughout this session

Make yourself as comfortable as you can now and with your eyes closed listen to the music...allow your-self to sink into the music...feel yourself beginning to relax...as you sink deeper and deeper into the music...(3mins)

To relax even more deeply...concentrate on the tiny muscles in your temples and around your forehead...allow these muscles to relax now...let them become limp and slack...as the tiny muscles around your temples and forehead become relaxed...so your eyes are beginning to relax too...you can notice how your eyelids are beginning to feel heavy...even though your eyes are closed your eyelids are becoming heavier and heavier...becoming more and more firmly closed...you are feeling so relaxed now so sleepy...and this feeling of being so relaxed...so sleepy...will soon spread across your entire body...and you must become progressively more and more relaxed and sleepy as we go on

Your mouth and jaw are relaxing now...becoming limp and slack...it will help you to relax if you breath through your mouth... your tongue is becoming relaxed in your mouth... breath through your mouth and you will relax more and more deeply...your mouth and jaw are feeling limp and slack now...your head is very light now as if it has no weight...it floats lightly and effortlessly on your shoulders like a balloon becoming even lighter with each outward breath you take...allow the rest of your body to relax now...relax your shoulders...relax your arms...your hands and your fingers...relax your chest and relax your stomach...relax your hips and bottom and relax your thighs...relax your calves and your feet and toes...let every part of your body relax

Soon I will count down from ten to one...and as I begin to count down from ten to one you will enter a deep hypnotic sleep...each descending number between ten and one will cause you to go deeper and deeper asleep...deeper and deeper asleep with each descending number between ten and one...so ready...ten...nine...eight...deeply asleep now...seven...six...five...four...so very deeply asleep now...three...two...one...deeply deeply asleep...as you experience this deep hypnotic sleep your body begins to feel heavy...so heavy... a feeling of heaviness spreading over your body now from your feet...a feeling of heaviness in your legs...so heavy now...a feeling of heaviness spreading through your hips into your stomach...your

body feeling heavier and heavier now...spreading into your chest and shoulders...and this feeling of heaviness spilling over into your arms and your hands and fingers...every part of your body from your feet to your neck feeling so very heavy...as heavy as lead...a pleasant feeling of heaviness...a feeling of being so weighed down into your chair...that you loose touch with your body now... but you are very very aware of your head... your head remains as light as a balloon...as light as a floating balloon...your body as heavy as lead...your head as light as a floating balloon...you have a feeling that your head is floating and drifting away now... just let this happen...allow your head to just float and drift away...like a balloon floating and drifting on a gentle breeze...float and drift far away now...far away...further and further away

Standard basic awakening script

...soon it will be time for you to wake from your hypnotic trance...but before this happens...I want you to know that after you wake up...you will feel much better in every way than you normally do...you will feel better in your body...you will feel more energetic...and stronger...you will feel better in your mind too...more alert...happier...and you will notice you can cope better with your problems...even after waking up you will continue to think much positively in every way about all the things in your life that affect you and concern you...I will count upward from 1 to 10...and as I do so you will feel yourself becoming more and more awake...with each ascending number you will come more awake...so that at 10 you will be completely wide awake...and all feelings of being hypnotised will have left you completely...so ready to wake now...1...waking up...2...3...4...much more awake...5...6...7...almost fully awake...8...9...10...you are fully and completely awake now...you no longer feel heavy or sleepy...and you have no other feelings of being hypnotized.

Awakening script with re-energizing

"...very soon...I am going to ask you to return from your hypnotized condition...but before we end the hypnosis for today...I want you to know that in this hypnotic condition you can replenish your physical and mental energy levels...so that you will be filled with positive energy...first all you have to do is sink further into the music... and continue to enjoy the feeling of being completely at peace...let a feeling of great peacefulness take over you completely as you sink further into the music...In a moment I am going to ask you to use your imagination...I want you to imagine a beam of very bright white energy entering your body through the top of your head... imagine the beam of white bright energy entering your body through the top of your head...as the energy fills up your body you should begin to feel your own energy levels increasing...you should feel your strength increasing...you should feel a greater sense of power to cope...as your body fills with bright white energy your mind should begin to see things more clearly...you should begin to think about your problems and troubles differently... more positively...as your body fills with more and more energy you should begin to acknowledge the good things in your life as well as the bad...and you should begin to feel that you can change any aspect of your life...this will help you to cope with your life and all its challenges much more effectively than you could before...imagine your body is completely filled with new energy now...imagine the bright white beam of energy stops...imagine how good it feels to be completely reenergised...soon I am going to rouse you from your hypnotic condition by counting upwards from one to five...first the music will stop...then I will begin counting...as I count you will feel yourself coming out of hypnosis more and more with each ascending number...and at five you will be fully roused from your hypnotic condition...all feelings of hypnosis will have left you...and every part of your mind and body will be normal except that you will have much more positive energy than before you were hypnotised...and you will feel more empowered to be effective in your life...when you wake you will remember

everything that has happened to you and everything I've said to you...and you will be able to comment on every aspect of your experience...so ready...(music switched off wait one minute)...one...coming completely out of hypnosis now...two...three...four...five...all feelings of hypnosis should have completely left you now..."

Session 5 scripts

Prelim

"...people who have been hypnotised often have different recollections of what it feels like...some people report feeling heavy all over and not being able to move a muscle...others have said it's like becoming very light and floating away...a feeling of being detached from your real self is sometimes described and it is not unusual to hear people say either they can not remember anything about their experience or that their memory is crystal clear...a description commonly given by people who have experienced hypnosis is a feeling of falling into a deep sleep...basically however there is no definitive way you are expected to feel...you will enjoy being hypnotised in your own particular way...so let us begin our first hypnotic experience..."

Induction

"...please fix your gaze on a spot in front of you at a height just above your head and a little above your eye line...keep your head in a normal straight position so that you have to look up a little at the spot...now keep your attention fixed there...concentrate all your attention on that spot...regulate your breathing so it feels comfortable and a little deeper than usual...but only a little...as I am talking to you now you are aware of the music playing behind my voice...listen to the music...concentrate on the music...and...as you listen to the music let yourself relax...let yourself relax completely as you listen to the music...let the area around your forehead and eyebrows relax...allow your face to become limp and slack...limp...and...slack...as your face becomes limp and slack...so the muscles around your eyes should become limp and slack...limp...and...slack...as you listen to the music...as your face relaxes...so your eyes should feel tired...your eyelids should feel heavy...so heavy...they cannot remain open...tired eyes...heavy eyes...your eyes should be closing now...as you relax more and more deeply...your eyes should close now...it should feel so good to let your tired heavy eyes close...the feeling of being so relaxed is spreading to other parts of your body...you should feel more and more deeply relaxed as you become hypnotised...but no matter how relaxed you become...no matter how hypnotised you become...you should always be able to hold the IMR push button wands in your hands...and if ever you want to stop being hypnotized...you can press the red button in your left hand...If you press the red button in your left hand at any time...apart from when I have asked you a question...I will return you immediately back to your normal state...but as you continue to relax deeply now...you should notice the muscles around your mouth and jaw are becoming limp and slack...your jaw should feel so heavy now...you just have to let it fall open...so heavy...your tongue in your mouth should feel limp and slack...as you drift away with the music...the music seems to be inside your head...inside your

body...let yourself go now...drift away with the music...your head should feel so tired...so heavy...so limp and slack...as you drift away...every outward breath you exhale should be helping you to become more and more deeply relaxed...more relaxed than you can ever remember

Deepening

...In a moment I am going to begin counting downwards...and as I count you should become progressively more and more hypnotised...this often feels like falling into a deeper and deeper sleep...not the sleep of bedtime though...but a different kind of sleep...a deep hypnotic sleep...were you can allow your sense of reality to completely slip away...you should allow yourself to fall into a deep hypnotic sleep...deeper and deeper with each descending number...and as you do so... you should feel progressively more comfortable...more at peace...and more at ease...as I count the rest of your body should relax completely...your arms and hands...your chest...your stomach and back...your hips and bottom...your legs and feet...any tension in your body should melt away as I count downwards now...five falling into a deep hypnotic sleep...four...three...two...one...there is no particular way you should feel other than completely and deeply relaxed...completely at peace...at ease...and happy...as you continue to enjoy your time in hypnosis

IMR

...I want you to remember...if I ask you a question you can answer by using your IMR wands...remember...you must press the red button in your left hand if you want to answer no...you must press the green button in your right hand if you want to answer yes...and if you want to say you don't know you must press both buttons together...I am going to ask you the same three questions I did during the third session of the trial...the first question I would like you to answer now is...are you a human being..(IMR)...the second question I would like you to answer now is ...do you live on the moon...(IMR)...and the third and final question I would like you to answer now is...who will win the next National Lottery draw...(IMR)

Re-energize

...very soon...I am going to ask you to return from your hypnotized condition...but before we end the hypnosis for today...I want you to know that in this hypnotic condition you can replenish your physical and mental energy levels...so that you will be filled with positive energy...first all you have to do is sink further into the music... and continue to enjoy the feeling of being completely at peace...let a feeling of great peacefulness take over you completely as you sink further into the music...In a moment I am going to ask you to use your imagination...I want you to imagine a beam of very bright white energy entering your body through the top of your head... imagine

the beam of white bright energy entering your body through the top of your head...as the energy fills up your body you should begin to feel your own energy levels increasing...you should feel your strength increasing...you should feel a greater sense of power to cope...as your body fills with bright white energy your mind should begin to see things more clearly...you should begin to think about your problems and troubles differently... more positively...as your body fills with more and more energy you should begin to acknowledge the good things in your life as well as the bad...and you should begin to feel that you can change any aspect of your life...this will help you to cope with your life and all its challenges much more effectively than you could before...imagine your body is completely filled with new energy now...imagine the bright white beam of energy stops...imagine how good it feels to be completely reenergised

<u>Awakening</u>

...soon I am going to rouse you from your hypnotic condition by counting upwards from one to five...first the music will stop...then I will begin counting...as I count you will feel yourself coming out of hypnosis more and more with each ascending number...and at five you will be fully roused from your hypnotic condition...all feelings of hypnosis will have left you...and every part of your mind and body will be normal except that you will have much more positive energy than before you were hypnotised...and you will feel more empowered to be effective in your life...when you wake you will remember everything that has happened to you and everything I've said to you...and you will be able to comment on every aspect of your experience...so ready...(music switched off wait one minute)...one coming completely out of hypnosis now...two...three...four...five...all feelings of hypnosis should have completely left you now..."

Study No 2

Group B induction script

...people who have been hypnotised often have different recollections of what it feels like...some people report feeling heavy all over and not being able to move a muscle...others have said it's like becoming very light and floating away...a feeling of being detached from your real self is sometimes described and it is not unusual to hear people say either they can not remember anything about their experience or that their memory is crystal clear...a description commonly given by people who have experienced hypnosis is a feeling of falling into a deep sleep...basically however there is no definitive way you are expected to feel...you will enjoy being hypnotised in your own particular way...so let us begin our first hypnotic experience...

...please fix your gaze on a spot in front of you at a height just above your head and a little above your eye line...keep your head in a normal straight position so that you have to look up a little at the spot...now keep your attention fixed there... you should concentrate all your attention on that spot...regulate your breathing so it feels comfortable and a little deeper than usual...but only a little...as I am talking to you now you should be aware of the music playing behind my voice...listen to the music...concentrate on the music...and...as you listen to the music you should let yourself relax...let yourself relax completely as you listen to the music...you should allow all your attention to be on the music...imagine nothing exists except you and the music...just you and your music...your...music...your special music...by allowing yourself to completely sink into your special music in this way...you can escape from all your worries...escape from all your cares...escape from anything in your life that makes you unhappy...so...you can just drift off now...drift away...far far away...as if in a day dream...drift away...leave everything and everyone behind...as you just drift peacefully away...further and further away...you should notice how peaceful and calm you are...now that you are so far away...

and you can drift even further away...you can drift so far away that nothing exists except my voice...soon you will hear me say the word...now...but I will stretch the word out so it sounds like...nowwwwww...each time you hear me say this word in this way...it will be like a gentle wind blowing you further away...and you should feel yourself moving further away...as if blown softly and gently...further and further away...afterward you should just enjoy the feeling of being so far away...of being completely tranquil and untouchable...so ready...allow yourself to drift even further away...nowwwww...and further still...nowwwww...nowwwww...all that matters to you now is my voice...my voice should be so important to you now...as you drift peacefully so far away...

Study No 2

Group B awakening script

...soon it will time to come back to this time and place...but when you do...you can continue to experience the same feeling of tranquillity that you have now...usually after drifting away and spending time completely free from any worries and cares...people return to their everyday lives feeling much better in lots of different ways...physically you should feel stronger and have more energy...as if your batteries have been fully recharged...mentally you should feel calm and clear headed...you should notice you feel more positive and much more optimistic about the future and more effective at dealing with things in your daily life...you should feel happier with a better sense of humour...you can if you wish have a renewed sense of purpose and be determined to master any negative situations that are blocking your happiness...Now...I would like you to become fully aware of the music once more...allow the music to fill your attention as it did before...pick out the different instruments...the rhythm and the beat...shortly the music will begin to fade away...as it does you should begin to come back from wherever it was you drifted off too...the music is beginning to fade ...now...once you can no longer hear the music you can return fully and completely back to wherever you started at the beginning of our session today...the music has gone completely now and you should feel that your mind and body are completely in tune with one another...you should feel completely back to normal except for all the positive changes that have taken place for you.

Trial No 3

Treatment script 1

This script aims to stimulate participants' cognitive self-appraisal of how their obesity acts as a negative influence in their lives and about their feelings towards their physical and mental selves.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...in this session I want you to think about your weight problem...but before you do you should understand that in hypnosis you can think about things that usually upset you without becoming upset...its as if you are detached from yourself...separate from your problems...first I want you to think carefully about what physical effects your excess weight has on your day to day life...usually you put such thoughts to the back of your mind...because you feel helpless and hopeless whenever you think this way...but today in hypnosis you should allow these thoughts to come forward to the front of your mind...you should allow yourself to become fully and completely aware of all the ways that your excess weight affects you in your physical life...not just in the present but in the past too...your memory should be crystal clear in hypnosis...you should notice your memory is better than ever before...and you can remember all the times when your excess weight caused you physical problems...I want you to feel the physical force your excess weight exerts on you every day of your life...I am going to let you think quietly for a few minutes now...the music will still be there but you will hardly notice it as you think about the effects of your excess weight...I am going to leave you for 1 minute but this will seem like a much longer period of time to you...it will seem like you have spent ages and ages thinking about how your excess weight affects you every day...and about how it has done so in the past too...(1 minute)...now that you have thought carefully about all the ways you are physically affected by your excess weight...I want you to store them permanently in your

memory...but at the front of your mind...from now on you should have these thoughts at the very front of your mind...so that later after you are aroused from your hypnosis...these thoughts and realizations will be with you all the time...you should never again allow them to be shoved to the back of your mind...

...now I want you to go through a similar process but this time you should think about how your excess weight has affected you mentally...usually you do not think about how your excess weight affects your mental life but now you should...think about how your self confidence is affected...how does your excess weight make you feel...what are your emotions like...how does your excess weight make you look at life and at your self...what about your motivation or your ability to succeed in life...is your happiness affected by your excess weight...or your femininity...your sexuality...your ability to love and be loved...take a minute now to think over how your excess weight affects your mental life...once again it will seem like much longer and during the process allow all your thought to become stored at the very front of your mind...so that you will never forget them...(1 minute)...so now you should have formed a very clear thoughts about how your excess weight affects you in your daily life both physically and mentally...and how this has occurred in the past too...you should not allow these thoughts to fade in any way after you are aroused from this hypnosis...you will find the thoughts upsetting and you will want to push them to the back of your mind again...but you mustn't...you should keep these thoughts alive and at the front of your mind always...allow them to upset you...allow them to make you angry...these thoughts and feelings will help you later on during our future sessions in this treatment...these thoughts and feelings...these realizations will become your strength...ON TO THE AROUSAL SCRIPT

Trial No 3

Treatment script 2

This script aims to a) stimulate participants' cognitive retrospective self-appraisal about the development of their obesity and about their particular reasons for eating fattening foods and b) address participants' potential hyperphagic ambivalent attitude.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...during your last session of hypnotherapy you were able to bring all your thoughts and feelings about how your excess weight affects you physically and mentally to the front of your mind...where you should have kept them...and where you should continue to keep them alive and active...

