

HYPNOTIZABILITY AND BODY IMAGE MALLEABILITY IN RESTRAINED AND NON-RESTRAINED EATERS

Francisco Frasquilho, David Oakley and Davina Ross-Anderson

Hypnosis Unit, University College London, London, UK

Abstract

Hypnotizability may play a moderating role in the internalization of body image ideals and may also mediate suggested distortion of body image self-representations, especially in restrained eaters. A modified version of the Creative Imagination Scale (CIS) incorporating a body expansion and a body reduction item, was used to examine the relationship between hypnotizability, dietary restraint and body image manipulation in restrained and non-restrained eaters. Dietary restraint was measured in 40 female undergraduate participants using the Three-Factor Eating Questionnaire and the Revised Restraint Scale. The results suggest that hypnotizability, as measured by the CIS, correlates significantly with both measures of dietary restraint. In addition, restrained eaters demonstrated generally elevated susceptibility to body image modification compared with unrestrained eaters, though both restrained and non-restrained eaters appeared to be more susceptible to imagining body size expansion than reduction. These results are discussed in relation to social influences on eating and dietary disorders.

Key words: hypnotizability, body image, dietary restraint, eating disorders, social pressure

Introduction

The past few decades have seen an apparent widespread increase in diet and body shape concerns in western society. Indeed such preoccupations have become the norm (e.g. Strigel-Moore et al., 1986), especially amongst female middle-class Caucasian populations (e.g. Heunemann et al., 1966; Dwyer and Mayer, 1970; see also Stice, 1994, and Hsu, 1990, for reviews). Restrained eating behaviours and attitudes, incorporating aspects of body shape and dietary concern, have been implicated as risk factors in the development of dietary disorders such as anorexia nervosa and bulimia nervosa (e.g. Herman and Mack, 1975; Herman and Polivy, 1975, 1980; Hsu, 1990; Heatherton and Polivy, 1992; Polivy and Herman, 1985; Stice 1994). It is important therefore to explore factors and individual differences which may transform this widespread concern with body shape and dieting into clinical pathologies (e.g. Schwartz et al., 1985; Hsu, 1990).

Changing socio-cultural exemplars of feminine attractiveness toward a slimmer body (the 'thin ideal'), together with the symbolic rewards of achieving such an ideal, have been blamed for elevated body size concerns and motivation to diet (Brownell, 1991; see Stice, 1994, for a review). Exemplars of this thin ideal may be especially

salient motivators to diet as they fall below population weight norms (e.g. Garner and Garfinkel, 1980). Acute exposure to attractive (thin) media exemplars has been found to disinhibit eating in restrained eaters (Seddon and Berry, 1996); to lead to an increase in body size distortion in bulimics and anorexics as well as non-clinical controls with elevated dieting concerns and elevated food intake scores (Waller et al., 1992); and to negatively affect aspects of body satisfaction in non-clinical participants (e.g. Ogden and Munday, 1996). Individual differences which may moderate the extent to which thin ideals are internalized, and/or manipulate individuals' representations of body experience, may play important roles in increasing the discrepancy between desired and actual body image. Understanding such individual differences may lead to identifying non-clinical pre-cursors to clinical and sub-clinical eating difficulties. Of particular interest to this study were the effects of individual differences in hypnotic capacity, in a waking suggestibility context, on both dietary restraint status and capacity to imagine suggested body image changes.

A number of studies have found significant positive correlations in non-clinical populations between both restrained eating and weight concern attitudes in relation to hypnotizability (e.g. Groth-Marnat and Schumaker, 1990; Wybraniec and Oakley, 1996; Frasilho and Oakley, 1997). Similarly, bulimics show elevated hypnotizability compared to age matched-controls (e.g. Pettinati et al., 1985; Covino et al., 1994). Such findings may indicate an elevated receptivity to suggestive communications in restraining and bulimic individuals, which may be especially important in internalizing cultural attractiveness ideals, and therefore increasing the salience of achieving those ideals. The 'hyper-internalization' of such ideals has been posited as a risk factor in developing dietary disorders (Striegel-Moore et al., 1986). One aim of this study was to measure relationships between hypnotizability in a waking suggestibility context, and aspects of restrained and impulsive eating.

The capacity to experience body image changes, a phenomenon amenable to hypnotic manipulation, may be another factor motivating restraint behaviours and attitudes that may lead to eating disorder pathology. Wybraniec and Oakley (1996) examined the subjective experience of body image in response to suggested body image change in fatter and thinner directions. Their findings suggested restrained eaters were significantly more responsive to suggestions of body size increase but not decrease, whilst non-restrained eaters were resistant to both suggestions. Body image distortion, especially in the direction of body size increase, may increase the subjective difference between self image and ideal body image, thereby increasing motivation to restrain eating to reduce such a discrepancy.

The present study improved the procedures used by Wybraniec and Oakley (1996) in a number of ways in order to re-assess subjective responses to suggested body image change, as moderated by restraint status, and in relation to impulsive eating and body fat anxiety. The original study used a modified six item version of the 10 item Creative Imagination Scale (CIS: Wilson and Barber, 1978) to measure waking susceptibility, with the relaxation item placed first, which may have acted as a hypnotic induction, both factors possibly reducing the scale's efficacy as a waking suggestibility measure. Also the two body image manipulation items were placed consecutively half-way in the modified CIS with the thinner item always immediately preceding the fatter item.

The present study, which is part of a larger ongoing project, used the full 10 item CIS with the relaxation item last and with the addition of counterbalanced body image items interspersed within the scale to reduce familiarity and expectancy effects. The body image items in the present study were also modified to focus more on bodily sensations rather than changes in visual imagery. In addition this study used some

relevant measures not included in the original: body dissatisfaction and body mass index (BMI: Kilograms/height in metres²), both of which may be related to motivation to restrain eating, and an additional measure of restraint.

If, as suggested above, hypnosis moderates restraint behaviour then we would expect a positive relation between susceptibility measures and restraint measures. Restrained eaters should also exhibit elevated levels of hypnotizability/waking suggestibility compared to non-restrained eaters. Motivation to restrain may also be related to elevated body image malleability, especially in fatter directions, with higher levels of malleability leading to more motivation to restrain. If this is the case then restrained eaters should demonstrate elevated body malleability especially in fatter directions, compared to non-restrained eaters. In addition, factors such as body dissatisfaction and impulsive eating may also moderate such motivations in assisting the triggering and perpetuation of restraint behaviour.

Method

Subjects

The participants comprised 40 female undergraduates from University College London departments of Medicine and Psychology (mean age 19, SD = 1.9). All were within the normal range of BMI (selected range 16–30, mean 21.1, SD = 2.1), and had not reported any previous medical or psychological treatment for an eating disorder. All participants were required to give informed consent to take part in this study.

Materials

Modified Creative Imagination Scale (MCIS: 12 item)

The original Creative Imagination Scale (CIS: Wilson and Barber, 1978) was designed to measure cognitive and imagery dimensions of hypnotizability using a non-authoritarian, non-challenge set of suggestions based on ten imaginary scenarios (e.g. drinking cool water, or time slowing down). The modified version, used in this study, included two extra scenarios involving imagining one's body becoming larger and fatter, and imagining one's body becoming thinner and smaller (see appendix for details). These body image items were introduced as items four and eight of the modified scale. Suggestions were self-scored in terms of their comparative subjective reality on a likert-type scale ranging between 0 (not at all the same) and four (almost exactly the same). All scenarios were audiotaped for standardized presentation, and a self-scoring rating sheet was used. The CIS is normally administered without an induction procedure, as in this study, and so may also be considered a measure of so called 'waking suggestibility' which may be predictive of hypnotizability (Spanos et al., 1989).

Revised Restraint Scale – restraint sub-scale (RRS-R) (Herman and Polivy, 1980)

The original 10 item scale consisted of two sub-scales measuring dietary restraint behaviour and attitudes, and weight fluctuation. Only the five item restraint sub-scale was used here as the weight fluctuation sub-scale has demonstrated procedural difficulties in terms of high non-completion rates (Wardle, 1986). All items were rated 0–3 with higher scores representing elevated restraint.

Eating Questionnaire (EQ)

This 36 item scale originally known as the Three Factor Eating Questionnaire (Stunkard and Messick, 1985), was developed to measure restrained eating, disinhibi-

tion of eating and susceptibility to hunger, in order to assess behaviours and attitudes related to problematic eating patterns. Based on recent research (Collins et al., 1992) the last two factors were collapsed here to form a single factor identified as impulsive eating. Higher scores represent elevated levels of the behaviours measured.