...today I want you to search your mind again...and again your memory will be crystal clear...even though you are so deeply relaxed you should be able to reach back into your memory as far as you like...all your experiences are stored in your memory...all your experiences right back to your childhood...in hypnosis you should be able to access memories even from your very early childhood...and not only memories about major or important events but also small and inconsequential things...which at the time might not have seemed significant in any way...soon during this session of hypnotherapy I will ask you to search your memory for the time when you began to become overweight...to do this you will need to travel back through time...back through your life...to a time in your past when you first began to notice you were becoming overweight...so allow your self to begin drifting back through time...as you do so notice how your perception of everything around you fades away...even the music fades away as you drift backwards through your life...further and further back through your life...back through the years...let the years slip by as you drift further and further back...until you reach the time when you first started to notice you were getting too fat...remember that in hypnosis you will not find it upsetting to search your

memories...so no matter what was happening in your life at the time you started to become overweight...you should be able to see it in a detached and impassionate way...as if it was happening to someone else...I will leave you for a minute now to continue your search...when you feel you have arrived at the time when you first started to put on weight...you should press the green button in your right hand... so that I know too...

At this point participants were left until all 8 green IMR LEDs were lit on the operator's panel which took approximately 1½ minutes.

...now that you have found the point in your past when you began to gain excess weight I want you to search your memory for the reasons why this happened...(30 secs)...now I want you to begin to drift forward...and as you do so you should follow the progress of your overweight...you should be very aware of how your weight got more and more out of control...as you got older...as you drift forwards through your life...you should remember how and why you behaved the way you did with food...you should remember anything and everything that made you overeat as you got older...and these memories should be crystal clear to you...even your feelings and emotions at the time...should be crystal clear to you...follow your weight gain all the way back to the present time...and store every memory in the front of your mind...so that after you are aroused from this hypnotherapy...you should be able to access them freely whenever you want...come forwards now further and further...follow your weight gain...back to the present time...(30 secs)...even though by allowing all these thoughts and memories to be stored in the front of your mind you might experience unpleasant emotions you should persevere...you should not push them back...but work hard to keep them at the very front of your mind...and you should access this mental reservoir as often as you can between now and your next session of hypnotherapy...so that your appreciation of your fatness and how it developed becomes as strong as possible...

...you should now understand clearly how your excess weight developed...you should have a clear picture of when it began...and how it progressed as you grew older...you should also have more understanding about why you ate too much even though it was making you fat...even though you were getting fatter and fatter...it didn't stop you eating fattening foods...you should have a clearer understanding of this strange situation too now...(20 secs)...you should realize that you have behaved for years like two different people rolled into one...one person who wants to be slim and one who doesn't want to give up the foods they love so much or need so much...the slim person and the fat person...that's what you are...two people in one body...the slim you and the fat you...the fat you isn't concerned at all about weight or fatness...all the fat you cares about is comfort and pleasure...and most of all about food...the slim you is usually very unhappy because you don't want to over eat...you want to be slim and in control...but the fat you always wins the arguments about food...and makes you eat more and more fattening food...allow this idea to set firmly in your mind...right at the front of your mind...with all the other thoughts and feelings you have developed or retrieved from your memory during the past two sessions...together all of this will help the slim you to become much stronger in the future...so that hypnotherapy will be more effective in helping you to put the slim you in control...ON TO THE AROUSAL SCRIPT.

Trial No 3

Treatment script 3

This script aims to a) focus participants' minds on the ineffectiveness of dieting and on the counterproductive effects which they have experienced in the past and b) to stimulate participants to critically appraise their personal history of dieting, lapsing and relapsing behaviour.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...so far in your hypnotherapy you have been able to bring to the front of your mind and store all your memories of your experiences and feelings about becoming fat and existing as a fat person...you should have thought a lot about this since your last session of hypnotherapy...if you haven't thought a lot about it then you are probably trying to avoid doing so which will not help you to become slim...soon during this session of hypnotherapy I will ask you to search your memory for the time when you began to diet...to do this you will need to travel back through time...back through your life...to a time in your past when you first began to diet...so allow your self to begin drifting back through time...as you do so notice how your perception of everything around you fades away...even the music fades away as you drift backwards through your life...further and further back through your life...back through the years...let the years slip by as you drift further and further back...until you reach the time when you first started to diet...remember that in hypnosis you will not find it upsetting to search your memories...so no matter what was happening in your life at the time you started to diet...you should be able to see it in a detached and impassionate way...as if it was happening to someone else...I will leave you for a minute now to continue your search...when you feel you have arrived at the time when you first started to diet...you should press the green button in your right hand... so that I know too...

8 positive responses were received within 2 minutes

...allow your memories of your first dieting experience to crystallise and set firmly in your mind...I want you to remain in this time in your past...and remember how hopeful you were when you started your first diet...remember how you were certain it would make you slim again...perhaps you managed to reduce your fatness on your first diet...allow yourself to remember clearly what happened and how you felt...whether or not your first diet was successful in making you less fat...eventually you got fatter...remember how it happened for you...remember how you felt as you saw in the mirror that your fat was returning...remember how you felt when your clothes no longer fitted you...allow yourself to drift forward now...to your second diet...the memories are all there for you to access...remember your second diet...and remember again how you felt so hopeful that you would become slim again...but what happened this time...remember what happened...and how you felt...perhaps you lost your fat again...but eventually it all came back...how did you feel when this happened a second time...remember how you felt...and so the diets continued at intervals...and the fat always came back...this is what happens for almost everyone who tries to diet...so you are not alone...I want you now to allow yourself to drift forward now...and as you drift forward through your life...toward the present time...you should recall all the times you have dieted...and you should remember how positive and determined you felt each time...how you were sure you would make it this time...how you would finally become slim and stay slim...but remember clearly all your disappointments when the fat grew back on your body...remember your anger...your frustration...your sadness...your feelings of failure...every time your fat grew back on your body...(1 minute)...every diet came with fresh hope...with renewed enthusiasm...and with an reinvigorated sense of purpose...and determination to succeed...but what happened each and every time...(10 secs)...yes...the fat grew back on your body...sometimes you didn't manage to last long enough to shed any fat from your body...lots of people say it gets harder to

diet the more times you try...and that each time you fail you get fatter than before...is this how it's been for you too...yo yo dieting...up and down in a continuous battle with food...bring all these memories of past diets out of your past into the present...remember all the times you have tried to diet...and how you felt each time... allow these memories and their associated feelings and emotions to set firmly at the front of your mind...now...and think about them as much as possible...and about the other memories you have brought to the front of your mind during the previous sessions of hypnotherapy...try to put all the memories together to form a history of you as a fat person...about how it affects you...about how you became fat...and about what you have done to stop being a fat person...during our next session we will return to the idea of you as two different people...one slim and one fat...ON TO THE AROUSAL SCRIPT.

Trial No 3

Treatment script 4

This script aims a) to promote the idea of hyperphagic ambivalence as participants having two personalities one motivated by slimness and the other by food, b) how the ambivalent conflict functions in reality for them and c) how they might act to control it.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...during your second session of hypnotherapy I introduced the idea to you that you are two different people where slimming and food are concerned...In other words you have two different personalities in this area of your life...one which is desperate not to be fat and one which is desperate not to give up the foods that make you fat...this dilemma is called ambivalence and it is the reason why you have never managed to successfully reduce your weight permanently...we might call the part of your ambivalence that wants to stop eating fattening food the positive part...and the part that wants to keep eating the negative part...all the years you have been trying to manage your weight these two parts of you have been at odds with each other...unfortunately the negative part has always been the strongest and dominant part...the positive part has never been able to get the better of the negative part for very long...sometimes you have managed to alter the balance of power so that the positive part is dominant...and you have been able to stop eating fattening foods...and you have shed some of your body fat...but you have found it impossible to keep your positive part on top...which has meant you have always ended up returning to your inappropriate eating behaviour...your ambivalence takes on two forms in your life...firstly when you are perhaps in a restaurant or when you are shopping you have to make conscious choices about what foods to buy... or when you are at a party or visiting friends you are offered a selection of foods from which to choose...often you have to choose between foods which are good or bad for slimming...and you feel torn

over which to pick...this feeling is your ambivalence actually working inside you...the second form of ambivalence occurs when you eat fattening foods because you are upset in some way...often people are not aware they are doing it until they have eaten quite a few calories...and when they realize they don't care for a while...then slowly they begin to feel bad about their behaviour...which makes them eat even more...sometimes this is called comfort eating...soon during this session of hypnotherapy I will ask you to search your memory for the time when you began to comfort eat...to do this you will need to travel back through time...back through your life...to a time in your past when you first began to notice you were a comfort eater...so allow your self to begin drifting back through time...as you do so notice how your perception of everything around you fades away...even the music fades away as you drift backwards through your life...further and further back through your life...back through the years...let the years slip by as you drift further and further back...until you reach the time when you first started to notice you were a comfort eater...remember that in hypnosis you will not find it upsetting to search your memories...so no matter what was happening in your life at the time you started to become a comfort eater...you should be able to see it in a detached and impassionate way...as if it was happening to someone else...I will leave you for a minute now to continue your search...when you feel you have arrived at the time when you first noticed you were a comfort eater...you should press the green button in your right hand... so that I know too...

...with the fist form of food related ambivalence the only way for your positive part to win is by forward planning...if you know you are going to be faced with food choices you should prepare yourself in advance... for instance you could find out about the menu before going to a restaurant and arrange for your partner to order for you...if you are going to a dinner party you could ask your host to cater for you needs...or you might fill yourself up with appropriate foods at home before going somewhere where you will be faced with a selection of fattening foods to eat...proper forward planning

and management with regard to your eating behaviour is essential...and you must remember that if you are obese... it is just as important not to eat the wrong foods...as it would be for any medical condition where your food is an issue...so you should not be embarrassed about being selective...or about seeming picky about the foods you will and will not eat...

...the second form of food related ambivalence is much harder to control...the most ideal way is to avoid becoming upset in the first place...take a look at your life and see if you can make adjustments...so you can avoid upsetting situations...again think ahead and try to foresee areas in your day where conflict might occur...you might take up yoga or find other ways of helping you to relax and become a calmer person generally...you might try relaxing music...or you might need to vent your anger and frustrations by engaging in rigorous exercise...there are lots of ways you can reduce and manage the stress in your life wherever it comes from...or whatever form it comes in...often when people comfort eat they consume large amounts of dietary fat and sugar...so you might even arrange a special low fat low sugar stress food and train yourself to have this instead of the high energy foods you usually turn to...between now and your next session of hypnotherapy you should think carefully about your food related ambivalence...and how it functions in your day to day life...you should realize how this explains why you often find it difficult to make the right food choices...you should combine all the things you have learned during this session with the collection of memories...realizations...emotions and feelings you have stored at the front of your mind from our previous sessions of hypnotherapy...so that you can understand even more why you are a fat person...ON TO THE AROUSAL SCRIPT.

Trial No 3

Treatment script 5

This script aims a) to stimulate participants to review their current and historical eating behaviour to identify their usual pattern of daily food intake, b) to review the level of 'food grazing' and eating between meals they usually engage in, c) to describe the pattern of eating behaviour a slim person might engage in, d) to get participants to acknowledge that they need a completely new approach based on gaining slimness rather than losing weight.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...during this session of hypnotherapy we are going to visit a number of areas associated with your fatness...first of all I want you to think about your eating behaviour on any normal day in your life between the time when you wake up of a morning to the time when you return to sleep at night...what form does it take...do you eat regular meals...do you eat between meals...do you snack continuously throughout the day and evening...if you were the slim person you would like to be your eating behaviour would be confined to a set number of eating periods each day...a slim person would not eat between meals and would not often think about food until it was time to eat again...a slim person would have one main meal each day usually when they return from work at the end of their day...with much smaller meals for their breakfast lunch and supper...very often slim people will not have supper...and prefer dinner to be the last meal of their day...a typical days eating for a slim person might be... breakfast of wholemeal toast and low fat spread possibly with a touch of marmalade...with orange juice and tea or coffee...often they might also have a piece of fruit as well...they would not eat again until lunch time but would drink lots of water...for lunch the slim person might have one wholemeal sandwich and some fruit and yoghurt...they would not eat during the afternoon but would drink lots of water...an

example of a slim person's dinner might be chicken casserole with at least 3 types of leafy vegetables and possibly some new boiled potatoes cooked in their skins...followed by fruit and yoghurt...the slim person would drink more water during the evening ...and if they bothered with supper it would be something very small...the slim person is particular about what they will eat...and about how much they eat...and about the way they eat...they wont eat food which puts their health at risk...they wont keep on eating until they feel full...and they eat slowly and carefully because they wish to digest their food easily when they swallow it...lots of foods are completely out of the question to the slim person...particularly if they contain lots of dietary fat and sugar...now...I want you to spend some time thinking how your daily eating behaviour is different from the slim person's...allow a picture to develop in your mind about how your eating behaviour differs from the slim person's eating behaviour...(30 secs)...allow your realizations about how your eating behaviour differs from the slim person's to set firm in your mind...so that you know understand even more about why you have become a fat person...

there must have been a time in your past when you ate less like a fat person and more like a slim person...a time before you became a fat person...when you ate much less fattening foods than you do now...not only did you eat less fattening foods but you probably had a more regular eating pattern too...soon during this session of hypnotherapy I will ask you to search your memory for the time when you ate more like a slim person would eat...to do this you will need to travel back through time...back through your life...to a time in your past when you used to eat more like a slim person would eat...so allow your self to begin drifting back through time...as you do so notice how your perception of everything around you fades away...even the music fades away as you drift backwards through your life...further and further back through your life...back through the years...let the years slip by as you drift further and further back...until you reach the time when you used to eat more like a slim person would eat...remember that in hypnosis you will not find it upsetting to search your

memories...so no matter what was happening in your life at the time you used to eat more like a slim person would...you should be able to see it in a detached and impassionate way...as if it was happening to someone else...I will leave you for a minute now to continue your search...when you feel you have arrived at the time when you used to eat more like a slim person would...you should press the green button in your right hand... so that I know too...

...now that you have found a time in your past when you used to eat more like a slimmer person than a fat person...you should remember how it felt to be much slimmer than you are at the present time...now...I want you to study this slimmer you from your past and study your eating behaviour carefully and in detail...observe yourself at your meal times...what did you eat...how did you eat...how much food did you consume in one meal...how many meals did you eat each day...did you eat much between meals...(30 secs)...

...now...I want you to allow the picture of how you used to eat to become firmly fixed in your mind...so that you can access this information easily later on...then I want you to drift forwards towards the present time...as you drift forwards you should observe your eating behaviour as you move through time towards the present...see if you can spot when your eating behaviour began to change for the worse...try to find the time you began to eat too much to remain a slim person...coming forward now towards the present...looking out for the time in your life when you began to eat more like a fat person...than the slimmer person you were...(30 secs)...and come all the way back to the present time now...remember when it was that your eating behaviour began to change for the worse...and fix this memory firmly in your mind...

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...I want you to access your entire store of memories about your fatness... that you have accumulated at the front of your mind...during your

sessions of hypnotherapy...you should be able to see your self in your minds eye as you were before you became a fat person... you should be able to observe what happened in your life that caused you to begin eating too much...and you should be able to watch yourself getting fatter and fatter as the months and years pass by...you should also be able to watch yourself trying hard to shed your body fat with numerous diets...and watch as you continually fail to keep the fat from growing back on your body...you can see it all now...in your minds eye...like watching a play or a movie in which you have the staring role.. I want you to spend some time replaying the movie of your journey into fatness...play it over and over again...so you get to know every little bit off by heart...(30 secs)...

...you have always thought about losing weight...but it might be wrong to think in terms of losing...after all you usually don't want to lose things...you only usually think about losing what you value...not what you hate and don't want...perhaps it might be more appropriate to think about getting rid of your fat not losing weight...after all you don't value your excess body fat...you loath it and want to be rid of it... so it would seem wrong to think of losing it...ON TO THE AROUSAL SCRIPT.

Trial No 3

Treatment script 6

This script aims to redefine participants' cognitive orientation with regard to weight management by a) replacing the idea of *losing* weight with one of *gaining* slimness and b) introducing the notion of their emancipation through metamorphosis.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...during your last session of hypnotherapy I spoke to you about the idea of losing weight...and I want to talk some more about this today...you have heard the expression *being in the right frame of mind*...it means we have to think in the most appropriate way if we are to complete a task properly...and you must be in the right frame of mind to become slim...so it is important to use the most appropriate language even to yourselves when you are thinking about sliming...choosing your words and your thoughts carefully can help you to set up the right frame of mind before you begin to slim...it is important therefore to stop thinking about losing weight and to think instead about getting rid of your unwanted body fat...it will also help you to think about what you wish to gain from slimming...certainly you want to cast off your excess weight but what do you want to acquire for all your efforts...you want to gain SLIMNESS...slimness will be your reward so you should think about this as the thing you gain for all your efforts...so SHED your unwanted body fat...and GAIN slimness...