Physical Appearance State/Trait Anxiety Scale, trait body fat sub-scale (PASTAS trait-fat) (Reed et al., 1991)

The original scale was developed to assess trait and state levels of anxiety related to various body parts either related or unrelated to body fat areas. This study used only the trait body fat sub-scale. Anxiety was rated from 0 (not at all anxious) to 4 (very anxious), with total scores being summed across sub-scale items.

Design and Procedures

The experimental procedures incorporated a 2x2 mixed design, with suggested body image manipulation, in either fatter or thinner directions, as a within subjects variable, and with restraint status manipulated as a between subjects variable. Restraint status was determined post-experimentally using separate measures from each of the self-report restraint scales used (RRS and EQ restraint sub-scales), with a median split used to determine restrained and non-restrained eaters. The dependent variable for this design was subjective reality of body image change rated between 0 (not at all the same) to 4 (just almost exactly the same) for each of the body image modification items.

The body image items were incorporated into a modified version of the CIS, with order of presentation of body image items counterbalanced across participants. The modified CIS was self-scored by participants after audio presentation of the scale itself. In addition to presentation of the RRS-R and restraint sub-scale of the EQ (EQ-R), participants completed self-report measures of impulsive eating from the EQ, and body-fat trait anxiety from the PASTAS. The order of presentation of the self-report measures was counterbalanced with the presentation and scoring of the MCIS items. The MCIS was presented in a hypnotic context as 'a test predictive of hypnotic capacity'. This was done to make the scale more predictive of 'hypnotizability' as measured by other standardised tests normally preceded by an induction procedure (Spanos et al., 1989), whilst retaining the elements of waking suggestibility. BMI was measured post-experimentally using a domestic weighing scale and tape measure, and was used as a control variable to exclude obese individuals (BMI 30+) and possibly anorexic participants (BMI≤16). The study was presented as 'examining eating habits and creative imagery'. Participants were tested in groups varying from two to seven individuals.

Results

Participants were classified as restrainers or non-restrainers on the basis of two separate restraint measures (EQ-R or RRS-R) using median split procedures. Statistical analyses were conducted separately for each of these two restraint/non-restraint groupings. The experimental data consisted of participants' ratings of the subjective reality of suggested body size modification, rated separately for changes in fatter and thinner directions, using a five point scale ranging from 0 to 4, with higher scores indicating greater subjective reality of the suggestions. Mean subjective body size changes are displayed in Figures 1 and 2 for each type of restraint classification.

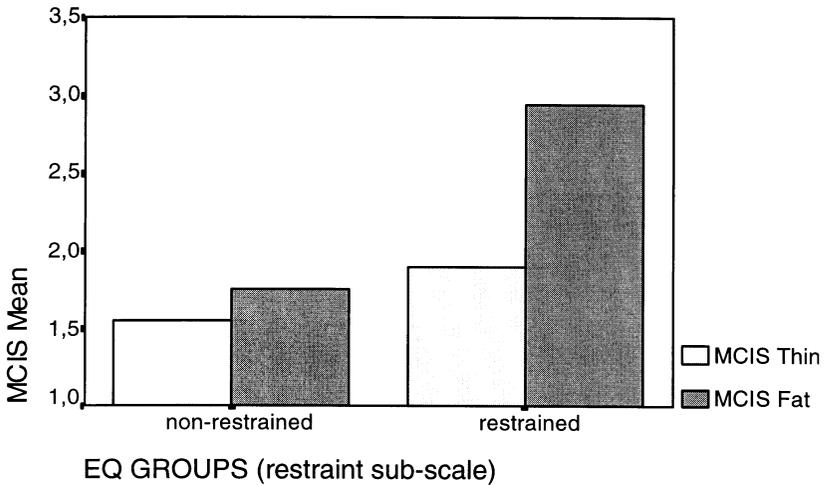


Figure 1. This graph represents restrained and non-restrained groups, based on a median split of the EQ-R (eating questionnaire-restraint sub-scale), and the mean subjective reality of suggestions for body image malleability towards fatter and thinner directions.

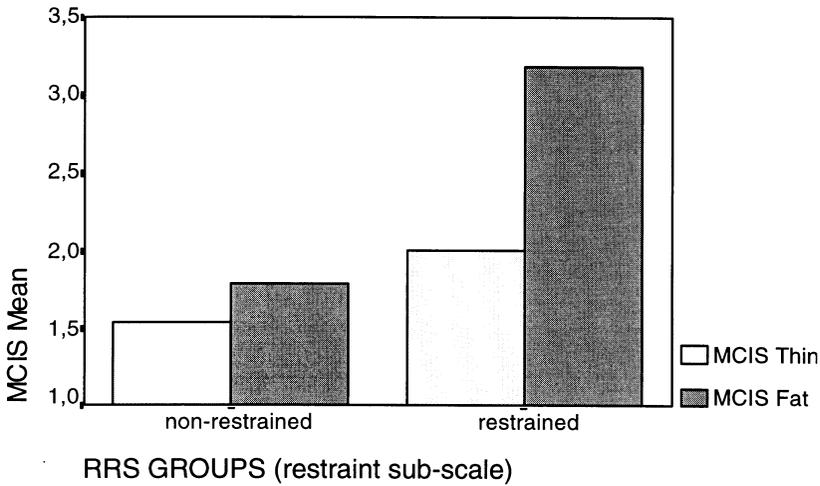


Figure 2. This graph represents restrained and non-restrained groups, based on a median split of the RRS-R (revised restraint scale - restraint sub-scale), and the mean subjective reality of suggestions for body image malleability towards fatter and thinner directions.

The data suggest that, regardless of restraint classification method used, restrainers experience more subjectively real changes in response to body modification suggestions than unrestrained eaters, especially in fatter directions. Mixed 2x2 ANOVAs (restraint status by suggested body change direction) were conducted on the experimental data. Similar results were obtained for the two restraint classification methods, with significant main effects of restraint status as the between subjects factor (RRS-R groups: $F_{1,38} = 7.85, p < 0.01$; EQ-R groups: $F_{1,38} = 5.41, p = 0.025$) and suggested body image change as the within subjects factor (RRS-R groups: $F_{1,38} = 12.37,$

$p = 0.001$; EQ-R groups: $F_{1,38} = 9.55, p < 0.005$). Significant interactions were also found in both ANOVAs for restraint and body image change (RRS-R groups: $F_{1,38} = 5.26, p = 0.027$; EQ-R groups: $F_{1,38} = 4.42, p < 0.05$).

Post hoc analysis, using corrected t -tests (a set at 0.006 to allow for multiple comparisons, Bonferroni correction), was used to further explore the data. For both classification measures restrainers showed significantly elevated imagability compared to non-restrainers for the fat item (independent t -tests: RRS-R groups, $t_{38} = -3.61, p = 0.0005$; EQ-R groups, $t_{38} = -3.05, p < 0.005$, all tests 1 tailed), but not the thin item (independent t -tests: RRS-R, $t_{38} = -1.17, p > 0.05$; EQ-R: $t_{38} = -0.91, p > 0.05$). Restrainers also exhibited significant differences between imaging fat and thin items, regardless of classification measure (paired t -tests: RRS-R restrainers, $t_{15} = 3.05, p = 0.005$; EQ-R restrainers, $t_{19} = 3.20, p = 0.0025$, all tests 1 tailed). Non-restrainers, however, showed no significant differences in imaging fat or thin items (paired t tests: RRS-R non-restrainers, $t_{15} = 1.19, p > 0.05$; EQ-R non-restrainers, $t_{19} = 0.85, p > 0.05$, all tests 1 tailed).

T -tests also confirmed that restrained eaters are potentially significantly more hypnotizable, as measured by the 10 regular CIS items, than non-restrained eaters, for both types of restraint measures (RRS-R, restrainers mean = 28.26, SD = 5.8, non-restrainers mean = 21.75, SD = 6.38, $t_{38} = -3.27, p < 0.01$; EQ-R restrainers mean = 26.40, SD = 5.7, non-restrainers mean = 22.3, SD = 7.44, $t_{38} = -1.95, p < 0.05$, all tests 1 tailed).

Correlational analyses

Correlational analyses of waking suggestibility/potential hypnotizability, assuming the CIS is predictive of hypnotizability (Spanos et al., 1989), and capacity to image suggested body size changes in relation to restraint scores, impulsive eating, and trait body part anxiety, yielded the correlation matrix (Pearson's r coefficients, all controlling for BMI) shown in Table 1.