...being a successful slimmer is not so much about what you do as what you think...thinking in the right way...having the right frame of mind...is very important...so in addition to thoughts of shedding your unwanted body fat and gaining slimness...you should think about changing who you are...after all you have already changed who you are once...when you changed from the slimmer person you once where... to the fat

person you are now...the difference is you never made a conscious decision to change into a fat person...it just happened over a long time...but if you want to change back again you must make the decision to do so...in other words you have to get into the right frame of mind...

...changing from a fat person to a slim person involves much more than just eating less...at the moment you think like a fat person...you eat like a fat person...you sleep like a fat person...you walk like a fat person...you sit like a fat person...you wear clothes like a fat person...in fact you do everything like a fat person...because that's who you are...a fat person...every aspect of your life is governed and affected in some way by your fatness...so becoming a slim person involves not just gaining slimness...but huge changes to who you actually are...becoming slim means becoming a different person...you might want to return to being the person you used to be when you were slimmer...or you might prefer to become someone entirely different...a brand new person...this is the reason why you have never managed to keep the slimness you have gained in the past...because you haven't changed who you actually are...you haven't changed into the slim person you want to be...

...metamorphosis is a word which describes the process a caterpillar goes through to become a butterfly...the caterpillar who is fat and heavy...bloated and so restricted by its weight...it has little freedom and its life is confined and restricted by its body...then something wonderful happens...its body undergoes a dramatic change...after going into a deep sleep it slowly changes into a beautiful butterfly...and this process of changing is called metamorphosis...once the butterfly emerges into the world it is free to fly away...its life has changed so much...it is now light and colourful and attractive and completely free to do whatever it wants to do...whereas before it was fat and trapped and vulnerable...as well as changing physically into a butterfly...the caterpillar must also change the way it thinks...imagine if it emerged from its long sleep as a butterfly but continued to behave like a caterpillar...it would never work would it...so

you see in order to make real changes in your life that will last forever...you must change the way you actually think...you must change who you are...

...a famous philosopher once said... I am what I think...and this is so true...you are what you think...you are fat because you think like a fat person...previously whenever you have attempted to reduce your weight...you may have succeeded for a while...but the slimness you gained was never permanent...and this is because you didn't change who you actually were...you never actually thought like a slim person...so although you may have gained some slimness due to behaving like a slim person...your behaviour and the slimness you gained never lasted...you always continued to be a fat person in your mind...so that's what you always ended up being no matter how often you tried to slim...WHAT YOU ARE IS THE RESULT OF WHAT YOU THINK...so you must begin to think like the slimmer person you want to be in every way possible...you must leave the you that is fat behind...including the way you think as a fat person...and go through your own mental as well as physical metamorphosis...ON TO THE AROUSAL SCRIPT.

Trial No 3

Treatment script 7

This script aims to build on participants' commitment to change by setting a plan for a daily eating pattern which would protect against between meals snacking and the counter regulatory effects of controlling food intake. Participants were encouraged to perceive their days in terms of either red or green zones with the former representing dangerous periods between meals during which snacking might occur and the latter meal periods when it is safe to eat.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...during the previous 6 treatment sessions you should have gained a pretty good impression of yourself as an obese person...how it occurred...how it progressed...how it's been maintained over the years...and why you have never been able to gain permanent slimness...you should also have formed an impression of who you want to become...of what you will be like as the slim person you want to be...you may also have come to understand that the hypnotherapy up to now has focussed mainly on getting you into THE RIGHT FRAME OF MIND...

...but now we must move on...the right thoughts need to be backed up with effective strategies to help you change your inappropriate eating behaviour...one of the most important goals you must seek to achieve is to develop a regular eating pattern...remember the person you want to become doesn't eat willy-nilly...she eats in an organised way...she thinks carefully about what she eats and about how and when she will eat...in other words her eating behaviour follows a regular and predictable pattern...a good test of whether you are eating in a regulated way is to try to remember everything you ate for the past couple of days...I can assure you most slim people would be able to...go on try...(15 secs)...

...from now on you should think about your eating behaviour in a special way...I want you to imagine each of your days consists of red and green zones...the green zones represent the periods in the day or night when it is safe and appropriate to eat...whilst the red zones are the danger areas between meals where you are in great danger of snacking on fattening foods...as you pass through each day you are always in either a red or green zone...there are very strict rules which forbid you to eat anything in a red zone except for medical reasons...if you do have to eat something in a red zone for medical reasons... it must be as non-fattening as possible...you can have fluids in the red zones particularly water which you should drink lots of...but you should not have alcohol...there are only four green zones...the breakfast zone...the lunch zone...the dinner zone... and the supper zone...and each of these green zones exist at the appropriate time locations throughout your day and evening...this means that the breakfast zone exists between 6 am and 8.30 am...the lunch zone exists between 12 pm and 1.30 pm...the dinner zone exists between 5 pm and 7pm...and the supper zone exists between 9pm and 10.30 pm...you may need to make this arrangement fit your working life...for instance if you are a shift worker...but this demonstrates what a regular eating pattern would look like...if you aren't prepared to organise your eating behaviour you are unlikely to gain any slimness...

...previously when you have tried to diet you have given up for the rest of the day if you slip up once by eating something you shouldn't...sometimes if you have slipped up on a Friday you will give up your diet until the following Monday...and promise yourself you will make a fresh start then...from now on...you should think of every red zone as being a separate part of your day or evening...and if you slip up in a red zone you should view the slip as being in the past once you go into the next red zone...see each red zone as an opportunity to make a fresh start...there are 5 red zones in each day...between waking-up and having your breakfast...between breakfast and lunch...between lunch and dinner...between dinner and supper and finally between

supper and retiring to sleep...you should see each one as a fresh opportunity to succeed...all together you have 5 opportunities each day to succeed...or 35 opportunities each week...think about the danger of snacking in each red zone before you enter it...after all you wouldn't usually engage in a dangerous experience without thinking about it first...at least I hope you wouldn't...each red zone is a separate time when you might be in danger of snacking...so you must be on your guard...before you enter a red zone think if there is anything ahead that might cause you to eat...particularly anything that might upset you...or subject you to strong temptation...remember during your fourth treatment session... we spoke about your ambivalence with food...and how the negative part of you often gives in to temptation when faced with food choices or causes you to eat fattening foods when you are upset...well its these sorts of things you must watch out for when you are in a red zone...perhaps one day when you have truly changed into the slim person you want to be...which will include the way you think...you might be able to relax your guard between meals...but not yet...

...when you eat your meal in a green zone...you should use the opportunity to continue changing yourself into the slim person you want to be...think carefully if what you are going to eat during your meal is the right sort of food for your aims and that the portion sizes are having are right too...as you are eating think whether you are eating like you should if you want to be slim...for instance are you eating slowly and savouring the food as you eat it...take some time to think about everything I have said to you during this session...make sure that you have the idea of the red and green zones firmly set in your mind along with all the other ideas and memories from the previous treatment sessions...(1 minute)...ON TO THE AROUSAL SCRIPT.

Trial No 3

Treatment script 8

This script aims to a) stimulate participants to think of what they ate each day in terms of their food repertoire, b) appraise their food repertoire and to identify the contents as providing either positive or negative support for their commitment to metamorphose mentally as well as physically into a slim person.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...during the previous session of hypnotherapy...I spoke to you about how to conduct your eating behaviour each day...and I want to continue this theme during the present session...everyone is used to eating a particular range of foods...the type of foods a person eats depends on their personal preferences...and people differ broadly in what they prefer to eat...a healthy slim person will have a group of foods that allows them to remain slim whilst still getting all the nutrients they require...similarly a fat person will also have a particular group of foods that provide them with everything they need to maintain their excess weight...I want you to imagine that you were going to be stranded on a desert island for one month and that you will only be allowed to take 6 types of food and 2 types of drinks with you...on the island you will have a nice house with all modern conveniences including a good kitchen in which to cook your food...take some time now to decide what the 6 foods and two drinks would be...(1 minute)...I want you to imagine this scenario again but this time imagine you are a slim person...someone to whom food is not that important...take some time again to decide what your foods and drinks would be this time...(1 minute)...you should now be aware of the differences between your two lists...take some more time now to make a thorough comparison between the foods you chose as a fat person and the foods you chose as a slim person...one list

belongs to the negative ambivalent part of you and the other to your positive ambivalent part...

...I want you now to imagine there are two large tables in front of you...on one table you can see clearly every single type of food that makes up your complete food group...try to get a good clear image of this picture in your mind...see all the different items of food that make up your food group on the table... study them and try to work out how important each one is to you...now imagine also...on the other table are all the foods that make up the complete food group of the slim person you want to become...you should be able to see each table clearly with the two lots of foods spread out on each...study the difference between the two tables of food...look carefully at all the differences...in the types and amounts of foods...allow this picture to become firmly fixed in your mind so that you can recall it later...this exercise will help you to appreciate the way your food preferences must change...just as radically as your eating behaviour...because of our previous treatment sessions you now understand that the most important changes you have to make are mental rather than physical...and as large part of this is to make the slim persons table of food your table...ON TO THE AROUSAL SCRIPT.

Trial No 3

Treatment script 9

This script aims to continue the metamorphose analogy by a) reinforcing the idea that before participants can become slim people they must first learn to think like slim people, b) stimulating the participants to conduct a mental audit of their lives to identify the main areas were mental changes are needed.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...after your previous sessions of hypnotherapy you now appreciate that to permanently shed your excess body fat you have to make a number of important changes...you also appreciate now that any changes you make in your day to day behaviour will not be permanent unless you first change the way you think...you cant stop eating chocolate for instance then spend your time longing for it...you have to set your mind against the fattening foods that you usually like to eat...I want you to learn from this session that...foods such as sweets, cakes and chips etc are not responsible for you becoming fat... you are responsible because at some point in your life you stopped controlling what you ate...If you truly intend to change who you are...you can't continue to feel a sense of loss when you stop eating fattening foods...if you are really trying to change mentally you must feel a sense of achievement at dumping all the rubbish foods from your life...you must be able to see how these two frames of mind are different...one frame of mind concerns a sense of loss and sacrifice whilst the other is about achievement and triumph...and I am sure you can see that having a sense of achievement is the most effective frame of mind to be in if you want to make permanent changes to the person you are in relation to your eating behaviour...

...there are two types of people who try to become slimmer...one type act reactively in response to the changes they must make to become slim... whilst the other type respond proactively...we might call these people either reactors or proactors...the reactors react against altering their daily food intake...by becoming resentful about what they see as the loss of the foods they like to eat...reactors often behave like young children and refuse to see that they cant have everything their own way...proactors on the other hand take charge of their situation by first setting out their goals...then adjusting their behaviour to achieve them...unlike the reactors...proactors actively fight to change and feel a sense of achievement whenever they manage to resist the temptation to behave in ways that will result in more fatness...so reactors resent not being able to eat the foods they usually eat and often see themselves as victims...but in contrast proactors feel they have a mission to accomplish in reducing their weight...which sort are you...a reactor...or a proactor...take some time now to think about which type of person you are...(1 minute)...

If you can honestly say you are a proactor then you are well placed to make the sort of mental changes you must make to become a slim person...but if you have realized you are a reactor...which most people are...then you have some work to do... you must alter this aspect of your personality before you can hope to make the necessary mental changes...only proactors succeed at changing from fat people to slim people...and staying that way for ever...

If you have recognized that you are a reactor there will be numerous areas of you life were you might react against the changes which you would have to make to become permanently slimmer...for example...you might react against food changes...or against becoming more physically active...or you may react for social reasons...I want you to take some time now to conduct an audit of your life and of your reactive personality...to figure out how and why you might react against changes that are necessary for you reduce the excess fat on your body...If on the other hand you are truly one of the few

proactors amongst us...I want you to spend some time contemplating where and how you might become even more proactive than you already are...(2 minutes)...now that you have thought carefully about the areas where you might be reactive against the changes necessary to become slim or in the case of the proctors areas where you might reinforce your resolve to achieve success...you should set the realizations you have made firmly in your mind...so that you can access them later...you should give lots of thought now and after you leave here to developing a proactive personality with regard to your desire to become a slim person...you must develop a proactive frame of mind before you can even hope to make permanent changes to your eating behaviour...ON TO THE AROUSAL SCRIPT.

Trial No 3

Treatment script 10

This script aims to stimulate participants to apply their new slim mentality to become more active on a daily basis by engaging in daily 'focussed physical activity' as opposed to structured physical exercise. Examples of focussed physical activity might be whilst out walking the dog to add on an extra half mile or so at a faster pace, to include a range of body movements into daily housework routines, to walk to the shops instead of using the car or to do the school runs on foot instead of using the car.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...I have spoken at length to you about the changes you must bring about both physically and mentally before you can hope to gain permanent slimness...and I am going to continue this theme during the present treatment session by talking to you about becoming much more physically active than you are now...

...you may become anxious at the mere thought of exercise...and I am sure like most fat people you find the idea of going to a gym or going swimming unacceptable...and no doubt you groaned inwardly when I mentioned it...but as long as you have excess body fat to get rid of it is important that your body uses up more energy than you put into it through eating...this is known as the energy balance equation...and I am afraid there is no getting away from it...to get a better idea of how this works...I would like you to imagine now that you have managed over the years to save a lot of money in your savings account...each week you have put money into your account and watched your savings grow...but then you lose your job and have to live on state benefits until you get another job...the amount of money you receive each week just isn't enough to support your family in the same style they have become used to...so each week you have to withdraw money from your savings to supplement your benefits...what would

happen to your savings...yes of course...they would get steadily smaller and smaller each week...this is because you would be drawing more money out of your bank account than you were putting in...I want you to think about the amount of energy you put into your body in the form of calories in a similar way to your bank account...only whereas with your bank account you need to save more than you spend...the opposite is the case with what we can call your energy bank account...

everyone has an energy bank account...but it works differently for fat people and slim people... slim people need to make sure that the amount of energy they put into their account is about the same as the amount they spend...in this way their weight will stay pretty constant...fat people on the other hand must make sure they spend more energy than they put into their account...the opposite to the way you should behave with money...in fact the bigger the deficit between what a fat person puts into their energy bank account and what they spend the better for them...until all your excess body fat has diminished completely you must maintain this energy deficit...as I said earlier this is called the energy balance equation...and unfortunately there can be no slimness without it...I want you to take some time now to think about your energy bank account in the way I have just described...(1 minute)...obviously as a fat person you have been spending much less energy than you have been putting into your account...if this was money you would be rich...but unfortunately it isn't money and you shouldn't be making so many deposits into your account and so few withdrawals...

...now that you appreciate the need to have an energy deficit until all your excess weight has gone...you must think about ways to increase how much energy you spend each day...however before taking up any form of exercise you should ask your doctor if its alright for you to do it...you may be happy to know I am not going to suggest you go to a gym or take up jogging etc...instead I am going to talk about what I call focussed activity...it isn't necessary for you to take part in formal exercise programmes...the important thing is just to raise your level of physical activity each day considerably

above what it normally is whilst considerably reducing your daily energy consumption below what it normally is...you can engage in focussed activity by...for instance... walking an extra half mile at a faster pace than normal whilst out with your dog...or building some movement or exercises into your daily housework routine...or you might leave the car at home when going shopping or doing the school run...take some time now and think how you might extend your daily exertions to include focussed activity...(1 minute)...it is also important to remember the importance of having the right frame of mind...of being a proactor...so you must always push yourself a bit...if you find you are getting fitter as you do your personal focussed activity each day...so you should try to do more...you always must feel as if you have exerted yourself...but within sensible limits...ask your doctor if you are unsure...you don't need to be sweating buckets or breathing heavily after your focussed activity...you should just feel as if you have exerted yourself more than usual...ON TO THE AROUSAL SCRIPT.

Trial No 3

Treatment script 11

This script aims to a) consolidate and reinforce the idea of mental metamorphosis into a slim person as a prerequisite for physical metamorphosis, b) determine if there are any areas where mental metamorphosis is still required and c) strengthen participants' commitment to change in all the necessary areas they have identified.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...this is the eleventh and next to last treatment session...although during the previous ten treatment sessions I have asked you to think about a wide range of things associated with your obesity...probably the most obvious is the need to undergo a process of mental and physical metamorphosis into a slim person...as I have worked with you to develop and realize all the various ideas associated with gaining slimness...I have asked you to set them firmly in your mind as they occur...and this should have been the case with the idea of metamorphosing into a slim person and all it entails...you should by now have a firm and solid belief in your mind that you must change the way you think about the various forms of behaviour that makes and keeps you fat...before you can change the behaviours themselves...you must be absolutely sure by this time if there are any areas of your life or your personality where you still need to make mental changes...if you are now thinking entirely like the slim person you say you want to become your behaviour will have changed considerably...particularly with regard to your eating behaviour...and the amount of physical activity you engage in...take some time now to go over in your mind all the aspects from the previous 10 treatment sessions that I have asked you to fix firmly in your mind...mentally bring them all out into the open ...so that you can judge whether or not you have changed in all the necessary ways...(3 minutes)...if there are

any changes you still need to make you should make a strong commitment to your self to set these changes in motion immediately...