Table 1. Correlational matrix of waking suggestibility (CIS) and capacity to image body suggested change (MCIS Fat, MCIS Thin), in relation to restraint scores (RRS and EQ-restraint), impulsive eating (impulse), and trait body fat part anxiety (PASTAS trait – fat)

	RRS-R	EQ-R	PASTAS trait (fat)	EQ impulsive
CIS	0.52***	0.36*	0.30	0.15
MCIS fat	0.56***	0.53***	0.57***	0.42**
MCIS thin	0.28	0.016	0.15	-0.016

Significant correlations in bold, probability asterixed as follows: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$. All probabilities are 2-tailed.

Hypnotizability, as reflected in the CIS scores, showed significant moderate to strong associations with both the restraint measures, but not trait body fat anxiety or impulsive eating. The modified CIS fat item, however, significantly correlated with all other measures to a strong extent, whilst the modified CIS thin item failed to correlate with any other measures. Although not shown in Table 1, the two body change items significantly correlated with each other ($r = 0.48, p < 0.01$), and both correlated

with the CIS total (unmodified CIS -10 items: MCIS Fat, $r = 0.57, p < 0.001$; MCIS Thin, $r = 0.54, p < 0.001$).

Correlational analysis of the restraint, body anxiety, and impulsive eating measures (again controlling for BMI, and using Pearson's r) produced the correlation matrix shown in Table 2.

Table 2. Correlation matrix of restraint measures (RRS, EQ restraint sub-scales), Trait body part fat anxiety, and Impulsive eating

	EQ-R	PASTAS trait (fat)	EQ impulsive
RRS-R	0.75***	0.68***	0.61***
EQ-R	0.63***	0.44**	
PASTAS trait (fat)	0.54***		

Significant correlations in bold, probability asterixed as follows: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$. All probabilities are 2-tailed.

Strong significant and positive associations were found between all the above variables, providing good support for relationships between body dissatisfaction, impulsive eating behaviours and restrained eating behaviours.

Discussion

This study set out to evaluate the extent to which restrained and non-restrained eaters demonstrated a different capacity for body image alteration, or 'body image malleability', in response to suggested changes in body size. Restrained eaters in this study, compared to non-restrained eaters, demonstrated a significantly elevated capacity to experience suggested body image change in the fatter but not in the thinner directions, along with significantly higher levels of waking suggestibility, and potential hypnotizability, assuming the CIS is predictive of hypnotizability (Spanos et al., 1989). The restrained eaters capacity to display body image malleability in fatter directions, was significantly greater than their malleability in thinner directions, whereas a non-significant difference was evidenced in non-restrained eaters. These results held regardless of the measure used to classify restrained and non-restrained attitudes, not surprisingly perhaps given the high correlation between the two measures used (i.e. RRS and EQ restraint sub-scales). These results support evidence found by Wybraniec and Oakley (1996) and are consistent with the hypothesis that elevated body image malleability is present in restrained eaters.

Biases in the perception of body image may play an important motivational role in the development of restrained eating behaviours. Perceived, rather than actual body weight is regarded as more predictive of female participants' ratings of attractiveness in other females (Alley and Scully, 1994). An enhanced capacity to perceive oneself as fatter than in reality may be especially salient, since it may influence the discrepancy an individual experiences between self-perceived body image and desired body image, potentially increasing body dissatisfaction and the desire to restrain. The strong positive correlations for restraint and body fat anxiety in relation to the MCIS

fat item, supports this view. It is likely, therefore, that body image malleability, especially in fat directions, may contribute to the motivation to restrain eating and to restraint attitudes in general, either directly or through increased body dissatisfaction. A significant correlation was found between waking suggestibility/potential hypnotizability, and responsiveness to the MCIS fat suggestion, but the extent to which body imageability is related to hypnotic and/or waking suggestibility rather than imageability *per se* is a pertinent question and an issue for future research.

Differential body image malleability in relationship to dietary restraint, if it proves to be a robust phenomenon, may also interact with the presentation of thin-ideal exemplars. Acute presentation of thin ideal exemplars may initiate a comparison process between desired and self-perceived body image, with the effect of increased body image malleability negatively influencing the self-appraisal component. Another related perspective on body image malleability, especially in fat directions, is its relation to triggering disinhibited eating. Heatherton and Baumeister (1991) suggest that binge eating results out of an escape from aversive self-realizations. Also, ego-threat has been proposed as one of the central triggers for disinhibiting eating in restrained eaters (e.g. Herman and Polivy, 1975; Heatherton et al., 1991, 1992). The capacity to image oneself as fatter may exacerbate the impact of aversive self-realization, or ego threat, either in isolation or as a result of media exposure effects. The significant positive correlations between the MCIS fat item and impulsive eating lend support to the hypothetical triggering effect of body malleability related ego-threat leading to binge eating behaviour. Aspects of a putative disinhibitory role of body image malleability in a fat direction need to be examined behaviourally, incorporating disinhibition paradigms (e.g. Herman and Mack, 1975; Herman and Polivy, 1975).