...soon I want you to take some further time to take a long hard look at what changes you have made in your life...in the way you think...and in the way you behave each day...in short how have you changed as a person...and I want you to ask yourself the question...am I now thinking and living like a slim person...and you must be totally honest with yourself...if you can answer yes then slimness will soon be yours...if on the other hand you have to answer no...then you must understand what changes you haven't yet made and make them now...take time now and be brutally honest with yourself...(1 minute)...ON TO THE AROUSAL SCRIPT.

Trial No 3

Treatment script No 12

This script aims to review all the main aspects of the treatments and to stimulate participants to a) be aware of the things that trigger lapses and relapses for them personally, b) understand the need to re-commit to their metamorphosis at the start of each day until they know they are thinking like a slim person and c) to assess their progress not in terms of weight reduction but by the control they exert over their food intake and pattern of eating each day.

...as you continue to enjoy your time in hypnosis you should continue to feel deeply relaxed...comfortable...and safe...this is the last treatment session in the programme...the overall aim has been to help you to permanently shed all your unwanted body fat...whilst this aim could not have been met in just 6 weeks it has been the intention to help you make changes in your life that will result in a continuing natural reduction in your body fat during the coming weeks and months...during the past 6 weeks I have asked you to fix a number of ideas and realizations about yourself and your obesity firmly in your mind....and all this information should still be firmly in your mind and readily available to you to recall...which I am going to ask you to do during this session...

...at the start of the treatment you were helped to appreciate the negative ways your fatness affects your day to day physical and mental life...and I want you to think about this for a moment now...(1 minute)..in the second treatment session I helped you to take a backward look at the way your obesity developed...subsequently you were able to appreciate why you began to eat in a way that was to result in your fatness...take a moment to think again about these reasons...(1 minute)...during the third treatment session you were helped to focus your mind on the negative experiences you have had with all the various diets you have tried...and how your self esteem has been damaged

by each attempt...I also encouraged you to consider the occasions in the past when you have given up on your diet...or when you have succeeded in reducing your weight only to put it back on again...take a moment to recall these events now...(1 minute)...during the fourth treatment session you were introduced to the idea of ambivalence and how you have two parts...the slim you or positive part...and the you who wont stop eating fattening foods which we called the negative part...I explained to you how your ambivalent personality acts to keep you fat...and how you might act to control it...take some time now to think about this again...(1 minute)...treatment session five was about helping you to appreciate how your eating behaviour differs from a slim person's eating behaviour...you were encouraged to look back into your past to see what your daily eating behaviour has been like...and whether you have tended to have a regular eating pattern...or if you nibble throughout the day...during the session I explained to you it would be better to think about gaining slimness rather than losing weight...take some time now to think these things over...(1 minute)...the idea of gaining slimness was continued in treatment session 6...and you were introduced to the idea of metamorphosis...during treatment sessions 7 and 8 I provided you with a strategy to help you control your eating behaviour...you began to see each day as red and green zones...you learnt you must not eat in the red zones...and that the green zones were for you meals...this plan allows you to split your day into separate manageable parts...unlike previously if you have succumbed to temptation...you no longer have to feel you have ruined your efforts for the entire day if you eat something you shouldn't have...you simply see that particular red zone as spoilt and look forward to succeeding in the next one...during these treatment sessions you were encouraged to think about the range of foods you prefer as your food group...and you compared your food group to the one a slim person would have...in this way you have been helped to understand how your food group needs to change before you can gain slimness...your food group is always the most obvious way of telling if you are truly committed to the idea of becoming a slim person...take some time now to reflect on the benefits of this new strategy and how you are now thinking

about your food group...(1½ minutes)...in chapter 9 I continued the idea that to become a slim person you must first learn to think like one...and I asked you to consider your life to become aware of areas where you need to change your mental attitude to your food group...to your eating behaviour...and to your attitude to physical activity...the question of physical activity was continued in treatment session 10 when I introduced you to the idea of focussed physical activity...as opposed to structured or formal physical exercise...and I would like you to think carefully about this and about what you intend to do about it...take some time to consider this now...(1 minute)...during treatment session 11...which was the one prior to this one...I emphasised the absolute importance of changing mentally into a slim person before you can ever hope to actually become one permanently...and you reviewed your life to see if there were still any remaining areas where mental change was still required...I told you that if there were any remaining areas requiring mental change you should make those changes at once...take some time now to think about the ways you have changed mentally and if there are still changes to make...(1 minute)...

This is the final treatment session in the course of hypnotherapy...during the treatment you have been given insight into your obesity...and methods to overcome it...its up to you now...you have to use all that you have gained to become the slim person you want to be...as I mentioned previously during your treatments...in the past there have been many occasions where you have started a diet or embarked on a plan to reduce your fatness...and every single time you have either lapsed before achieving your slimming goal...or you have regained all your body fat and often more besides after becoming slimmer...take some time now to think again about why this has always happened to you...what have been the triggers that have spoilt your efforts...(1 minute)...as you continue you should recommit yourself to your mental metamorphosis every morning when you wake up...you must not simply assume you are in the right frame of mind...you must make sure you are still thinking like the slim person you want to be...although your aim is to be slim you must not gauge your progress simply by the

amount of slimness you are gaining...you should always gauge your progress by a truthful appraisal of the control you have over your eating behaviour and your pattern of eating each day...you can gauge how much you are changing into a slim person by assessing how much you actually desire fattening foods compared to the fat you...

...but before we end the treatment I want you to fix one more piece of information firmly in your mind...and keep it their always...which is that...

...you are only a fat person because you have a fat person's mind.

APPENDIX 6.9

Dutch Eating Behaviour Questionnaire

Tatjana van Strien, Jan E. R. Frijters, Gerard P. A. Bergers, Peter B. Defares

Name: _____

Date of birth: _____

Gender: _____

Date completed: _____

INSTRUCTIONS

On the next few pages you will find some questions about eating habits. Read every question carefully and underline the answer that suits you best.

Some questions have five possible responses and some have six.

Please provide only one answer per question.

Your first impression is usually best, so don't hesitate too long before answering every question.

Any answer you give is correct.

1. Do you have the desire to eat when you are irritated?

   Never *rarely* *sometimes* *often* *very often*

   I'm never irritated

2. If food tastes good to you, do you eat more than usual?

   Never *rarely* *sometimes* *often* *very often*

3. Do you have a desire to eat when you have nothing to do?

   Never *rarely* *sometimes* *often* *very often*

   I always have things to do

4. If you have put on weight, do you eat less than you usually do?

Never *rarely* *sometimes* *often* *very often*

I never put on weight

5. Do you have a desire to eat when you are depressed or discouraged?

Never *rarely* *sometimes* *often* *very often*

I am never depressed or discouraged

6. If food smells and looks good, do you eat more than usual?

Never *rarely* *sometimes* *often* *very often*

7. How often do you refuse food or drink offered because you are concerned about your weight?

Never *rarely* *sometimes* *often* *very often*

8. Do you have a desire to eat when you are feeling lonely?

Never *rarely* *sometimes* *often* *very often*

I never feel lonely

9. If you see or smell something delicious, do you have a desire to eat it?

Never *rarely* *sometimes* *often* *very often*

10. Do you have a desire to eat when somebody lets you down?

Never *rarely* *sometimes* *often* *very often*

I never feel let down

11. Do you try to eat less at mealtimes than you would like to eat?

Never *rarely* *sometimes* *often* *very often*

12. If you have something delicious to eat, do you eat it straight away?

Never *rarely* *sometimes* *often* *very often*

13. Do you have a desire to eat when you are cross?

Never *rarely* *sometimes* *often* *very often*

I am never cross

14. Do you watch exactly what you eat?

Never *rarely* *sometimes* *often* *very often*

15. If you walk past the baker do you have the desire to buy something delicious?

Never *rarely* *sometimes* *often* *very often*

16. Do you have a desire to eat when you are approaching something unpleasant that may happen?

Never *rarely* *sometimes* *often* *very often*

17. Do you deliberately eat foods that are slimming?

Never *rarely* *sometimes* *often* *very often*

18. If you see others eating do you also have a desire to eat?

Never *rarely* *sometimes* *often* *very often*

19. When you have eaten too much, do you eat less than usual during the following days?

Never *rarely* *sometimes* *often* *very often*

I never have too much to eat

20. Do you get the desire to eat when you are anxious, worried or tense?

Never *rarely* *sometimes* *often* *very often*

21. Can you resist eating delicious foods?

Never *rarely* *sometimes* *often* *very often*

22. Do you deliberately eat less in order not to become heavier?

Never *rarely* *sometimes* *often* *very often*

23. Do you have a desire to eat when things are going against you or when things have gone wrong?

Never *rarely* *sometimes* *often* *very often*

24. If you walk past a snack bar or a café, do you have the desire to buy something delicious?

Never *rarely* *sometimes* *often* *very often*

25. Do you have a desire to eat when you are emotionally upset?

Never *rarely* *sometimes* *often* *very often*

I am never emotionally upset

26. How often do you try not to eat between meals because you are watching your weight?

Never *rarely* *sometimes* *often* *very often*

27. Do you eat more than usual, when you see others eating?

Never *rarely* *sometimes* *often* *very often*

28. Do you have a desire to eat when you are bored or restless?

Never *rarely* *sometimes* *often* *very often*

I am never bored or restless

29. How often in the evening do you try not to eat because you are watching your weight?

Never *rarely* *sometimes* *often* *very often*

30. Do you have a desire to eat when you are frightened?

Never *rarely* *sometimes* *often* *very often*

I am never frightened

31. Do you take your weight into account with what you eat?

Never *rarely* *sometimes* *often* *very often*

32. Do you have a desire to eat when you are disappointed?

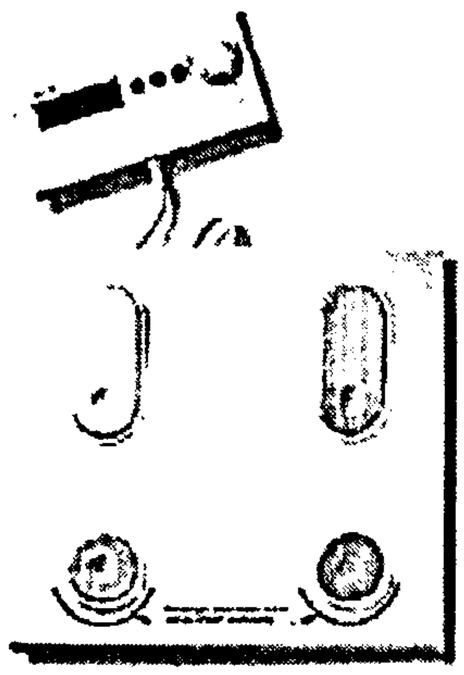
Never *rarely* *sometimes* *often* *very often*

I am never disappointed

33. When preparing a meat are you inclined to eat something?

Never *rarely* *sometimes* *often* *very often*

APPENDIX 6.10



Tanita 521 Body Fat Scale

Tanita 521 Body Fat Scale The importance of fitness, body fat and related health risks has created an overwhelming demand for additional home-use Body Fat Monitor/Scales. In response, Tanita has developed the TBF-521 to meet the varied needs of today's health conscious consumer. In the Tanita tradition, the TBF-521 features precise accuracy and affordable pricing. Tanita's patented $f_encfoot-pad$f_enc design sends a low, safe electrical current through the body fat to evaluate its composition. Users simply program their gender, age and height into the monitor, step on the platform, and results appear within 30 seconds. The special separate digital monitor is designed for wall-mounted or countertop use, and the entire unit is compact and portable. Measurements are easy to read, and the TBF-521 has a weight capacity of 330 lbs. With added features like the innovative $f_encathlete mode,$f_enc the TBF-521 ideally fits a range of lifestyles and budgets. Since the TBF-521 is equipped with adult, child and the new $f_encathlete$f_enc modes, it can benefit everyone - from those concerned about improving their health to fitness enthusiasts. With the TBF-521, the entire family can monitor health, see results during weight-loss programs, or make sure they meet personal fitness goals. Tanita's Body Fat Monitor/Scale replaces the traditional scale and is the perfect addition to home fitness equipment. User Modes: Adult Mode: Calibrated for people over the age of 17, who have active or sedentary lifestyles. Child Mode: Calibrated for children up to the age of 17, over 3.6 ft. tall, whose bodies are still developing. Athlete Mode: Calibrated for adults involved in intense exercise programs (at least ten hours per week) and who have a resting heart rate of less than 60 beats-per-minute - excluding professional athletes and bodybuilders. WARNING! Do not use this product if you have a pacemaker, or other internal medical device.

APPENDIX 6.11

Instruction Manual

Catalog Number

196-1026 HbA_{1c} Capillary Collection System, 100 Tests Kit

196-1026/A HbA_{1c} Capillary Collection System, 5 Tests Kit

Intended use:

The BIO-RAD HbA_{1c} Capillary Collection System is designed for the fast and easy capillary blood collection for HbA_{1c} determination.

For *in vitro* diagnostic use.

December 1998

600-0042

Ch. B. 016525

961-812

BIO-RAD

HbA_{1c} Capillary Collection System

1.0 Introduction

1.1 Introduction

The determination of Hemoglobin A_1 levels in whole blood has become a major tool in the management of patients with diabetes. Modern, fully automated instruments such as the BIO-RAD DIAMAT and the VARIANT Analyzers are capable of processing large numbers of Hb A_{1c} samples in a relatively short time.

Since the introduction of glucose monitoring, many diabetic patients measure their own blood glucose levels using "fingerprick" capillary blood. This approach is being used increasingly in hospitals as well.

The Hb A_{1c} Capillary Collection System provides all items necessary for quick and easy sample collection prior to analysis.

Venipuncture is not necessary and the capillary blood sample is convenient for those patients performing glucose monitoring at the same time. Also, the 5 µL sample volume lends itself to paediatric testing. Risk of infection to laboratory personnel is minimized by the unique capillary holder.

Additinally use of this sample preparation technique greatly enhances the stability of the patient sample during storage and transportation.

1.2 Procedure

The surface of the finger or ear lobe should be cleaned with an alcohol swab. After blood flow has been induced using a sterile lancet or similar device, capillary blood is collected in the 5 µL capillaries provided in the kit. Using the plastic capillary holder provided, fill the capillary end to end with the blood sample. Being careful to first remove any excess drops on the outside of the capillary, drop the capillary into one of the sample preparation vials provided in the kit. After capping the vial, shake it gently to rinse the blood out of the capillary and allow hemolysis of the sample to take place. The capillaries are heparinised to prevent clotting inside the capillary. The properly labelled vial is now ready to transfer to the laboratory for analysis.

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3.0 Procedure

3.1 Procedure Steps

Attention.
Please remove the capillaries when samples are standing more than 10-12 days after hemolysis, to avoid artificial products.

a) Capillary Collection System on DIAMAT:
If the samples are analysed within 24 hours after blood collection, it is necessary to add 100 µl of the BIO-RAD Developing Reagent (Cat. No. 196-1052) to the hemolysate and incubate the sample for 30 min at 37 °C before placing them in the Analyzer. Detailled instructions are described in the manual for the BIO-RAD Developing Reagent.

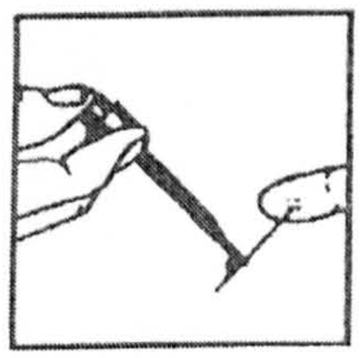
b) Capillary Collection System on VARIANT:
The samples should not be analyzed before the end of 24 hours after blood collection to enable complete Schiff-Base removal. The BIO-RAD Developing Reagent (Cat. No. 196-1052) can not be used on the VARIANT system.

3.1.1 Clean the surface of the finger or ear lobe with an alcohol swab.

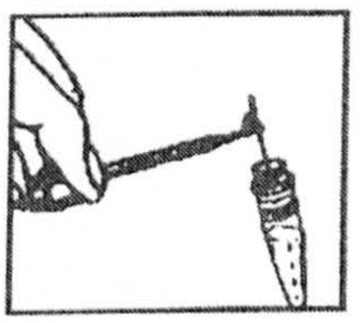
3.1.2 Induce blood flow using a sterile lancet or similar device.

3.1.3 Take one capillary out of the capillary dispenser and attach it in the capillary holder. Fill the capillary with blood (from finger tip or ear lobe).

IMPORTANT: The capillary must be filled end-to end!

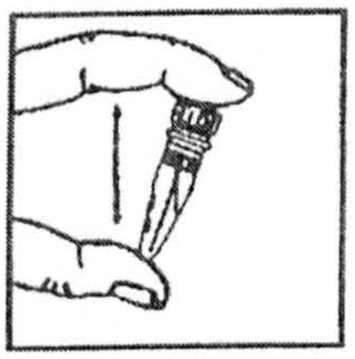


3.1.4 Remove any residual blood drops on the outside of the capillary.
Transfer the filled capillary into the Sample Preparation vial.

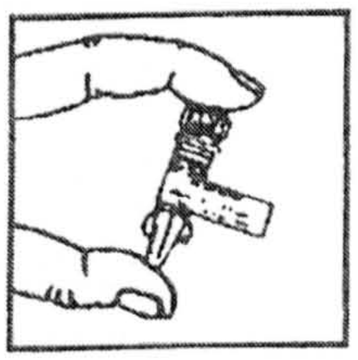


3.1.5 Cap the vial and shake it to rinse the blood completely from the capillary.

IMPORTANT: Make sure, that no blood remains in the capillary.



3.1.6 Label the vial with the label provided in the kit. On the vial, place the label on the free space below the notches.



3.1.7 The specimen can now be passed on for analysis or kept refrigerated until shipment.
Samples prepared using this procedure are stable for 2 weeks at room temperature or four weeks at 2 - 8 °C.

APPENDIX 6.12

C:\Documents and Settings\Alan Corrin\Desktop\PhD thesis\Chapter 7\CIS group A.sav

	item1	item2	item3	item4	item5	item6	item7	item8	item9	item10
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2	4	4	3	2	2	3	3	3	4	4
3	1	1	0	1	1	2	1	1	0	1
4	3	1	1	2	1	0	1	1	0	3
5	3	2	3	2	2	2	3	3	3	2
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9	3	3	2	2	1	2	3	2	2	3
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24	3	3	3	3	3	1	1	2	1	2
25	1	1	1	3	3	1	1	1	1	1

C:\Documents and Settings\Alan Corrin\Desktop\PhD thesis\Chapter 7\CIS group B.sav

	item1	item2	item3	item4	item5	item6	item7	item8	item9	item10
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7	4	3	3	4	4	4	4	3	4	4
8	3	1	1	1	0	0	1	2	1	1
9	4	4	2	2	1	3	3	2	3	2
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11	2	1	0	0	0	0	0	3	1	0
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14	2	3	2	3	3	3	3	2	2	4
15	2	4	3	3	2	3	3	3	3	2
16	3	3	3	3	3	2	2	3	1	3
17	4	4	4	4	4	4	4	4	4	4
18	3	4	3	2	3	4	3	3	2	3
19	1	3	2	2	3	2	3	2	2	4
20	3	2	4	3	2	3	3	3	2	3
21	1	1	2	1	3	1	1	2	2	2
22	4	3	2	4	4	3	4	3	1	4
23	3	2	1	3	4	2	2	1	2	4
24	2	2	1	2	2	2	2	2	2	2

Study No2 Raw data. **Blue = Grp (A) data** **Green = Grp (B) data**

CIS Item score

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3	1	1	2	1	0	1	1	0	3
3	2	3	2	2	2	3	3	3	2
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2	2	1	1	1	2	0	1	2	2
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2	3	3	1	1	2	2	1	1	0
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3	3	1	1	2	2	1	1	3	1
2	2	2	1	1	1	1	1	2	2
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3	3	2	3	3	2	2	2	1	3
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3	3	3	2	3	3	1	1	4	4
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3	4	3	2	2	2	2	1	1	1
3	4	2	2	1	3	1	3	2	3
4	3	3	4	4	4	4	3	4	4
3	1	1	1	0	0	1	2	1	1
4	4	2	2	1	3	3	2	3	2
2	1	0	0	0	2	1	1	1	1
2	1	0	0	0	0	0	3	1	0
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2	3	2	2	3	3	3	3	2	3
2	3	2	3	3	3	3	2	2	4
2	4	3	3	2	3	3	3	3	2
3	3	3	3	3	2	2	3	1	3
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3	4	3	2	3	4	3	3	2	3
1	3	2	2	3	2	3	2	2	4
3	2	4	3	2	3	3	3	2	3
1	1	2	1	3	1	1	2	2	2
4	3	2	4	4	3	4	3	1	4
3	2	1	3	4	2	2	1	2	4
2	2	1	2	2	2	2	2	2	2

Study No3

Episodes of between meals eating behaviour per week – Raw data

Participant	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
1.00	4.00	3.00	1.00	3.00	1.00	1.00
2.00	.00	.00	.00	.00	.00	.00
3.00	5.00	4.00	3.00	4.00	1.00	.00
4.00	1.00	.00	.00	1.00	1.00	.00
5.00	4.00	4.00	6.00	1.00	.00	2.00
6.00	5.00	1.00	3.00	2.00	3.00	4.00
7.00	11.00	4.00	4.00	6.00	6.00	10.00
8.00	11.00	11.00	3.00	1.00	4.00	2.00
9.00	8.00	10.00	6.00	6.00	4.00	1.00
10.00	5.00	9.00	8.00	8.00	2.00	8.00
11.00	8.00	7.00	8.00	8.00	7.00	5.00
13.00	3.00	6.00	3.00	4.00	3.00	2.00
14.00	.00	.00	.00	.00	.00	.00
16.00	2.00	1.00	1.00	5.00	.00	.00
18.00	5.00	5.00	9.00	.00	3.00	3.00
21.00	4.00	1.00	.00	4.00	4.00	.00
24.00	.00	.00	.00	.00	2.00	.00
25.00	5.00	4.00	4.00	2.00	.00	.00
26.00	.00	2.00	.00	.00	1.00	1.00
27.00	.00	1.00	.00	.00	.00	.00

Study No3

Weight raw data

Participant	Weight 1	Weight 2	Weight 3
1	198.50	198.00	193.00
2	191.00	188.00	180.00
3	204.50	191.00	185.00
4	273.00	264.50	252.00
5	149.00	147.50	145.50
6	158.00	150.50	150.00
7	231.00	228.50	225.00
8	184.00	185.00	184.00
9	175.00	169.50	166.50
10	206.50	201.50	208.00
11	201.00	198.00	196.00
13	192.50	186.50	186.00
14	176.00	172.50	172.50
16	196.00	189.50	196.00
18	170.00	168.50	169.00
20	268.50	265.00	264.00
21	164.50	161.50	164.50
22	145.50	143.50	140.50
24	218.00	216.00	216.50
25	280.00	267.00	263.00
26	241.00	233.00	236.50
27	210.00	203.00	198.00

Study No3

Hips raw data

Participant	Hips 1	Hips 2	Hips 3
1	46.00	45.25	44.75
2	43.25	43.25	42.25
3	47.25	45.50	41.25
4	58.50	53.25	49.00
5	39.75	38.50	37.30
6	39.50	38.00	37.25
7	45.63	45.00	46.75
8	39.25	39.00	37.50
9	43.75	43.00	41.50
10	46.50	46.25	45.50
11	47.50	46.25	45.00
13	41.75	41.75	40.25
14	38.50	38.00	39.50
16	44.75	43.25	43.75
18	41.00	40.25	39.00
20	48.25	48.00	46.75
21	42.50	41.50	38.50
22	37.25	36.50	36.00
24	44.75	42.50	42.00
25	51.00	47.00	46.00
26	48.00	47.50	47.50
27	43.00	42.00	41.25

Study No3

Waist raw data

Participant	Waist 1	Waist 2	Waist 3
1	43.50	45.25	44.00
2	40.00	36.50	33.50
3	48.00	45.50	44.00
4	55.00	53.25	52.12
5	38.60	38.00	37.40
6	39.25	37.00	34.60
7	48.75	46.50	46.00
8	43.00	41.00	40.44
9	39.50	38.00	37.40
10	43.25	42.50	41.50
11	45.00	43.00	42.88
13	40.00	38.75	37.50
14	42.50	40.75	41.50
16	43.00	42.75	41.75
18	40.25	38.75	38.50
20	50.00	49.25	46.50
21	33.88	32.50	32.00
22	37.25	37.00	36.00
24	48.00	47.00	46.25
25	51.38	49.00	47.00
26	45.25	44.25	45.75
27	46.75	45.50	44.25

Study No3

Waist to hip ratio raw data

Participant	WHR 1	WHR 2	WHR 3
1	.95	1.00	.98
2	.95	.84	.79
3	1.02	1.08	1.10
4	.94	1.07	1.06
5	.97	.98	1.00
6	1.00	.97	.93
7	1.06	1.03	.98
8	1.09	1.05	1.08
9	.90	.88	.90
10	.93	.92	.91
11	.95	.93	.93
13	.96	.93	.93
14	1.10	1.07	1.05
16	.96	.99	.99
18	.98	.96	.99
20	1.04	1.03	.99
21	.80	.78	.83
22	1.00	1.01	1.00
24	1.07	1.11	1.10
25	1.01	1.04	1.02
26	.94	.93	.96
27	1.09	1.08	1.07

Study No3

Body mass index raw data

Participant	BMI 1	BMI 2	BMI 3
1	37.50	37.00	36.50
2	34.38	33.84	32.60
3	38.65	36.10	36.90
4	46.21	44.77	44.50
5	27.04	26.76	25.40
6	30.89	29.43	29.60
7	40.93	40.49	40.84
8	33.12	33.30	33.40
9	31.80	30.70	30.20
10	37.46	36.56	37.70
11	38.00	37.40	37.00
13	31.20	30.20	30.10
14	29.60	29.00	29.00
16	34.20	33.00	33.20
18	32.13	31.85	31.94
20	46.80	46.20	46.10
21	29.80	29.20	29.80
22	27.05	27.12	26.60
24	38.00	37.68	37.80
25	43.80	41.80	41.00
26	42.70	41.28	41.90
27	44.10	42.63	41.58

Study No3

Percentage of body fat raw data

Participant	BF 1	BF 2	BF 3
1	43.00	46.00	43.00
2	48.20	47.10	45.00
3	46.90	45.00	43.50
4	57.40	56.70	56.00
5	44.00	43.70	43.00
6	36.10	40.90	39.30
7	50.60	50.10	49.80
8	44.20	44.60	44.30
9	42.00	40.70	41.40
10	49.90	48.60	49.30
11	45.00	42.70	42.60
13	44.40	44.80	43.00
14	42.00	38.60	39.70
16	47.50	46.20	43.90
18	40.00	40.10	39.10
20	50.80	50.00	50.20
21	40.40	39.30	39.50
22	40.50	38.70	37.80
24	47.20	46.10	46.00
25	45.50	43.70	42.90
26	53.10	48.00	49.90
27	47.30	46.50	44.60

Study No 3

HbA1c raw data

Participant	HbA1c - 1	HbA1c - 2	HbA1c - 3	HbA1c - 4
1	12.0	11.8	11.60	11.50
2	6.0	6.0	5.90	5.90
3	12.0	9.8	8.50	8.30
4	9.0	7.7	6.80	6.70
5	8.3	7.9	6.80	7.50
6	10.4	9.8	8.60	8.20
7	7.6	7.9	7.60	7.40
8	8.8	9.1	8.60	9.40
9	10.8	10.2	10.20	9.60
10	11.7	11.0	10.30	8.90
11	7.8	8.0	7.70	7.40
13	8.2	7.7	7.20	7.10
14	8.7	9.1	8.90	8.90
16	10.4	10.6	10.50	10.00
18	10.1	10.5	9.90	10.30
20	11.4	11.0	10.60	11.00
21	10.0	10.2	10.00	9.00
22	8.3	7.8	7.60	7.40
24	9.1	9.4	9.00	8.70
25	8.4	8.2	7.80	7.70
26	7.9	7.2	6.40	6.30
27	8.4	7.7	7.60	7.30

Study No3 DEBQ – Raw data

Rest = Restraint scale, Emot = Emotional scale, Ext = External scale

Participant	Rest 1	Rest 2	Rest 3	Emot 1	Emot 2	Emot 3	Ext 1	Ext 2	Ext3
1	3.10	3.70	3.20	4.40	2.50	2.10	3.20	2.20	1.70
2	4.50	4.20	4.60	2.80	3.00	2.50	3.90	3.80	3.10
3	3.30	4.50	4.10	4.60	1.90	1.50	4.00	1.90	1.40
4	2.60	4.00	3.20	2.80	1.80	1.30	3.10	2.30	1.90
5	1.00	1.40	1.10	3.20	2.60	1.80	3.40	3.00	2.20
6	3.10	4.80	4.40	3.20	1.70	1.80	2.70	1.80	2.00
7	3.10	3.90	3.40	4.80	2.40	2.20	3.10	1.40	1.20
8	2.90	3.50	3.50	3.60	4.80	4.90	4.80	4.30	4.40
9	3.30	3.80	4.30	4.10	1.30	2.40	3.00	1.30	2.20
10	3.40	1.60	2.90	2.80	1.30	1.20	2.40	1.20	1.00
11	3.10	3.60	3.10	2.90	1.80	2.10	2.60	1.70	2.30
13	3.30	2.30	3.00	1.30	1.20	1.00	1.90	1.60	1.40
14	2.50	2.40	2.30	1.80	2.00	2.20	2.00	2.00	2.00
16	4.00	3.80	3.80	3.30	2.30	2.80	2.80	1.80	2.30
18	2.60	3.70	3.00	2.80	2.00	1.60	3.00	2.00	2.50
20	3.70	3.50	2.80	2.20	1.40	1.50	2.40	2.20	2.60
21	3.50	4.30	4.60	2.60	1.80	2.20	2.90	1.80	2.40
22	2.80	4.20	3.90	3.30	1.50	1.40	2.60	1.90	1.60
24	3.20	3.20	3.70	2.50	2.10	2.00	2.70	2.20	2.20
25	3.50	4.00	3.60	3.70	2.00	1.70	3.10	1.50	2.10
26	2.90	4.60	4.10	2.80	1.20	1.50	2.90	1.40	1.70
27	3.40	3.50	2.90	2.40	2.20	1.90	3.50	3.20	2.90

Study No3

Focused activity – Raw data

Participant	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
1	2.00	1.00	1.00	2.00	1.00	3.00
2	1.00	2.00	1.00	2.00	2.00	2.00
3	7.00	7.00	7.00	7.00	7.00	7.00
4	4.00	4.00	7.00	7.00	7.00	4.00
6	4.00	3.00	3.00	6.00	6.00	6.00
7	7.00	7.00	5.00	5.00	6.00	7.00
8	2.00	3.00	2.00	2.00	2.00	2.00
9	3.00	5.00	3.00	5.00	3.00	7.00
10	5.00	6.00	4.00	7.00	4.00	6.00
11	3.00	2.00	3.00	5.00	4.00	4.00
13	7.00	7.00	5.00	5.00	7.00	7.00
16	4.00	3.00	5.00	4.00	2.00	1.00
21	5.00	3.00	4.00	4.00	5.00	3.00
24	1.00	2.00	3.00	3.00	3.00	5.00
25	6.00	7.00	7.00	5.00	7.00	7.00
26	2.00	2.00	.00	.00	.00	.00
27	1.00	2.00	2.00	2.00	2.00	1.00

Study No4

Episodes of between meals eating – Raw data

Participants	Week 1	Week 2	Week 3	Week 4
5	6.00	2.00	1.00	2.00
6	1.00	1.00	3.00	.00
9	7.00	7.00	3.00	3.00
10	5.00	3.00	1.00	1.00
11	8.00	4.00	6.00	3.00
13	5.00	3.00	.00	3.00
14	.00	.00	.00	.00
16	.00	.00	.00	.00
18	7.00	1.00	5.00	4.00
20	9.00	4.00	7.00	8.00
21	1.00	1.00	.00	1.00
24	1.00	.00	.00	.00