The question of temporal relationships between body malleability (in fat directions), body dissatisfaction, restrained and impulsive eating, also needs to be addressed. It is important to ask, for example, whether restraint, impulsivity, and body dissatisfaction are consequences of elevated body image malleability, or whether such malleability is a result of cyclical dieting patterns and/or pubertal growth experiences. The capacity to image different body size states might be a function of the capacity to recall previous body size states or changes. Chronic restrained eaters with cyclical diet and overeating behaviours, may experience greater body weight fluctuations, thereby increasing their capacity to image body size changes.

Turning to the correlational data, the results provide further support for the view that restraint and hypnotizability, or at least waking suggestibility, are related. Such relationships as those found between the CIS and the restraint measures suggest a potential moderating effect of hypnotic/suggestibility components on the motivation to restrain. Perhaps such a relationship operates specifically through body image malleability. Alternatively, it may be evidence of a more general suggestibility which facilitates the internalization of socio-cultural messages related to body image and body dissatisfaction (Frasquilho and Oakley, 1997; Oakley and Frasilho, 1998). Different tests of waking suggestibility, uncontaminated by expectations relating to hypnosis, may test the relationship between restraint and alternative forms of suggestibility. Positive significant correlations between restraint, impulsive eating, body dissatisfaction, demonstrating strong relationships, support the theoretical mediating and moderating relationships between such variables (see Stice, 1994 for a review). Unfortunately, as with any correlational data, caution must be used in interpreting these results as representing causal implications.

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Appendix. Suggested body change scripts

The example given below is for the body size increase (fat) item. For the thin item the wording is identical except that the words/phrases in brackets replace those in italics. Where italicized word are followed by a negative sign (-) then that word is omitted in the thin script. Where a word in brackets is not preceded by italics then that word is added in the thin script.

Keep your eyes closed. By letting your thoughts go along with these instructions you can make your body feel *larger* (thinner) and *fatter* (skinnier).

Picture yourself sitting in a comfortable armchair. Now let yourself feel every part of your body getting *larger* (thinner) and *heavier* (skinnier). Become aware of every sensation and change in your body as you think of your entire body *expanding* (-), becoming *larger* (thinner) and *larger* (thinner), *heavier* (lighter) and *fatter* (skinnier). You do it yourself, you create the feeling of your whole body *increasing* (decreasing) in size and weight, becoming *larger* (thinner) and *heavier* (lighter). Focus on imagining your body's weight and size *increasing* (decreasing). Tell yourself that every part of your body is becoming *larger* (thinner) and *larger* (thinner), *heavier* (lighter) and *heavier* (lighter). Imagine your stomach (shrinking) getting *larger* (smaller) and *larger* (smaller), your hips and thighs becoming *larger* (thinner) and *larger* (thinner), your arms and legs *larger* (thinner) and *heavier* (skinnier). Experience yourself becoming *larger* (thinner) and *larger* (thinner), *heavier* (lighter) and *heavier* (lighter), *expanding outwards*, *filling the chair you are sitting in* (thinner and skinnier, so skinny that your clothes are becoming baggier, your clothes are becoming very baggy). Imagine almost getting too *big* (skinny) *to fit in* (for) your clothes as you get *larger* (thinner) and *larger* (thinner), even *heavier* (lighter) and *heavier* (lighter), very *large* (thin), very *heavy* (light), very *fat* (skinny). *Larger* (thinner) . . . *Heavier* (lighter) . . . *Fatter* (skinnier).

[5 second pause]

Now tell yourself that it is all in your own mind and make your body feel perfectly normal again, perfectly normal again.

Address for correspondence:

Mr F. Frاسquilho,

Hypnosis Unit,

Department of Psychology,

University College London,

26 Bedford Way,

London WC1E 6BT, UK

Email: f.frasquilho@ucl.ac.uk

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