Study No4

Weight – Raw data

Participants	Weight 1	Weight 2	Weight 3
2	175.50	172.50	179.50
5	148.00	147.00	146.00
6	154.00	152.50	151.00
7	230.50	231.50	233.50
8	185.50	181.50	183.00
9	168.00	164.00	169.00
10	208.50	203.00	202.00
11	198.50	196.00	204.00
13	188.50	185.50	191.50
14	170.50	167.00	174.00
16	198.00	196.00	200.00
18	172.50	166.50	178.00
21	162.50	154.50	167.50
24	219.50	214.50	219.00
26	237.00	234.00	238.50

Study No4

Hips– Raw data

Participants	Hips 1	Hips 2	Hips 3
2	42.75	42.50	42.75
5	38.00	38.25	38.00
6	38.75	38.75	37.75
7	44.50	44.75	44.75
8	38.50	38.50	38.50
9	42.75	42.50	43.50
10	47.00	46.50	45.50
11	46.40	47.00	47.00
13	41.75	41.50	42.00
14	38.50	38.50	38.75
16	44.50	44.25	45.00
18	40.60	40.00	41.75
21	41.90	41.50	42.00
24	42.00	42.50	42.50
26	47.25	47.25	47.25

Study No4

Waist– Raw data

Participants	Waist 1	Waist 2	Waist 3
2	37.50	36.75	37.75
5	39.25	37.50	37.00
6	38.25	36.50	36.00
7	46.40	47.75	47.00
8	42.40	40.75	41.75
9	38.75	38.25	38.75
10	43.75	41.25	40.75
11	44.50	44.00	44.00
13	38.50	38.00	39.00
14	42.25	41.25	42.90
16	45.75	43.50	43.00
18	39.50	37.75	41.00
21	34.00	32.75	32.75
24	48.00	46.50	47.90
26	46.00	45.50	46.50

Study No4

Waist to hip ratio– Raw data

Participants	WHR 1	WHR 2	WHR 3
2	.88	.86	.86
5	1.03	.98	.97
6	.99	.94	.95
7	1.04	1.07	1.05
8	1.10	1.06	1.08
9	.91	.90	.89
10	.93	.89	.90
11	.96	.96	.94
13	.92	.92	.93
14	1.10	1.10	1.10
16	1.03	.98	.96
18	.97	.97	.98
21	.81	.79	.78
24	1.10	1.09	1.05
26	.97	.96	.98

Study No4

Body Mass Index– Raw data

Participants	BMI 1	BMI 2	BMI 3
2	31.80	31.30	32.60
5	25.80	25.70	25.90
6	30.40	30.10	29.80
7	40.20	40.40	41.40
8	33.60	32.90	32.80
9	30.50	29.80	30.70
10	36.40	36.00	35.80
11	37.50	37.00	38.60
13	29.60	30.10	31.00
14	28.60	27.80	29.00
16	35.10	34.70	35.40
18	32.60	31.50	33.60
21	29.50	28.80	31.30
24	38.30	38.00	38.80
26	41.30	40.80	41.60

APPENDIX 6.13

Study No2 SPSS output for CIS data

Descriptive Statistics

	GROUP	Mean	Std. Deviation	N
ITEM1	1.00	2.40	1.00	25
	2.00	2.63	.92	24
	Total	2.51	.96	49
ITEM2	1.00	2.36	1.08	25
	2.00	2.58	1.14	24
	Total	2.47	1.10	49
ITEM3	1.00	2.08	1.15	25
	2.00	2.08	1.06	24
	Total	2.08	1.10	49
ITEM4	1.00	2.00	.96	25
	2.00	2.29	1.12	24
	Total	2.14	1.04	49
ITEM5	1.00	1.92	1.04	25
	2.00	2.37	1.28	24
	Total	2.14	1.17	49
ITEM6	1.00	2.16	.94	25
	2.00	2.38	1.10	24
	Total	2.27	1.02	49
ITEM7	1.00	2.12	1.09	25
	2.00	2.37	1.21	24
	Total	2.24	1.15	49
ITEM8	1.00	1.96	.93	25
	2.00	2.21	.88	24
	Total	2.08	.91	49
ITEM9	1.00	2.08	1.19	25
	2.00	2.04	.95	24
	Total	2.06	1.07	49
ITEM10	1.00	2.28	1.14	25
	2.00	2.75	1.19	24
	Total	2.51	1.17	49

Pairwise Comparisons

Dependent Variabl	(I) GROUF	(J) GROUF	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
						Lower Bound	Upper Bound
ITEM1	1.00	2.00	-.225	.275	.418	-.779	.329
	2.00	1.00	.225	.275	.418	-.329	.779
ITEM2	1.00	2.00	-.223	.316	.484	-.860	.413
	2.00	1.00	.223	.316	.484	-.413	.860
ITEM3	1.00	2.00	3.333E-03	.317	.992	-.640	.634
	2.00	1.00	3.333E-03	.317	.992	-.634	.640
ITEM4	1.00	2.00	-.292	.298	.332	-.890	.307
	2.00	1.00	.292	.298	.332	-.307	.890
ITEM5	1.00	2.00	-.455	.332	.177	-1.123	.213
	2.00	1.00	.455	.332	.177	-.213	1.123
ITEM6	1.00	2.00	-.215	.292	.465	-.802	.372
	2.00	1.00	.215	.292	.465	-.372	.802
ITEM7	1.00	2.00	-.255	.329	.442	-.917	.407
	2.00	1.00	.255	.329	.442	-.407	.917
ITEM8	1.00	2.00	-.248	.260	.344	-.771	.275
	2.00	1.00	.248	.260	.344	-.275	.771
ITEM9	1.00	2.00	3.833E-02	.309	.902	-.582	.659
	2.00	1.00	3.833E-02	.309	.902	-.659	.582
ITEM10	1.00	2.00	-.470	.332	.164	-1.138	.198
	2.00	1.00	.470	.332	.164	-.198	1.138

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Study No2 SPSS output

Group Statistics

	GROUP	N	Mean	Std. Deviation	Std. Error Mean
CIS	1.00	25	2.1360	.8149	.1630
	2.00	24	2.3708	.7997	.1632

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CIS	Equal variances assumed	.049	.825	-1.018	47	.314	-.2348	.2308	-.6991	.2294
	Equal variances not assumed			-1.018	46.975	.314	-.2348	.2307	-.6989	.2292

Study No3 SPSS output for weight

Descriptive Statistics

	Mean	Std. Deviation	N
WEIGHT1	201.5227	38.1774	22
WEIGHT2	196.7273	36.5913	22
WEIGHT3	195.0682	35.7236	22

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	494.341	2	247.170	20.429	.000
	Greenhouse-Geisser	494.341	1.425	346.985	20.429	.000
	Huynh-Feldt	494.341	1.499	329.787	20.429	.000
	Lower-bound	494.341	1.000	494.341	20.429	.000
Error(TIME)	Sphericity Assumed	508.159	42	12.099		
	Greenhouse-Geisser	508.159	29.918	16.985		
	Huynh-Feldt	508.159	31.478	16.143		
	Lower-bound	508.159	21.000	24.198		

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	4.795*	.795	.000	2.728	6.863
	3	6.455*	1.335	.000	2.981	9.929
2	1	-4.795*	.795	.000	-6.863	-2.728
	3	1.659	.941	.277	-.788	4.106
3	1	-6.455*	1.335	.000	-9.929	-2.981
	2	-1.659	.941	.277	-4.106	.788

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Study No3 SPSS output for Waist

Descriptive Statistics

	Mean	Std. Deviation	N
WAIST1	43.7323	5.0974	22
WAIST2	42.3636	5.0643	22
WAIST3	41.4018	5.0830	22

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	60.348	2	30.174	38.018	.000
	Greenhouse-Geisser	60.348	1.428	42.268	38.018	.000
	Huynh-Feldt	60.348	1.503	40.161	38.018	.000
	Lower-bound	60.348	1.000	60.348	38.018	.000
Error(TIME)	Sphericity Assumed	33.334	42	.794		
	Greenhouse-Geisser	33.334	29.983	1.112		
	Huynh-Feldt	33.334	31.556	1.056		
	Lower-bound	33.334	21.000	1.587		

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	1.369*	.225	.000	.783	1.954
	3	2.330*	.343	.000	1.438	3.223
2	1	-1.369*	.225	.000	-1.954	-.783
	3	.962*	.219	.001	.392	1.532
3	1	-2.330*	.343	.000	-3.223	-1.438
	2	-.962*	.219	.001	-1.532	-.392

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Study No3 SPSS output for Hips

Descriptive Statistics

	Mean	Std. Deviation	N
HIP1	44.4377	4.7837	22
HIP2	43.2500	4.0392	22
HIP3	42.2068	3.8061	22

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
HIPS	Sphericity Assumed	54.823	2	27.412	18.311	.000
	Greenhouse-Geisser	54.823	1.255	43.691	18.311	.000
	Huynh-Feldt	54.823	1.297	42.276	18.311	.000
	Lower-bound	54.823	1.000	54.823	18.311	.000
Error(HIPS)	Sphericity Assumed	62.875	42	1.497		
	Greenhouse-Geisser	62.875	26.351	2.386		
	Huynh-Feldt	62.875	27.233	2.309		
	Lower-bound	62.875	21.000	2.994		

Pairwise Comparisons

Measure: MEASURE_1

(I) HIPS	(J) HIPS	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	1.188*	.270	.001	.486	1.889
	3	2.231*	.490	.001	.956	3.506
2	1	-1.188*	.270	.001	-1.889	-.486
	3	1.043*	.309	.009	.240	1.847
3	1	-2.231*	.490	.001	-3.506	-.956
	2	-1.043*	.309	.009	-1.847	-.240

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Study No3 SPSS output for Waist to hip ratio

Descriptive Statistics

	Mean	Std. Deviation	N
WHR1	.9868	7.141E-02	22
WHR2	.9855	8.410E-02	22
WHR3	.9814	8.126E-02	22

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	3.545E-04	2	1.773E-04	.170	.844
	Greenhouse-Geisser	3.545E-04	1.333	2.659E-04	.170	.754
	Huynh-Feldt	3.545E-04	1.390	2.551E-04	.170	.764
	Lower-bound	3.545E-04	1.000	3.545E-04	.170	.684
Error(TIME)	Sphericity Assumed	4.371E-02	42	1.041E-03		
	Greenhouse-Geisser	4.371E-02	27.998	1.561E-03		
	Huynh-Feldt	4.371E-02	29.184	1.498E-03		
	Lower-bound	4.371E-02	21.000	2.082E-03		

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	1.364E-03	.010	1.000	-2.46E-02	2.728E-02
	3	5.455E-03	.012	1.000	-2.64E-02	3.732E-02
2	1	-1.364E-03	.010	1.000	-2.73E-02	2.455E-02
	3	4.091E-03	.006	1.000	-1.12E-02	1.937E-02
3	1	-5.455E-03	.012	1.000	-3.73E-02	2.642E-02
	2	-4.091E-03	.006	1.000	-1.94E-02	1.119E-02

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Study No3 SPSS output for Percentage of body fat

Descriptive Statistics

	Mean	Std. Deviation	N
BF1	45.7273	4.8641	22
BF2	44.9136	4.3716	22
BF3	44.2636	4.4688	22

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	23.663	2	11.831	9.182	.000
	Greenhouse-Geisser	23.663	1.537	15.394	9.182	.002
	Huynh-Feldt	23.663	1.635	14.475	9.182	.001
	Lower-bound	23.663	1.000	23.663	9.182	.006
Error(TIME)	Sphericity Assumed	54.117	42	1.289		
	Greenhouse-Geisser	54.117	32.279	1.677		
	Huynh-Feldt	54.117	34.329	1.576		
	Lower-bound	54.117	21.000	2.577		

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.814	.420	.199	-.279	1.907
	3	1.464*	.330	.001	.606	2.321
2	1	-.814	.420	.199	-1.907	.279
	3	.650	.257	.059	-1.92E-02	1.319
3	1	-1.464*	.330	.001	-2.321	-.606
	2	-.650	.257	.059	-1.319	1.921E-02

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Study No3 SPSS output for the DEBQ Restraint scale

Descriptive Statistics

	Mean	Std. Deviation	N
R1	3.1273	.6613	22
R2	3.5682	.9026	22
R3	3.4318	.8179	22

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.441	.183	.075	-.916	3.423E-02
	3	-.305	.131	.089	-.644	3.540E-02
2	1	.441	.183	.075	-3.42E-02	.916
	3	.136	.116	.754	-.164	.437
3	1	.305	.131	.089	-3.54E-02	.644
	2	-.136	.116	.754	-.437	.164

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Study No3 SPSS output for the DEBQ Emotional scale

Descriptive Statistics

	Mean	Std. Deviation	N
E1	3.0864	.8692	22
E2	2.0364	.7811	22
E3	1.9864	.7930	22

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	1.050*	.211	.000	.500	1.600
	3	1.100*	.213	.000	.545	1.655
2	1	-1.050*	.211	.000	-1.600	-.500
	3	5.000E-02	.089	1.000	-.181	.281
3	1	-1.100*	.213	.000	-1.655	-.545
	2	-5.000E-02	.089	1.000	-.281	.181

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Study No3 SPSS output for the DEBQ External scale

Descriptive Statistics

	Mean	Std. Deviation	N
EXT1	3.0000	.6554	22
EXT2	2.1136	.7984	22
EXT3	2.1409	.7281	22

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.886*	.123	.000	.566	1.207
	3	.859*	.134	.000	.510	1.208
2	1	-.886*	.123	.000	-1.207	-.566
	3	-2.727E-02	.102	1.000	-.291	.237
3	1	-.859*	.134	.000	-1.208	-.510
	2	2.727E-02	.102	1.000	-.237	.291

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Study No3 SPSS output for Focused activity

Descriptive Statistics

	Mean	Std. Deviation	N
WEEK1	3.7647	2.1369	17
WEEK2	3.8824	2.1472	17
WEEK3	3.6471	2.1489	17
WEEK4	4.1765	2.0687	17
WEEK5	4.0000	2.3452	17
WEEK6	4.2353	2.4630	17

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	4.520	5	.904	.753	.586
	Greenhouse-Geisser	4.520	3.498	1.292	.753	.544
	Huynh-Feldt	4.520	4.597	.983	.753	.576
	Lower-bound	4.520	1.000	4.520	.753	.398
Error(TIME)	Sphericity Assumed	95.980	80	1.200		
	Greenhouse-Geisser	95.980	55.974	1.715		
	Huynh-Feldt	95.980	73.555	1.305		
	Lower-bound	95.980	16.000	5.999		

Study No3 SPSS output for Focused activity

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.118	.256	1.000	-.998	.763
	3	.118	.342	1.000	-1.059	1.295
	4	-.412	.394	1.000	-1.767	.944
	5	-.235	.338	1.000	-1.399	.929
	6	-.471	.447	1.000	-2.009	1.067
2	1	.118	.256	1.000	-.763	.998
	3	.235	.369	1.000	-1.036	1.507
	4	-.294	.418	1.000	-1.734	1.146
	5	-.118	.392	1.000	-1.467	1.232
	6	-.353	.373	1.000	-1.638	.932
3	1	-.118	.342	1.000	-1.295	1.059
	2	-.235	.369	1.000	-1.507	1.036
	4	-.529	.322	1.000	-1.639	.580
	5	-.353	.296	1.000	-1.374	.668
	6	-.588	.500	1.000	-2.312	1.135
4	1	.412	.394	1.000	-.944	1.767
	2	.294	.418	1.000	-1.146	1.734
	3	.529	.322	1.000	-.580	1.639
	5	.176	.324	1.000	-.938	1.291
	6	-5.882E-02	.397	1.000	-1.427	1.310
5	1	.235	.338	1.000	-.929	1.399
	2	.118	.392	1.000	-1.232	1.467
	3	.353	.296	1.000	-.668	1.374
	4	-.176	.324	1.000	-1.291	.938
	6	-.235	.398	1.000	-1.606	1.135
6	1	.471	.447	1.000	-1.067	2.009
	2	.353	.373	1.000	-.932	1.638
	3	.588	.500	1.000	-1.135	2.312
	4	5.882E-02	.397	1.000	-1.310	1.427
	5	.235	.398	1.000	-1.135	1.606

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Study No3 SPSS output for HbA1c

Descriptive Statistics

	Mean	Std. Deviation	N
HBA1C1	9.332	1.605	22
HBA1C2	9.027	1.508	22
HBA1C3	8.5500	1.5574	22
HBA1C4	8.3864	1.4917	22

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.305	.134	.202	-8.55E-02	.695
	3	.782*	.193	.003	.221	1.343
	4	.945*	.222	.002	.299	1.591
2	1	-.305	.134	.202	-.695	8.553E-02
	3	.477*	.080	.000	.243	.711
	4	.641*	.120	.000	.293	.989
3	1	-.782*	.193	.003	-1.343	-.221
	2	-.477*	.080	.000	-.711	-.243
	4	.164	.104	.791	-.140	.468
4	1	-.945*	.222	.002	-1.591	-.299
	2	-.641*	.120	.000	-.989	-.293
	3	-.164	.104	.791	-.468	.140

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	12.448	3	4.149	16.650	.000
	Greenhouse-Geisser	12.448	1.464	8.503	16.650	.000
	Huynh-Feldt	12.448	1.546	8.050	16.650	.000
	Lower-bound	12.448	1.000	12.448	16.650	.001
Error(TIME)	Sphericity Assumed	15.700	63	.249		
	Greenhouse-Geisser	15.700	30.743	.511		
	Huynh-Feldt	15.700	32.471	.484		
	Lower-bound	15.700	21.000	.748		

Study No3 SPSS output for episodes of between meals eating behaviour

Descriptive Statistics

	Mean	Std. Deviation	N
WEEK1	4.0500	3.4713	20
WEEK2	3.6500	3.4531	20
WEEK3	2.9500	3.0517	20
WEEK4	2.7500	2.7314	20
WEEK5	2.1000	2.1001	20
WEEK6	1.9500	2.8373	20

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	69.042	5	13.808	3.687	.004
	Greenhouse-Geisser	69.042	3.936	17.543	3.687	.009
	Huynh-Feldt	69.042	5.000	13.808	3.687	.004
	Lower-bound	69.042	1.000	69.042	3.687	.070
Error(TIME)	Sphericity Assumed	355.792	95	3.745		
	Greenhouse-Geisser	355.792	74.775	4.758		
	Huynh-Feldt	355.792	95.000	3.745		
	Lower-bound	355.792	19.000	18.726		

Study No3 SPSS output for episodes of between meals eating behaviour

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.400	.540	1.000	-1.411	2.211
	3	1.100	.644	1.000	-1.061	3.261
	4	1.300	.665	.984	-.931	3.531
	5	1.950*	.531	.024	.171	3.729
	6	2.100	.632	.054	-1.99E-02	4.220
2	1	-.400	.540	1.000	-2.211	1.411
	3	.700	.553	1.000	-1.155	2.555
	4	.900	.688	1.000	-1.407	3.207
	5	1.550	.667	.470	-.686	3.786
	6	1.700	.758	.555	-.842	4.242
3	1	-1.100	.644	1.000	-3.261	1.061
	2	-.700	.553	1.000	-2.555	1.155
	4	.200	.643	1.000	-1.957	2.357
	5	.850	.621	1.000	-1.233	2.933
	6	1.000	.589	1.000	-.977	2.977
4	1	-1.300	.665	.984	-3.531	.931
	2	-.900	.688	1.000	-3.207	1.407
	3	-.200	.643	1.000	-2.357	1.957
	5	.650	.514	1.000	-1.075	2.375
	6	.800	.569	1.000	-1.110	2.710
5	1	-1.950*	.531	.024	-3.729	-.171
	2	-1.550	.667	.470	-3.786	.686
	3	-.850	.621	1.000	-2.933	1.233
	4	-.650	.514	1.000	-2.375	1.075
	6	.150	.504	1.000	-1.541	1.841
6	1	-2.100	.632	.054	-4.220	1.988E-02
	2	-1.700	.758	.555	-4.242	.842
	3	-1.000	.589	1.000	-2.977	.977
	4	-.800	.569	1.000	-2.710	1.110
	5	-.150	.504	1.000	-1.841	1.541

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Stud No4 SPSS output for weight

Descriptive Statistics

	Mean	Std. Deviation	N
WEIGHT1	187.8000	27.1831	15
WEIGHT2	184.4000	27.6465	15
WEIGHT3	189.1000	27.3589	15

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	176.700	2	88.350	14.757	.000
	Greenhouse-Geisser	176.700	1.388	127.294	14.757	.000
	Huynh-Feldt	176.700	1.492	118.401	14.757	.000
	Lower-bound	176.700	1.000	176.700	14.757	.002
Error(TIME)	Sphericity Assumed	167.633	28	5.987		
	Greenhouse-Geisser	167.633	19.434	8.626		
	Huynh-Feldt	167.633	20.893	8.023		
	Lower-bound	167.633	14.000	11.974		

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	3.400*	.567	.000	1.858	4.942
	3	-1.300	.914	.530	-3.784	1.184
2	1	-3.400*	.567	.000	-4.942	-1.858
	3	-4.700*	1.112	.003	-7.723	-1.677
3	1	1.300	.914	.530	-1.184	3.784
	2	4.700*	1.112	.003	1.677	7.723

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Study No4 SPSS output for waist

Descriptive Statistics

	Mean	Std. Deviation	N
WAIST1	41.6533	4.0364	15
WAIST2	40.5333	4.2593	15
WAIST3	41.0700	4.3070	15

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	9.413	2	4.707	6.965	.004
	Greenhouse-Geisser	9.413	1.642	5.732	6.965	.006
	Huynh-Feldt	9.413	1.832	5.139	6.965	.005
	Lower-bound	9.413	1.000	9.413	6.965	.019
Error(TIME)	Sphericity Assumed	18.922	28	.676		
	Greenhouse-Geisser	18.922	22.992	.823		
	Huynh-Feldt	18.922	25.643	.738		
	Lower-bound	18.922	14.000	1.352		

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	1.120*	.245	.001	.454	1.786
	3	.583	.361	.386	-.399	1.565
2	1	-1.120*	.245	.001	-1.786	-.454
	3	-.537	.282	.234	-1.304	.231
3	1	-.583	.361	.386	-1.565	.399
	2	.537	.282	.234	-.231	1.304

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Study No4 SPSS output for hips

Descriptive Statistics

	Mean	Std. Deviation	N
HIPS1	42.3433	3.1268	15
HIPS2	42.2833	3.1465	15
HIPS3	42.4667	3.1408	15

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	*df*	Mean Square	F	Sig.
TIME	Sphericity Assumed	.262	2	.131	.761	.477
	Greenhouse-Geisser	.262	1.399	.187	.761	.436
	Huynh-Feldt	.262	1.507	.174	.761	.445
	Lower-bound	.262	1.000	.262	.761	.398
Error(TIME)	Sphericity Assumed	4.825	28	.172		
	Greenhouse-Geisser	4.825	19.589	.246		
	Huynh-Feldt	4.825	21.097	.229		
	Lower-bound	4.825	14.000	.345		

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	6.000E-02	.090	1.000	-.185	.305
	3	-.123	.169	1.000	-.581	.335
2	1	-6.000E-02	.090	1.000	-.305	.185
	3	-.183	.180	.978	-.673	.306
3	1	.123	.169	1.000	-.335	.581
	2	.183	.180	.978	-.306	.673

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Study No4 SPSS output for waist to hip ratio

Descriptive Statistics

	Mean	Std. Deviation	N
WHR1	.9827	8.548E-02	15
WHR2	.9647	8.806E-02	15
WHR3	.9613	8.593E-02	15

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	3.951E-03	2	1.976E-03	7.702	.002
	Greenhouse-Geisser	3.951E-03	1.667	2.370E-03	7.702	.004
	Huynh-Feldt	3.951E-03	1.866	2.118E-03	7.702	.003
	Lower-bound	3.951E-03	1.000	3.951E-03	7.702	.015
Error(TIME)	Sphericity Assumed	7.182E-03	28	2.565E-04		
	Greenhouse-Geisser	7.182E-03	23.341	3.077E-04		
	Huynh-Feldt	7.182E-03	26.118	2.750E-04		
	Lower-bound	7.182E-03	14.000	5.130E-04		

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	1.800E-02*	.006	.032	1.394E-03	3.461E-02
	3	2.133E-02*	.007	.021	2.983E-03	3.968E-02
2	1	-1.800E-02*	.006	.032	-3.46E-02	-1.39E-03
	3	3.333E-03	.004	1.000	-8.72E-03	1.539E-02
3	1	-2.133E-02*	.007	.021	-3.97E-02	-2.98E-03
	2	-3.333E-03	.004	1.000	-1.54E-02	8.724E-03

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Study No4 SPSS output for Body mass index

Descriptive Statistics

	Mean	Std. Deviation	N
BMI1	33.4133	4.5705	15
BMI2	32.9933	4.6188	15
BMI3	33.8867	4.6346	15

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	5.992	2	2.996	13.039	.000
	Greenhouse-Geisser	5.992	1.395	4.295	13.039	.001
	Huynh-Feldt	5.992	1.502	3.991	13.039	.001
	Lower-bound	5.992	1.000	5.992	13.039	.003
Error(TIME)	Sphericity Assumed	6.434	28	.230		
	Greenhouse-Geisser	6.434	19.531	.329		
	Huynh-Feldt	6.434	21.021	.306		
	Lower-bound	6.434	14.000	.460		

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.420*	.103	.003	.140	.700
	3	-.473	.197	.092	-1.008	6.139E-02
2	1	-.420*	.103	.003	-.700	-.140
	3	-.893*	.206	.002	-1.454	-.332
3	1	.473	.197	.092	-6.14E-02	1.008
	2	.893*	.206	.002	.332	1.454

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Study No4 SPSS output for episodes of between meals eating behaviour

Descriptive Statistics

	Mean	Std. Deviation	N
WEEK1	4.1667	3.3530	12
WEEK2	2.1667	2.1249	12
WEEK3	2.1667	2.5879	12
WEEK4	2.0833	2.3533	12

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	Sphericity Assumed	37.062	3	12.354	5.727	.003
	Greenhouse-Geisser	37.062	2.683	13.813	5.727	.004
	Huynh-Feldt	37.062	3.000	12.354	5.727	.003
	Lower-bound	37.062	1.000	37.062	5.727	.036
Error(TIME)	Sphericity Assumed	71.187	33	2.157		
	Greenhouse-Geisser	71.187	29.514	2.412		
	Huynh-Feldt	71.187	33.000	2.157		
	Lower-bound	71.187	11.000	6.472		

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	2.000	.640	.058	-5.19E-02	4.052
	3	2.000	.628	.052	-1.36E-02	4.014
	4	2.083*	.529	.014	.387	3.780
2	1	-2.000	.640	.058	-4.052	5.192E-02
	3	.000	.696	1.000	-2.234	2.234
	4	8.333E-02	.596	1.000	-1.829	1.996
3	1	-2.000	.628	.052	-4.014	1.356E-02
	2	.000	.696	1.000	-2.234	2.234
	4	8.333E-02	.484	1.000	-1.469	1.636
4	1	-2.083*	.529	.014	-3.780	-.387
	2	-8.333E-02	.596	1.000	-1.996	1.829
	3	-8.333E-02	.484	1.000	-1.636	1.469

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

APPENDIX 6.14

Transcript of patients' comments

TG3-01-1

Pattern of eating – I found it very helpful and can keep meal times closely - Resisting fattening foods well... seldom eat butters and oils/dressings, but noticed constipation problems so trying to correct with linseed and senokot 2! - Motivation still with me. Less shaky – low feelings, definitely less cravings – more control. Much lower before breakfast readings – less 10 points on several readings in week 2. Much brighter mentally and more able to cope with the food challenges. Mammoth psychological improvements – level of optimism of weight loss to come soon. I feel thinner and suspect I may measure thinner. Waterworks problems – although drinking more water my midretention noticeably lessened, particularly overnight. Exercise 'reduced' by painful limp problem even swimming hurts – but went this morning. On course – glad to think it may help others.

Pattern of eating very helpful – in future it will be more convenient to ?? on 3 ?? with a drink mid period. This I can and will continue to do. I am now able to cut out obvious fat and carbohydrate at the same time – and the miracle part is an ability to maintain mental and physical ability over 3 hours – I used to feel sick and shaky whenever doing exciting or productive things over that length of time. I now have a more fully active day – I used to be mentally and physically sluggish after lunch (even a small one) – I could tell 5pm from my metabolism without looking at a clock! Sleeping better now. Working better now. Much brighter, much happier. I intend to lose more weight and love my protein – fruti – veg – yoghurt diet. Sometimes I need to adjust Diamicron to lower level.

TG3-01-2

Even though I haven't lost – sorry shed – as much as it should I don't feel discouraged I feel that in time my body will change and be slimmer. I will try harder in my eating habits and I will in time lose more weight.

More aware of the type of food and its fat content eating lots more vegetables and whole grain breads this past three weeks because of changes in my food intake I feel as if I have more energy. I have done more physical exercise than usual painting papering and getting up ladders and lots of walking.

TG3-01-3

More active. Walk more. Can resist fattening food. Can go without food between meals. Diabetes is more stable. Feel I can achieve a permanent weight loss. Feel better about myself. Buying different food.

Not so tired. Can resist fattening food. Do more activity. Very optimistic about future weight. Hope to achieve shedding all my weight.

TG3-01-4

Much easier to resist. Sugar levels down from 15-20 to 4-8. Being able to see myself as others see me.

My diabetes levels are dramatic from Insulin of 30 units night and morning to 12 units night and morning – sugar levels 15-20 to 4-8. My 'trying' abilities are increased.

TG3-01-5

Able to discipline my mind much better, aware if I'm tempted to eat on a red path I cannot and have to wait until a green path is 'available' to me. Not feeling as hungry, disappointed in wieght loss but as time goes on if I keep to the amount of food I'm consuming at present I must shed pounds eventually, cut out all sweets/cakes. Very optimistic, regarding weight loss and finding a suitable job, less depressed about being unemployed. Determined to shed more pounds. Have written for more jobs that I am well qualified for obtaining. Have taken advanced course in computers – feel I must apply myself to be more determined about everything!

TG3-01-6

I have found my pattern of eating has changed for the better cutting down on snacking. I have found a difference in resisting fattening foods, fried food I did like fried egg and bacon but I have changed to scrambled eggs, just because I want to also some other foods. I do find I just can resist shopping for food I am resisting temptation. My motivation is feeling better in myself. Having more energy. I do have food cravings but I have took my mind off by keeping busy. I do keep myself as busy as possible and also starting to do more exercise which does make me feel better. My diabetes is better controlled. I am very optimistic at the moment is very good. I will achieve a permanent weight loss. I feel very positive at the moment.

I have changed the way I'm eating not snacking I have resist some fattening foods for more health ones. My motivation is slightly better but not had very last 2 weeks my motivation has slipped but I'm hoping by the end of the sessions I'm hoping to be more positive. My cravings do come now and again I try my best to fight them. I have been more active my diabetes has been up and down one week. By the end of September I am going to lose some weight.

TG3-01-7

It has been very relaxing for me as I am very highly stressed out. I do still find it hard to eat in the green zone, but I also am aware of what I am eating, chocolate was my downfall but now I just don't think about it, my last week up to today I have found it hard to stick to a fat free diet as there is not a lot of things you can do with potatoes, the money part at the moment is not very good I do try my best. I also find that if I get stressed out I go on my treadmill and take it out on that instead of my body. I have never until now been any good at exercising before but now if I don't go for a walk or on the treadmill then I get very annoyed with myself. I do try and stay to the diet as if I go for crisps then I hear Alan's voice saying no that's no good for you so I put them back but if I start to go low in sugar I do have them instead of chocolate and they are small packet instead of a big bag. My partner says I am happier than I was and I must admit to I feel great, if I go too long without food as the problems with my tummy start so I get a lot of pain which makes me so down I sometimes feel why bother, but again Alan's voice comes into my mind and this only lasts half hour not 3 hours. You have helped me a lot Alan thank you.

My eating pattern has changed a hell of a lot since I started the program. I don't eat as much fattening foods I am able to cook chips for my partner and I don't have them

myself but now and then I must admit I have had some but not a plate full as I used to eat. My cravings are less now, when I do start craving I go for a walk or on my treadmill in the beginning it was hard but as the weeks have gone by it has become very easy, I do admit I don't drink a lot of water. I love to go on my treadmill but because of my tummy exercise is very hard, I do my best here's hoping it has worked for me. I feel a lot better about myself, I get good days and bad days but lately more good than bad.

TG3-01-8

I have now seen a change in my craving for fatty foods. My sugar levels are lower. I also find I do not eat between my meals as much as I used to I am also doing my best to do more activity than I used to, and I feel a lot better for it. I have also found when I go out and pass the fish and chip shop I do not want to go in and buy any.

TG3-02-1

I have found that I am eating a lot more low fat or fat free products also not eating between meals and this has made me enjoy my meals at the correct times. I am also drinking more water than I used to do and I have lost a little bit of weight and my blood sugars are lower than before but I seem to have a few more hypos than usual. I also find that where I would buy a cake or something sweet I don't even think about it now and I have tried to get my husband to do the same (with not much success). I am also now taking the dog out for short walks and going about doing things that little bit extra time and energy I feel great.

When I used to graze through the day I no longer even think abut eating at the wrong times. I am now eating and looking for low fat or fat free foods and sometimes I can go without my diabetic snack. I tend to be more mobile even though I have arthiritis in my joints. My blood sugar levels have gone down a great deal and also my blood pressure has gone down. I no longer crave for foods that are no longer any good for me i.e. cakes, biscuits etc. I feel that I can quite easy carry on with my aim of being a thinner me without even thinking about fatty foods.

TG3-02-2

Taking more care in the terms of eating and seem to want to eat at the relevant times. I wouldn't say that I have always got the ability to resist fatty foods. Don't seem to have any food cravings as such. Feel a lot better in myself as far as wanting to do things and like to go for a walk more than I used to. As far as to diabetes goes the sugar level has gone up and the blood pressure is gone up on more tables. Feel like I want to lose weight more than I have done before.

I am paying more attention to eating at the right times. Can resist fattening food but sometimes I don't when out for meals. Find that I am doing more walking and am enjoying it more. Don't get any food cravings sugar level is level to me but not to the test in the diabetic clinic. Would like to think that I was going to be able to achieve a permanent weight reduction.

TG3-02-3

I no longer crave fattening food although I do eat very little amounts of this food at meal times, usually because it is on the menu. I do not want food in between meal times. My motivation is good because I keep seeing this slimmer me at the end, although as yet I have not lost any weight. My blood sugars have dropped by I have a lot of hypos that I am not happy about due to feeling ill and this causes me to eat when I don't want to. I do feel that I need to do more activity than I am doing at the moment.

My pattern of eating is a 100% better as I only eat at meal times unless I have hypos. My ability to resist fattening foods has got to be 80 to 90% better. I have lots of motivation as I do not have any food cravings now, although I can get pushed into eating things I don't want. I would like to do more activity and I think I will as time goes on. My diabetes I feel is better controlled as I do not have high blood sugar levels all the time. I do have lots of hypos, but I feel I am getting better at controlling these. Regarding my being able to achieve a permanent weight reduction yes I will get there. Thank you Alan.

TG3-02-4

Lost some weight. Keeping to the green. Level of activity better. Feeling more alert. Able to resist fattening foods better. Drink a lot more water. Diabetes down a little.

Small weight reduction. Don't eat in red area. Can resist fattening food.

TG3-02-5

I now eat in my green zones as much as I can I also eat less and if I had a large dinner I can now leave what I don't want. I think before I eat I am not yet motivated to do any other activities.

I don't eat as much between meals and have started to drink water rather than Coke and my eating pattern is slowly changing I am eating less and not nibbling between meals. I can now pass a cake shop without going in. My whole outlook to my diabetes is changing but my activity has not changed a great deal.

TG3-02-6

Morning glucose readings almost halved. Pattern of eating consistent with what is normal for me anyway. Making even more of an effort to leave out fat from my diet i.e. butter. Making more of an attempt to be physically active but limited because of pain upon walking but have joined a gym for the first time in my life! I find that the experimental sessions invigorate me and boost my confidence generally. I'm only sorry that I seem unable to succumb and float! Weight seems not to have changed much but I am very optimistic for the future.

I am quite optimistic about being able to SHED weight ultimately. I am trying very hard to increase my physical activity although some days are definitely 'no go'! I have always adhered to a strict pattern of eating but I find I am now giving even more thought to the content of my meals. My blood glucose readings have improved to the point that I hope to have a reduction in insulin after visiting the diabetic clinic today. I have joined a gym! So far I have been following a gentle aqua-aerobic exercise only but I hope to follow a set exercise plan soon.

TG3-02-7

More will power, walking more. Resisting biscuits etc. when offered. Improvement in eating between meals. Diabetes level improved. (Diabetes controlled by diet). Hoping to achieve a permanent weight loss. Enjoy the treatment.

Improvement in eating pattern can now question myself as to whether I want this biscuit, or sweet. Exercising more especially walking. This past six weeks have walked from Rhostyllen to Wrexham on most occasions. Food cravings have lessened. Sugar levels are down in the diabetes hoping that I will be able to achieve a weight loss.

TG3-02-8

Don't eat between meals. If hungry I eat a tomato fullness of stomach does feel better. Sugar 14 in morning breakfast but goes up and down to 5 ^{00} when been here. Do enjoy to drink to pints of water at 3pm. I enjoy eating better since been on course sleep better also I can walk a lot better since the course which is very promising.

Feel much better, my BM's have come down. My blood pressure has gone down. Eat less dinner and teas (sandwiches). Can walk down 2 steps which I have not been able to do for three years. Do more around the house. Iron odd things.

TG3-03-1

Now eating only at meal times not picking between meals. Have little desire for sweet things nor fatty foods such as chips, fry-ups etc. Blood sugar levels much improved and have been able to reduce insulin dosage. Sleeping better. Asthma has improved. More relaxed than I was. I believe I can maintain the way I am eating long term. Therefore achieve the weight loss I am aiming for and maintain that weight afterwards.

Reduction in insulin dosage of 8 units per day. No desire for snacks between meals. Sleeping better and more placid. Desire for 'fry-ups' and sweets and cakes is negligible. For better control of blood sugars. Feel sure I can keep this up.

TG3-03-4

Since this last Tuesday am eating healthy foods. Strong resistance to fattening food chips bacon sausage etc. Thinking about exercise. Feel I have some energy whereas before had no energy. Strong resistance to eating continually from 2:00pm to 10:00pm. Now I have one meal at teatime between 5-7 o'clock, then nothing until 10:00pm. Feel that I can lose weight.

TG3-03-5

Drinking more water through the day. Not eating between meals. Taking me dog for a walk more often. Eating more fruit apples pears oranges. I feel better.

Eating more fruit. Walking the dog more. Resisting certain foods.

TG3-03-6

I don't not get out of breath now and no longer have to stop for breath when I am walking. I have stopped eating between meals and I no longer crave for sweet things to eat. I find I go off to sleep quicker whereas I used to take a long time. I now almost enjoy doing the gardening where I never bothered before and I do a lot more walking.

My legs are not so painful as they used to be. My sugar is getting lower and I don't get so breathless. I don't have any more cravings and my willpower is much better.

TG3-03-7

I am only eating in the green areas. I have a lot more energy than I had before and can't sit still for very long I am always on the go. I get full more quickly, don't always want supper but have it because of the green area, I haven't had a packet of crisps for a long time nor have I wanted one. My sugar levels have also been quite good and, I hope I have lost some weight.

I am not eating in between meals, not eating as much at meal times, when I have the time try to do as much exercise as possible, not really wanting crisps, chips, cheese and my blood sugars are a lot better.

APPENDIX 7.1

RED PATH EATING PLAN

You must not eat anything on a red path nor must you drink alcohol. You must however drink at least one glass of water on each as often we mistake thirst signals for hunger. If you do eat or drink whilst on a red path you must record this in the relevant red path section of your diary. You must also record everything else you eat and drink in the relevant green eating area part of your diary. Please be totally honest. Previous research shows that people who self report their eating and exercise behaviour usually under report their food consumption and exaggerate their amount of exercise:

It's not worth messing up this opportunity by being less than truthful about your behaviour.

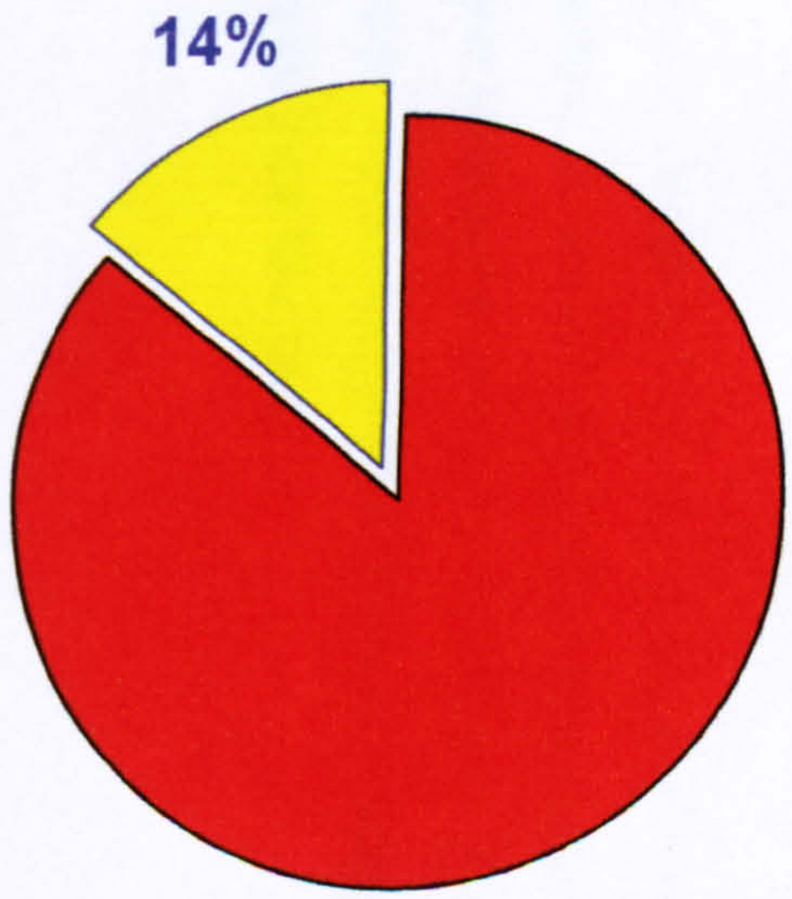
Record any positive or negative feelings you have whilst on a red path in the space for that path in your food and drink self report diary.

When you are in a green eating area you should try to eat food appropriate to the particular mealtime e.g. breakfast foods, lunchtime foods, dinnertime foods and suppertime foods. It is important you do not feel restrained in any way during your mealtimes. Do not pick whilst preparing meals, as you are not in your green eating area until you sit down at the table. Eat whilst sitting at the table and eat calmly and slowly and finish eating as soon as you feel comfortably full, there is no need to finish your food if you have had enough but remember there wont be any more food until you reach your next green eating area. This plan is concerned to regulate your eating pattern and to influence you to choose appropriate foods and drinks, so is not concerned with the amount you eat during a meal. However you are advised to take this opportunity to make sure that you eat sensibly sized portions of food at meal times. It is much better not to overload your plate during a mealtime but to have a number of smaller portions with a few minutes rest between each one.

Being successful at any endeavour depends partly on making good preparations and on forward planning. When you awaken each morning you must think for a while, before getting out of bed, about your day ahead. You should look forward along all the red paths and identify anything about your coming day that might cause or tempt you to eat on a red path. If there is anything that threatens your success make yourself determined to win through. Winning a battle is often about being able to foresee problems before you reach them. Renew your commitment to travel each red path without eating and to develop a habit of drinking lots of water as you go. If you do eat for some reason on any red path you must not see the whole day as a failure as you usually would. Because each day consists

of five separate red paths you can isolate the one on which you ate, renew your commitment not to eat on any more red paths, and begin afresh on the next one. At the end of each day when you are lying in bed waiting for sleep you should look back at your day and your journey along the five red paths. You should take pride in each red path you have travelled without eating but you must also take note of the ones on which you have eaten. Think carefully about any red paths on which you have eaten, search for patterns in your behaviour e.g. have you tended to eat on the same red paths each day or on certain days only? In this way you might be able to identify triggers that cause you to eat between meals. Whether your slip-ups are isolated or part of a pattern you should prepare yourself mentally to be successful on every red path during the coming day.

Each week consists of 35 red paths. At the end of each week you should see how many of the 35 red paths have been food free. This will allow you to compare one week with another and to think about events that interfered with your progress in any one week. The 35 red paths each week can be shown as a pie chart so you can get a visual impression of how well you have done in any one week. The pie chart below shows that 30 red paths have been food free which is given as a percentage of red paths for the week.

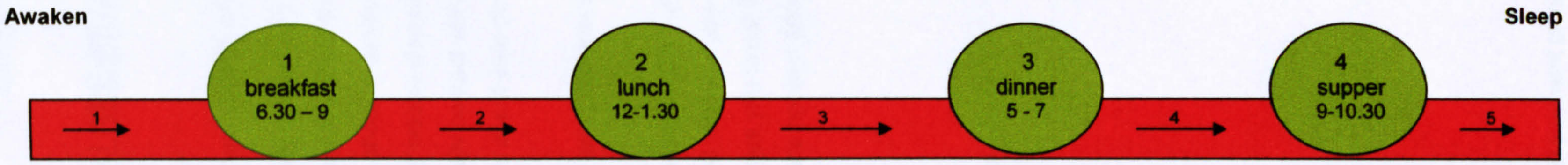


If you have any illness which is affected by what you eat you should seek your doctor's advice before following this plan.

Instructions for completing your Red Path Eating Diary

Many obese and overweight people do not have a regular eating pattern. Instead they often tend to graze throughout each day. The Red Path Eating Plan has been developed to help you to gain a regular eating pattern. Having a regular eating pattern means organising your food consumption into a set number of feeding periods. The Red Path Eating Plan requires that you have four meal periods each day.

The Red Path Eating Plan considers each of your days as a journey along a red path leading from the time when you awake at the start of your day to the time when you return to sleep at the end of your day. Green eating areas are spread at intervals along the red path (like picnic areas really). The first green eating area is where you can stop on your journey to eat your breakfast. The second green eating area is for your lunch, the third for your dinner and the fourth for your supper. This means that there are actually five separate red paths one between each green eating area. A model of the Red Path system might look like this:



REMEMBER YOU ARE NOT DIETING

YOU ARE REGULATING YOUR EATING BEHAVIOUR

Remember! Important aspects of the Red Path Eating Plan are to:

- Become very familiar with the Red Path Eating Plan.
- Be conscientious about the way you use the Red Path Eating Plan.
- Be truthful about what you eat and drink.
- Attend your weekly discussion groups*.
- To have daily contact with your 'Buddy'*.
- Make notes about your positive and negative feelings whilst using the Red Path Eating Plan.
- To discuss any problems as soon as possible with the group psychologist

At the end of each week reflect quietly about your eating behaviour during that week. Think about how it has changed, whether you feel more in tune with your eating behaviour and if you are realising what causes you to eat the foods that make you fat etc. In fact write down your thoughts in terms of which are positive and which are negative so that we can discuss them at our weekly meetings.

Weekly reflections

Positive	Negative

* If part of the present treatment process

Red Path Eating Plan Questionnaire

This questionnaire is intended to find out what you think about the Red Path Eating Plan. The questionnaire consists of a number of statements followed by a number line from 1 to 10. Please indicate how much you agree or disagree with each statement by circling the number that best suits your feelings. 1 = strongly disagree and 10 = strongly agree. If you would like to qualify your response further please use the numbered boxes at the end of the questionnaire to comment further.

Since commencing the Red Path Eating Plan:

1.	I have stopped eating between meals.	1 2 3 4 5 6 7 8 9 10
2.	I have a regular eating pattern of 4 meals each day.	1 2 3 4 5 6 7 8 9 10
3.	I have stopped eating for comfort.	1 2 3 4 5 6 7 8 9 10
4.	I have stopped eating when I am angry.	1 2 3 4 5 6 7 8 9 10
5.	I continue to see each day as five red paths.	1 2 3 4 5 6 7 8 9 10
6.	I do not give up if I am tempted to snack occasionally.	1 2 3 4 5 6 7 8 9 10
7.	When I wake-up I think about the red paths ahead.	1 2 3 4 5 6 7 8 9 10
8.	Before going to sleep I think about the red paths behind.	1 2 3 4 5 6 7 8 9 10
9.	I am paying attention to what I eat in the green areas.	1 2 3 4 5 6 7 8 9 10
10.	I feel in control of my eating behaviour.	1 2 3 4 5 6 7 8 9 10

Further Comments

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Day…… Date……/……/……

Awaken Any food or drink? How do you feel? Red path 1
Breakfast (between 6.30am – 9am) How do you feel? Green eating place 1
Any food or drink? How do you feel? Red path 2
Lunch (between12pm – 1.30pm) How do you feel? Green eating place 2
Any food or drink? How do you feel? Red path 3
Dinner (between 5pm – 7pm) How do you feel? Green eating place 3
Any food or drink? How do you feel? Red path 4
Supper (between 9.30 – 10.30) How do you feel? Green eating place 4
Any food or drink? How do you feel? Red path 5 **Sleep**

Record of focussed activity

Week commencing:

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

Other comments: