## NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Previously copyrighted materials (journal articles, published tests, etc.) are not filmed.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30.

## AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

Les documents qui font déjà l'objet d'un droit d'auteur (articles de revue, tests publiés, etc.) ne sont pas microfilmés.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30.



Canada

THE UNIVERSITY OF ALBERTA

# BODY IMAGE, VISUALIZATION, AND PERSONALITY

by

Carmen Boulter

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

of Master of Education
in
COUNSELLING PSYCHOLOGY

Department of Educational Psychology

EDMONTON, ALBERTA

Fall, 1987

ISBN 0-315-41114-7

THE UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: Carmen Boulter

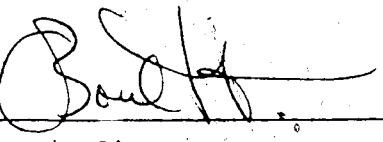
NAME OF THESIS: Body Image, Visualization, and Personality

DEGREE FOR WHICH THIS THESIS WAS PRESENTED: Master of Education

YEAR THIS DEGREE WAS GRANTED: Fall 1987

Permission is hereby granted to the UNIVERSITY OF ALBERTA LIBRARY to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly, or scientific research purposes only.

The author reserves other publication rights, and neither thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.



Student's Signature

2340 1ST AVENUE N.W.

Student's Permanent Address

Calgary, Alberta

T2N 0B8

Date: October 13/87

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled BODY IMAGE, VISUALIZATION, AND PERSONALITY submitted by Carmen Boulter in partial fulfillment of the requirements for the Degree of Master of Education in Counselling Psychology.

Dr. J. G. Paterson, Committee Chairman
Department of Educational Psychology

Dr. D. T. Shannon-Brady
Department of Educational Psychology

Dr. J. Blakey
Department of Elementary Education

DATE: Oct/87

The effort of this thesis is dedicated to the 2000 women who have participated in YOUR PERFECT WEIGHT in Canada and the United States at the time of publication and to all the women who will attend in the future.

## ABSTRACT

Research has shown that body image distortion is characteristic of eating disorders. Yet, the notion of attempting to correct the body image has not been addressed in most treatment programs even though body image distortion has been defined as the most potent predictor of relapse in bulimia.

Body image is an internal symbol which is closely linked to self-concept, to memory, and to personality. This exploratory study was designed to examine the relationships between body image, visualization, and personality. The Personality Orientation Inventory (Shostrom 1974), the Creative Imagination Scale (Barber and Wilson 1979), and a Body Image Distortion Test (Askevold 1975) were administerd to 18 female subjects 21 days apart. Subjects were divided into three groups: a Control Group, a Partial Treatment Group, and a Full Treatment Group.

A treatment was designed using visualization techniques and concentration training to ascertain whether body image could be positively affected. It was hypothesized that the ability to visualize could be improved and that there may be a relationship between this learning and the positive effects on body image.

Analysis of the data revealed a significant difference between the Control Group and the Full Treatment Group in Body Image Correction. There was no significant correlation between Visualization Gain Scores and Body Image Correction Scores.

The ability to visualize was significantly improved in the Partial and Full Treatment Groups. There was also a significant difference between pre and post test means for the Partial and Full Treatment Group on the Personality Orientation Inventory.

An important finding of the study was that the inherent ability to visualize did not necessarily predispose subjects to greater learning of visualization or predispose subjects to greater body image correction. Nor were there any apparant personality orientations that predisposed subjects to visualize better or to learn to visualize better. It is possible to conclude that in this study, practicing visualization and concentration training was the factor that oriented the subjects most to body image correction.

# ACKNOWLEDGEMENTS

This thesis was an exercise in determination. Many people assisted me in the scholarly aspects, while others supported me personally. I extend my gratitude and sincere acknowledgement to the following precious individuals:

To Dr. John Paterson, for his expert knowledge of the intricacies of a thesis, the Faculty of Graduate Studies and Research, and the idiosyncrasies of a student attempting to complete such a project.

To Dr. Dustin Shannon-Brady, who sparked my interest in visualization many years ago when I was an undergraduate student, for his continued interest in and support of me and my work, and for his diligence in analysing the structure and content of this document.

To Dr. Jan Blakey, for her sincerity, warmth, silent support, and challenging questions at the Oral Defense.

To Russell Powell, of the University of Alberta, who, over coffee in early 1981 patiently assisted me in mapping out the methodolgy for the study so precisely that I was able to execute it exactly as we visualized it that winter morning.

To Dr. Tom McGuire, of the Department of Educational Research (U of A) who had the brainwave of plotting the Body Image Correction scores using vectors, which set the stage for the data analysis.

To Lance Taylor, of Alberta Mental Health in Cochrane, who assisted me in the scoring of the Personality Orientation Inventory having had a program written for a Commodore 64.

To Heather Holly, of the Calgary General Hospital, for her patience in explaining and running the correlations and t-tests for the statitical analysis of the data.

To Lorraine Beard, of the University of Calgary, for her charm and expertise in assisting me to transform research questions into formal hypotheses and then translating them into actual statistical tests.

To Dr. Zwirner, of the University of Calgary, who was brilliant, patient, and creative enough to translate the vector diagram into a formula that would allow me finally to commit the Body Image Correction Scores to the statistical tests at a point where I was wearing thin with frustration and discouraged with the data analysis.

To Dr. Bud Rickhi, of Calgary General Hospital, who introduced me to many of those who assisted me here in

Calgary, and who has watched over my career for many years; I am deeply grateful for his consistent support, both direct and indirect.

To my father, who has always supported me in all my endeavors for, while he was thinking it, never asked: "Aren't you finished, YET?"

To my dear son, Galen, who has never known me without my thesis who sweetly asked the day after the oral: "Mommy, will I ever have to do a thesis?"

And lastly, to Gerry Webb, of the Women's Therapy and Research Centre, who stood by me, sat by me, through the enormous stresses of my life during the writing of this document and the numerous struggles I had with my Commodore 64, my data, and the process of producing a thesis; she made the task possible and palatable and for this I am eternally grateful.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

# CHAPTER 1

# INTRODUCTION

## PREVALENCE OF EATING DISORDERS

In the last few decades women have become increasingly preoccupied with their weight. In any gathering of women, comments on calories, abstinence, and dress size abound. Bruch (1978) referred to the rising incidences of eating disorders as a "socio-cultural epidemic". Although statistics vary among certain populations they have one thing in common - the staggering proportions of young women who are dissatisfied with their bodies. Heunemann et al (1966) reported that 70% of high school girls stated that they were unhappy with their bodies and wanted to lose weight. Garner et al (1980) found that 85% of college age women are either dieting or restricting their intake of food. Another survey reports that 30% of college age women have used bulimic behavior in order to compensate for caloric intake. The Anorexia and Related Eating Disorders Organization (ANRED) estimates that 1% of white females between the ages of 12 and 18 suffer from anorexia.

Pope and Hudson (1984) conducted 5 student surveys and two general population surverys to realistically assess the current prevalence of bulimia. Through compiling the results of the seven studies they were able to estimate that between 1 and 3 million Americans have developed serious cases of bulimia with at least one episode of binging and purging weekly. These studies were conducted to rule against the inflated statistics. It was found that 10.3% of all women surveyed met the DSM III criteria for bulimia at some point in their lives and between the ages of 13 and 20 the figure was 17.7%. Hawkins et al (1984) ran separate studies to produce conservative estimates on incidences of bulimia and concluded that 8% of college age women fit the criteria.

From the studies cited, it has been shown that eating disorders appear in dramatic proportions in women. Ninety-two percent of the estimated 100,000 cases of anorexia in the United States alone are reported to be women. Orbach (1978) suggests that this is not due to gender differences per se but to socio-culturally induced roles. For example, eating disorders appear in men when they are oriented to being "chosen" for their physical attributes as depicted in gay men or in male models. Another factor is that of fmposed weight in poundage evidenced in sports mandates as in jockeys, gymnasts, or wrestlers. In some sports, when specific body size and

weight is expected, men too develop eating disorders. The men who do struggle with eating disorders are those whose body image or weight is scrutinized as are women's bodies matter-of-factly scrutinized in our society. Eating disorders have reached alarming proportions. Women are persisting in their attempts to meet the prescribed ideals, yet society's changing standards keep them frustrated.

## STATEMENT OF THE PROBLEM

A woman whose body structure does not conform to the socially acceptable image finds herself under great pressure and is subject to constant criticism. According to theorists and researchers, this pressure can foster body image distortion (Orbach 1978, Bruch 1973, Garfinkel et al 1978, Garner et al 1976). According to Bruch (1973):

> "...an understanding of the disturbances of the body image of patients with a deviant body size, biological, psychic, and social forces must be conceived of as constant interaction. The deviant body size itself is related to or even the result of disturbance in hunger awareness, or of other bodily sensations." (page 89).

The DSM III includes body image distortion in the criteria for eating disorders. Freeman et al (1985) stated that body image distortion is the most potent predictor of relapse in the treatment of bulimia. Evidence of therapeutic correction of body image is sparse (Soloyom, unpublished

manuscript, Eating Disorders Conference, Vancouver 1976). Bruch (1978) stated that 20% of women with eating disorders underestimate their body size, while 80% overestimate their size. Orbach (1978) postulates that the vast majority of weight loss through diets is not maintained because the underlying causes of the weight gain has not been resolved. Body image correction may be central to the treatment of eating disorders.

Traditional programs approach weight loss scientifically and rationally. Yet the internal paradigms which fuel the distortion in body image remain untouched. Existing weight loss methodologies are physiologically and behaviorally based and have high rates of recidivism.

It is well ingrained in our culture that negative personality traits are associated with fat. Byrenforth, Wooley, and Wooley (1980) have reviewed the literature to assess characteristic evaluations of the rounded body type by both adults and children. Findings in every case were clearly pejorative. Pictures of the rounded form (endomorph) were described with words such as lazy, mean, and dirty. On the other hand words such as friendly, healthy, and brave were used to describe the mesomorph. An interesting finding is that these projections were constant without regard to the viewer's body-type. Fat, thin, and athletic individuals clearly used the negative descriptors

for the endomorphs (Kaplan 1980).

The problem with thinning just the external image (the physical body) is that self-denial and self-control do not necessarily contribute to the improvement of self-concept or retrain the client to live as a thin person. A woman who loses weight through diets is left physically thinner but nonetheless suffers from the same low self-esteem and fat internal image that perhaps was at the root of the weight gain.

Body image is developed and modified by the value system of our society (Hunt and Weber 1960, Scarf 1979, Woodman 1980, Orbach 1978, Palazolli 1978, Bosskind-White 1976) and vary according to differing cultural norms (Stunkard et al 1972, Goldblatt et al 1965, Stunkard 1975, Holland 1970). Within our culture, the implications of social class is also reflected in the development of body image and eating disorders (Bruch 1973, Bereton 1967, Silverstone 1974, Garner and Garfinkel 1980). With the norms and ideals varying from one socioeconomic and cultural context to another, women are caught in a serious attempt to either conform to or rebel against standards which are externally set and constantly changing (Fadiman 1980, Garner et al 1980, Vincent 1979, Garner and Garfinkel 1979, Woodman 1980, Orbach 1978, Bruch 1973). A woman who struggles to conform generates much pain and internal conflict in comparing her

body with the perceived ideal. The critical problem here is the displacement of the confusion and anxiety from an actual physical issue to an attempt to forge the self to meet the demands of others (Orbach 1978).

Body image is an internal symbol, an internal representation closely linked to self-concept, to memory, and to personality (Govine 1983, Sheikh and Pantagiotou 1975, Gralton et al 1979). It has been stated that self-actualizing individuals are highly developed in the qualities required to produce strong visualizations (Barber and Wilson 1979). Imagery, or visualization, has strong corresponding emotional and motor responses that can access unconscious feelings. The internal conflict and negative self-image that preceeds negative body image has been well established (Rivto ,1894, Fisher and Cleveland 1968, Lewis and Johnson 1985). Yet the notion of attempting to heal the body image has not been addressed in most treatment programs for eating disorders.

## PURPOSE OF THE STUDY

This exploratory study was designed to examine the relationships between personality, body image, and visualization. Because there is so little research on body image correction, a treatment was designed using visualization techniques and concentration training to

ascertain whether body image could be positively affected. It was further hypothesized that the ability to visualize could be improved and that there may be a relationship between this "learning" and the positive effects on body image. The effects of body image correction and improvement in the ability to visualize on personality is also examined.

## RESEARCH QUESTIONS

This study was exploratory in nature and was designed to research the following questions:

1. Is body image correction possible?
2. Is there a relationship between body image correction and improvement in the ability to visualize?
3. Do inherent personality factors influence the ability to visualize?
4. Can the ability to visualize be improved?
5. Can self-regard and self-acceptance be influenced by practicing visualization?

## DESIGN

The eighteen subjects that participated in this exploratory study were all Canadian women ranging in age from 27 to 46 years. All had participated in a workshop called YOUR

PERFECT WEIGHT in the previous year. Screening for this program written and delivered by the present author would indicate that all had serious concerns about their body size, had tried and failed at diets, and considered themselves to be recovering compulsive eaters.

The subjects were randomly assigned to three groups - two treatment groups and one control group with 6 subjects per group. Group one, the control group, was administered the pre and post tests and received no treatment whatsoever between testing. Group two, the partial treatment group, listened to a tape Imagine Youself Slim (Miller 1980) (see transcript, Appendix A) for 21 consecutive days and then were administered the post tests. Group three, the full treatment group, listened to the same tape and in addition practiced Visualization Training for a total of 34 minutes each of the 21 days of treatment. This training, described in detail in Chapter III, was designed to improve concentration and the ability to visualize.

The tests used with all subjects were The Personality Orientation Inventory (Shostrom 1974), the New Creative Imagination Scale (Barber and Wilson 1979) and a Body Image Measuring Technique (Askevold 1975) and were administered 21 days apart. Each is described in turn as per the purpose of the instrument, subscales, response format, reliability and validity in the body of the thesis.

It is noteworthy that subjects were not weighed even though this study was conducted with subjects who were all interested in losing weight. The rationale here came from the author's experience in working with weight-conscious women. Traditional weight loss methods focus on calories, fat, poundage, and diets. All women who participated in the study had dieted extensively and had failed. For these women, weighing-in had caused considerable anxiety and was often an incentive to eat, thereby conflicting with the intended goal. Upon being weighed, if the woman weighed the same or more, the frustration from deprivation without results instigated compulsive eating. If the woman weighed less, she would often relax her abstinence and reward herself with food. Thus, being weighed, in many cases, has been counterproductive to effective weight loss.

Subjects could have been weighed and the researcher could have concealed their weight. This was not done because the study was of 21 days duration, and was designed to promote permanent weight loss by influencing body image, as opposed to temporary weight loss through caloric reduction. Though some subjects were "smaller" in the post test, changes of this nature generally take longer than 21 days.

# CHAPTER II

# THE LITERATURE REVIEW

## THE DEVELOPMENT OF BODY IMAGE

Body image is a term that refers to the body as a psychological experience. Shontz (1974) stated that body image is both neurological and mental. It is a sensory register, an instrument for action, a source of drives, a stimulus to self and others, a private world, and an expressive instrument. It is a central component of the personality and is therefore affected by psychological conditions. It can be said that the body is an anchor point for the more inclusive concept of self (Fisher and Cleveland 1968). The body image, like the self-image, is formulated through sensory and psychic experiences which are constantly integrated in the central nervous system (Shontz 1974).

Embryological studies show that post-natal behavior and functioning can be traced to pre-natal development (Verny 1981). Scott (1948) found that motor activity gradually appears in the developing embryo and often does so with a negligible connection to sensory control. Primitive beginnings of what neurologists have described as the basis of body image have been found in intra-uterine studies (Verny 1981, Gesell 1946).

Newborn infants developmentally undergo a lengthy period of dependency where they structure their knowledge of the world and of themselves (Pearce 1977). At birth infants are totally dependent on their mother's body. It is through the process of maturation and individuation that the infants establish their own body schemata and self-concept. As the recognition of separateness grows, the body becomes endowed with a feeling of self-hood. Motor activities elicit sensations which arise from multiple perceptual and muscular feedback.

As a children explore their environment, sensations stemming from multiple perceptual and muscular feedback are integrated into a dynamically developing body image. According to Pearce (1977), body movements and sensory information etches information into the brain. In addition to self perceptions, the children also absorb the attitudes of others towards their body and its parts. It has been recognized that parental attitudes are markedly influential and are consequently integrated into the child's body concept (Fisher and Cleveland 1968, Bruch 1978).

Tisseron (1984) asserts that body image is connected with mother-infant separation. It is in the stable representation of the maternal object as separate and distinct that allows for a healthy separation and hence individuation.

Children's first object relations, then, are the foundation stone of their self-concept and of their personality.

The mother, as primary caretaker, encompasses the discriminative function which creates the child's external and consequent internal reality. The essential function of the mother is to provide positive reinforcers to the infant and to remove negative ones (Bijou and Baaer 1965). As she acquires this positive reinforcing function, she lays the foundation for further social development of her infant.

In addition to the absorption of the opinions of significant others, body schemata can also be influenced by modeling. Fisher and Mendell (Fisher and Cleveland 1968) found that there was a tendency for the body image of children to resemble those of their parents. Body image then, can be seen as the net result of sensory feedback, the affective reaction to the reality of the body configuration, and one's rating of the desirablilty of one's body by others.

If the individual is to be seen as a whole, or a 'psychobiological entity', we must describe the psychological unity as that which includes the functioning of an integrated system which is may or may not be conscious (Shontz 1974). Shontz described four hierarchically organized levels of body experience which are said to follow a developmental course based on sensory imput and biological

adaptation. The first and most fundamental level of body experience is that of "body schemata" which appears to be pre-programmed into the nervous system. It is the basic perception of the body as an object in space and orients the body parts in relation to each other. It localizes stimuli and provides distinctions between pleasure and pain. Psychological disturbances appear to have minimal effect on body schemata. In contrast, physiological and biochemical influences such as brain damage and drugs can disrupt body schemata. Shontz refers to the second level which incorporates and develops from body schemata as "body self". The surface area of the body becomes the differentiation between self and non-self. Evaluative judgements of bodily experiences (such as good and bad) and those of distance and direction (such as in front and behind) are recognized. "Body fantasy" incorporates ideas about the body which are often elaborate and symbolic which are not based in physical reality. "Body concept" is described through conventional signs which is relatively independent of direct experience or of body stimulation.

It is the "body fantasy" and the "body concept" that are subject to distortion. Cultural pressures, self-doubt, low self-esteem, and the need for approval can stimulate such distortions (Fisher and Cleveland 1968), Orbach (1978) suggests that a woman who has a negative body image has harnessed many of her concerns about life on to a more

familiar concern about body size. The body becomes t focus and a source of distraction from the real issues.

## SEX DIFFERENCES IN EARLY DEVELOPMENT

Research indicates that neonates play an active role in determining the form and pattern of childrearing (Birns 1965, Bell 1971, Harper 1971, Waters et al 1980). Social learning theory stipulates that the differences in the attitudes and emotional responses of the sexes to specific stimuli arise from the differences in their conditioning histories (Mischel 1965).

Moss (1967) studied maternal responses to different sexed newborns. He consistently found greater eye contact in mother-daughter dyads than mother-son dyads. Eye contact is a powerful and pleasurable reinforcer for maternal nurturing. Initial inherent sex differences in eye contact can conceivably set in motion reward systems and expectations tha in turn, could contribute to the quality of a mother's relationship with her baby and to her confidence as a nurturer (Moss 1967).

To the extent that eye contact and face-to-face interaction is a measure of interpersonal relatedness, males and females at birth are already relating to female adults differently. Moss and Robson (1968) offer the explanation that mothers

have more complex psychological reactions toward their sons evolving from a greater uncertainty as to how to relate to a male baby. The assimilation of interpersonal stimuli is particularily dependent on vision. In our culture, to be looked at is tantamount to being acknowledged. In a social learning model, to be acknowledged is a prerequisite for both social interchange and the establishment of more permanent attachments. Girls, then, are encouraging these attachments through greater visual contact. Hutchinson (1982) has suggested that these early relationships provide the psychosocial context for the early development of body image.

Perhaps the relatively more efficient functioning of the female organism is a factor in maternal-infant bonding. Studies show that boys sleep less, cry more, are significantly more irritable, and are less responsive to soothing. This is due to the fact that they have less well organized physiological reactions and are more vulnerable to adverse conditions than are females (Stechler, 1964).

Moss (1967) showed that infants who could be soothed increased the mother's feeling of efficacy in regulating infant behavior. This can be regarded as a manifestation of socialization and represents early conditions favoring social learning. This is further supported by Korner and Grobstein (1966) who found that a particular soothing

behavior induced a state of alertness otherwise rare in neonates which was considered to be an optimal state for the infant's learning. Putting a child on the shoulder not only soothed the infant but offered tactile stimulation. An inconsolable boy who is left alone to cry in his crib is at risk of being overwhelmed and may begin to perceive the world as an uncomfortable host. Also, he has fewer opportunities to scan and get acquainted with his environment and to experience the alert state. Visual alertness is one example of primary autonomous ego function observable in the newborn. By leaving the boys unconsoled, the mothers may inadvertently be encouraging a higher level of activity in their sons. The mothers may be initiating a pattern that contributes to males being more aggressive and independent and less responsive to socialization. This is in keeping with the cultural expectations and mothers may come to classify this irritability as an expression of maleness (Moss 1967).

By investigating the ways in which newborns serve as stimulus to parental behavior, the situational determinants of sex-types responses which are likely to have important consequences in the development of later sex-typed behaviors and the ensuing sex differences in body image may be further interpreted.

The perception of early neonatal differences may reflect

variable levels of integrative and adaptive functioning which influences behavior, interactions, and dependency relationships specific to the genders. For example, a highly adaptable infant whose behavior evokes positive responses in the mother will become more available to social reinforcement (Moss 1966).

## SEX DIFFERENCES IN BODY IMAGE

Sex differences in body image are evidenced early in development. Martin (1985) showed that young normal females exaggerated in estimating their body size almost to the extent that older anorexics did. Normal older females estimated within 10% of their weight on all measures except waist.

Mendelson (1985) found sex differences in body-esteem at a variety of ages. At all ages male and female overweight subjects had lower esteem than normal weight subjects though it became more marked as girls approached puberty. Zakin et al (1984) examined the effects of pubertal development and physical attractiveness on the popularity, body image, anad self-esteem of 6th grade girls. The vulnerability to body changes resulted in the attractive girls having greater difficulty in pubertal transition because their self-image was more connected to their physical appearance.

Calden et al (1959) found that males wish to be an average of three pounds heavier, while women wish to be 7 pounds lighter. Of the 196 women and 110 men in the survey, all dissatisfied females wish to be lighter. Half the dissatisfied men wish to be heavier. Females expressed less satisfaction with the attractiveness of their bodies and with their facial features.

Katcher and Levin (1955) showed that there is a differential degree to which girls and boys make realistic evaluations of their body size. Girls were able to estimate realistically their body size between the ages of 4 and 6 whereas boys, in contrast, achieved these results between the ages of 5 and 7. One explanation would be that girls appear to be more comfortable with regulations and social defenses, thus incorporating these into their body image early in life. The differing effects of socialization and the gender contrasts in early experiences can also be accountable for the development of sex differences in body image.

Freedman (1984) maintains that girls suffer psychologically from negative body image because girls are socialized to believe that the body is to be preserved, protected, and made more beautiful. On the other hand, male bodies are to be developed, strengthened, and made more functional. Woodman (1980) suggests that despite the increasing power of the media to promote unrealistic standards for women, the

feminist movement is providing alternate role models with strong, competent bodies rather than decorative ones. The appreciation of natural differences can be encouraged but the strength of past socialization is still influencing many girls and women.

Mrazek (1984) studied the relationship between body-concept and self-concept in adolescent males and females. The findings suggested that at this age girls had more stable self-concepts than did boys but were more insecure about their body-concepts. Lerner et al (1981) examined the nature of self-concept, self-esteem, and body attitudes of Japanese adolescent males and females. Findings indicated that females had both lower self-esteem and a less favorable view of their physical attractiveness and effectiveness.

Early sex differences in maternal-infant relationships, inherent biological sex differences, and differences in cultural pressures all contribute to the early development of gender differences in body image. The influences of socialization perhaps offer a further explanation to the fact that eating disorders appear disproportionately in females.

## BODY IMAGE AND SOCIALIZATION

The media, the world of fashion, and the fitness industry

has placed an enormous emphasis on thinness in the last two decades. Even though feminism has offered women some alternatives, women have generally been subjected to overt and covert pressure to meet the cultural ideal. According to Orbach (1978), women have deeply absorbed the notion that in order to be complete as women they have to bear children; in order to accomplish that goal they have to attract a man; and in order to be attractive to men, they have to compete with other women. The competition involves the purchase of products and accessories that are prescribed by the media that foster the premise that women need to change much of their natural selves in order to be acceptable and thereby attractive. This encourages the denial of the body and its natural functions and impulses. The hunger mechanism is to be supressed, menstrual cycles are to be abhored, and the soft curves that define the feminine physique are to be reduced to angular lines. Such denial of the body threatens the full development of the feminine (Scarf 1979). Marion Woodman (1980) summarizes:

> "In our culture where the feminine is denigrated, where the ecstatic religious instincts springing from the body are felt to be perverse, and thinness at any price has become god, nature takes her revenge. The repressed god whose needs are no longer recognized as prerequisites for psychic health demands recognition through somatic distortions...Fatness, not sex, is taboo in our culture, and fatness has taken on evil and moral overtones." (pages 103-104)

Feelings of ineffectiveness are invoked and a sense of helplessness, passivity, and difficulty in mastering bodily functions develops. Women begin to feel out of control of their behavior, needs, and impulses. They do not experience their centre of gravity as within themselves and act as if their body and behavior were the product of other people's influences. Traditionally women have been socialized to respond to other's needs and expectations. In the conventional role, women's focus is externally oriented and often involves other's approval.

Young women today are raised with contradictory messages about what they can accomplish in terms of loving relationships and career (Orbach 1978, Palazolli 1978, Boskind-White 1978). Multiple role opportunities are now available to women, and they have come to fear both success and failure. Orbach (1978) proposes that fat is a useful protective device feeding the assuption that women will fail. As long as they believe the cultural fantasy that thinness will solve all their problems, women can blame fat for their lack of fulfillment and undeveloped potentials. Unexpressed potential in women could be primarily a response to the conventional socialization of the gender, rather than character weakness. Bruch (1973) characterized anorexia nervosa and obesity with deep-seated feelings of ineffectiveness. Orbach (1978) states that such difficulties can be harnessed by a more familiar concern

about body size. Instead of concerning herself with issues and insecurities, the eating disordered woman becomes preoccupied with how she looks.

Many women compensate for the paradoxes in the modern role by getting fat (Woodman 1980, Orbach 1978). By not conforming to the ideal, these women challenge the imperative to compete to meet the cultural standards. Often compulsive eating emerges in addition to body image distortion. The overeating can initially dull the anxiety by allowing women to swallow their feelings with the food. Fat expresses a shapeless capacity to both absorb and repel outside demands. It can act as a shock absorber for others as well as a cushion against intense feelings (Orbach, 1978).

Several similarities become evident in an analysis of anorexia nervosa and compulsive eating which appear to be two polarities of one neurosis (Bruch 1973). In both eating disorders, there is a basic disturbance in self-awareness (Woodman 1980, Silverstone 1975, Garfinkel et al 1978, Garner et al 1976, 1981). A study in body image disturbance (Garner 1976) showed that anorexic and obese subjects consistently overestimated their body size more often than did healthy controls. It is noteworthy that <u>all</u> subjects (those with eating disorders and those in three control groups) preferred to be thinner than their perceived size

(this finding is also supported by Holland, 1970). The desire for thinness appears to have homogeneous distribution throughout the female population.

Singer and Lamb (1966) demonstrated that greater social concern in first-born women leads to a certain distortion of body size. First-borns tend to be more anxious and socially dependent and have a greater need for affiliation. They tend to compare themselves more to others in order to obtain a social evaluation of their opinions. This seeking of social approval has been seen to result in greater anxiety when deviating from normative sociocultural expectations (Schacter 1959, Singer and Lamb 1966). Becker and Carroll (1962) have also found the need for affiliation and a willingness to accept group definitions of social reality to be stronger in first-borns.

Scott (1961) found that children with many siblings tended to be thinner than those with few siblings (see Whitelaw 1971). Bruch (1973) also reports that small family size seems to influence the development of obese children. Bruch attributes this to the insecurity of the mothers who compensates through excessive feeding. Bruch also reports that in a study of 225 obese children, 70% were in a special position (youngest or only child). In this society, the offering of food is often equated with affection and nurturance. If the natural hunger mechanism which offers

signals for hunger and satiety is distorted through overfeeding at this young age, recognition of physical sensations associated with hunger will be difficult to identify in later years.

According to Bruch (1973), when mothers appease their feelings of anxiety and guilt through offering food, the child seems to increase her demands as her needs for gratification and security in other areas remain unfulfilled. A mother's insecurity may simply be in response to the import placed upon her self-fulfillment through being the perfect nurturer. Responding successfully to the non-verbal cues of an infant is indeed a challenge. The mythical image of a contented madonna nursing a satisfied infant only occasionally corresponds to the daily reality of motherhood.

Girls can develop contempt for their mother who was ineffective in gratifying their basic needs. These hostile feelings are often internalized. Because our culture dictates that anger is inappropriate to girls, this hostility is turned inward rather than expressed. This anger can develop into self-loathing. Severe judgments of their mothers follow. Women with eating disorders most often describe their mothers as weak and unhappy. Feelings of ineffectiveness often develop while the identifiable sense of self remains undeveloped. Fear of rejection often

becomes a crucial motivating force in their behavior. To the person who has constructed a self-image around the expectations of others, real or perceived, rejection is shattering. With this pattern ingrained into the personality, a girl may decide to impose rigid controls for herself and prove her existence through denial and dieting. Alternatively, a girl with these early influences may please others by being overly compliant and eating.

## SOCIAL CONTEXT AND EATING DISORDERS

It has been well documented that parents' social class may influence which eating disorder develops in the offsprings. Stunkard et al (1972) found four times as many thin women among those of high status as among those of low status. Obesity, however is six times more prevalent in lower class women as compared with upper class women (Goldblatt, Moore, Stunkard 1965). Parental social class, then, can be a powerful influencing variable for body image.

Social mobility is also a relevant factor influencing appetitive disorders. Stunkard (1975) found that obesity was more prevalent among downwardly socially mobile subjects than among those who remained in the same social class as their parents. In those women who moved upward, there was a lower prevalence of obesity (17% same class; 22% downward; 12% upward). Thus movement among the social classes as well

as membership in a social class was predictive of obesity.

A possible explanation for this occurrence is women in lower social classes are even more controlled by traditional roles. When there is less money there is often less education, less help, more unemployment, more family pressures, and a greater feeling of powerlessness within the social system. Competition with the cultural ideal for thinness and beauty is not as relevant for lower class women.

Middle class women become obese only at the risk of social isolation and violation of the standards of beauty and desirability (Holland 1970). Lower class women have not been sufficiently influenced by the acculturation phenomenon (Goldblatt et al 1965). Ethnic and religious backgrounds promote a differing value system. For example, Italian mothers equate plumpness with health. Refusing second and even third helpings among the Czechs is considered discourteous (Goldblatt et al 1965).

Early reports on the incidences of anorexia nervosa are almost exclusively representative of the upper class (Bruch 1973, 1978, Palmer 1980). Success and achievement is usually associated with the upper class. Young girls are exposed to many examples of the cultural ideal. There are currently ten times as many cases of anorexia nervosa today

as there were ten years (Fadiman 1980).

Brereton (1967) showed that attitude reflected the success rate among dieters in different social classes (see Silverstone 1974). Those from the lower social classes did consistently less well than did those from the upper classes. Garner and Garfinkel (1980) hypothesized that subcultures in which the pressures are to be slim and to diet give rise to a greater expression of appetitive disorders in vulnerable adolescents. Finding anorexia and bulimia to be most prevalent among dancers and fashion models, Garner and Garfinkel suggest that these women, who remain slim at any price, may have been preferentially selected into the dance and modeling groups in order to preserve the ideal.

## THE CHANGING STANDARDS OF FEMALE BEAUTY

It has been stated that women are caught in an attempt to conform to a standard which is externally defined and constantly changing. The paradox is that current models of feminity are experienced by many women as unreal, frightening, unattainable, and inherently unfeminine. Pursuit of the feminine, according to present day standards is the pursuit of the androgynous form - the small-breasted, slim-hipped body of the fashion model and the professional dancer.

It may be that the prevalance of eating disorders among women is more likely to reflect general social pressures than individual metabolic disorders and psychological disturbances. The sociocultural and socioeconomic context may contribute more to the rise in eating disorders this decade than the individual problems that have heretofore been labeled causal. Obesity and anorexia nervosa, then, have been seen as the counterpoles of one neurosis whose extremities afflict members of different socioeconomic strata (Singer 1966, Holland 1970, Stunkard et al 1972).

It is unrealistic to assume that there is any universal standard of female beauty. It is, however, the case that certain body images become fashionable and that women aspire to conform to the popular ideal. We may benefit from recognizing the arbitrariness and even folly of any "ideal" image of female beauty.

In the last century, the pendulum has swung from one extreme to the other in terms of body weight. At the turn of the century, large, voluptuous women were admired. Ten years later, it was fashionable to be "fat around the neck for an impressive decollete" yet to remain slim around the hips and abdomen. At this time it was common for women to go to the extreme of breaking their ribs to accomplish this fashionable end. Ten years later, flat-chested, lean, and

angular bodies became the ideal. Meanwhile in Africa, girls were being sent to fattening houses to prepare themselves for marriage (Vincent 1979).

An anaysis of the sizes and weights of role models in a recent twenty year period show a progressively slimming ideal (Garner et al. 1980). An analysis of heights, weights, and measurement data of all 240 monthly Playboy Playmates over a twenty-year period showed significant decreases in the weights of an indirect index of desirable body size in women. Based on the norms for women for body weight in 1959, all weights were converted into percentages. In 1959, these models were 91% the average weight for the female population. By 1978, the models were only 84% the norm.

Analysis of the Miss America Pageant contestants and winners showed similar decreases in weight over the twenty-year period. Significantly, since 197 . the winners weighed considerably less than non-winners indicating a preference for the thinner role models. Simultaneous comparison of the population norms for women during the same period indicate a consistent average increase for all age and height categories for women under 30 (between 5 and 6 pounds per category) (Garner et al 1980). It is noteworthy here that while women were gaining weight, the fashion m els were being recognized for their progressive weight loss thus

setting up a generalized conflict for women aspiring to conform to fashionable standards.

Early in this same period (the early 1960's), an even thinner model became a symbol of attractiveness. Twiggy (Leslie Hornby), weighing 92 pounds in her prime and measuring 5'7", was idolized promoting the ever-thinner inspiration to impressionable teenage girls. Supporting this ideal, the number of diet articles in popular women's magazines also changed. Garner and Garfinkel (1980) tabulated the numbers of diet articles in six publications over the same twenty year period and found significant increases in each of the two decades (from 14 to 25: 1959-1970; from 25 to 37: 1970-1980). This evidence would indicate that the media from 1959-1980 was promoting the thinner body ideal to women through television and magazines.

A parallel to the thinner and thinner trend is in the world of professional ballet. Early photographs of ballerinas (1849) depict dancers as heavier than they are today. The physical demands of dancers have become greater while the expectations of thinness now lend themselves to ominous distortions threatening the very health of our cultural role models (Vincent 1979).

Idolization of slenderness has become a mania and is largely

equated with success in the worlds of professional dance and of fashion modeling (Garner and Garfinkel 1979). Anorexia nervosa is characterized by the relentless pursuit of thinness to the point of emaciation. Investigations by current researchers, notably Vincent and Garner, have demonstrated that the health of many of the leaders in these professions is threatened by anorexia and bulimia (self-induced vomiting), manifestations of the iron will to control the body. These women feel accepted in our culture and win both admiration and the right to continue in their chosen profession through maintaining a less than natural body weight (Woodman 1980). Thus the thin are glamorized.

Orbach (1978) argues that fat represents an attempt to break free of society's sex stereotypes. Fat is said to offend the current Western ideals of female beauty. It can be an expression of rebellion against the pressure to look and act in a certain way and against being evaluated on the ability to create a certain image. In this regard, fat serves a definite and purposeful function.

Orbach (1978) proposes that compulsive eating is linked to the unconscious desire to get fat. By becoming fat, women are rejecting the possibility of being regarded solely on the basis of their physical appeal. It must also be noted that if the role models are only 84% of the national average weight, a woman could consider herself to be overweight when

in reality she is at a natural and average weight.

If being thin, then, is an external measure of success and the thin ideal is constantly thinning, then women are reaching for a goal which they cannot attain without constant deprivation and preoccupation. Because these women are motivated largely by external cues, the opinions of others can rule their behavior and feelings of inefficacy are often paralysing (Bruch 1973, Woodman 1980).

## BODY IMAGE AND PERSONALITY

Rivto (1984) ascertained that the body, its image, and its functions are the most readily available instrumentality for the representation and actualization of the various aspects of psychic conflict. In his psychoanalytic study of childhood and adolescence, he saw that the representations of such conflict can manifest in the body and in eating disorders. For Rivto, the body functions like an external object which can reflect what is represented in the inner world. A weak ego and basic self-deception coupled with the desire for compliance are the character traits that have been found to predispose women to appetitive disorders.

Results of the Eysenck Personality Inventory and a Locus of Control scale (Garner et al 1976) showed the obese group as more external and extroverted while the anorexic group was

more internal and introverted. Hilde Bruch (1973) found that while both groups are preoccupied with food, the obese experienced little self-control while the anorexics accomplished their goals with rigid self-control.

The obese girl is outwardly compliant while the anorexic girl is outwardly rebellious, stubborn. In contrast to the obese girl who considers herself ugly and a failure amongst family and peers, the anorexic girl feels accepted and admired (at first). This leads to feelings of moral inferiority in the obese and those of moral strength in the anorexic. The obese girl refuses to put her fantasies to the test, holding to the possibility that everything would be alright if she were thin. The anorexic girl feels that she is putting her fantasies to the test by the very act of wilful control through dieting. The obese girl feels she is unable to outwit nature. The anorexic girl is sure she is succeeding. Both are compensating for unresolved personal issues by their preoccupation with how they look and by the denial of their natural hunger mechanism.

Another common factor in anorexia nervosa and compulsive eating is the inability to recognize hunger and other body sensations (Garfinkel, Modolfsky, Garner 1979). Stunkard (1959), and Stunkard and Silverstone (1968) demonstrated that gastric motility was unrelated to the sensation of hunger and the response of eating in subjects with eating

disorders. An infantile attitude toward sexuality, perhaps indicating a fear and a rejection of adulthood, is another common factor in women with eating disorders (Kalucy 1977, Bruch 1973, Boskind-Lodahl 1971, Palazzoli 1974). These women are unaware of their own feelings and feminine needs (Woodman 1080) and attempt to gain control over their lives by either eating or refusing to eat.

Fisher and Cleveland (1968) linked definiteness of body image boundaries with the ability to be an independent person who has definite standards, definite goals, and clear ways of striving to meet those goals. The characteristics of such a person very closely resemble the characteristic factors in Self-Actualizing individuals (Shostrom, 1974).

The characteristic features of a "high boundary" individual include a high level of goal setting, need for task completion, suggestibility, ability to express anger outwardly when frustrated, a high degree of orientation toward self-expression, the ability to tolerate stress, and the ability to maintain a realistic orientation in unstructured perceptual settings (Fisher and Cleveland (1968).

These modes of response characteristically have been assigned to high boundary individuals who are typically more oriented to self-steering behavior than are low barrier

individuals. Three of four studies by Appleby (Fisher and Cleveland, 1968) comparing barrier scores with TAT High Aspiration scores showed statistically significant relationships in individuals with barrier scores above the median to also have high aspiration scores.

This finding was replicated by Kelley and Fiske (1951). The investigators offer the following explanation which may have potential predictive value:

> "If one assumes, then, that the low barrier people were the most threatened by the situation and most in need of presenting a good picture of themselves in their responses, it would perhaps follow that they would put out relatively more energy in coloring their stories in a 'good' direction (higher achievement oriented) than would other subjects." (page 121 Fisher and Cleveland, 1968)

It follows, then, that low barrier individuals are seeking approval and attempt to adjust themselves to meet the perceived expectations of others.

Bell et al (1986) attempted to determine present and ideal self-images with the addition and subtraction of ten pounds on the perceived image. Significant differences were found on self-rated personality traits for the attributions of happy/sad, active/passive, popular/unpopular, effective/ineffective, competent/incompetent, smart/stupid, cold/warm.

A comparison of normals and anorexics indicated that the eating disordered counterparts reported a significantly poorer self-evaluations, as well as a poorer evaluations of their body, their personality, and their social skills (Leon et al (1985).

Further indication of the relationship between personality traits and body image was depicted by Lewis and Johnson (1985) who found lower self-esteem and a less well defined sense of self in women who had poor body images. They hypothesized that bulimic women were "hyperfeminine" in their orientation. The hypothesis was not supported in that normals scored higher on the femininity scale while bulimics clustered in the "undifferentiated" category.

When DelRosio et al (1984) compared obese and normal weight subjects, they found the eating disordered group manifested a significantly lower emotional adjustment scores regardless of the degree of obesity. In general, research showed that females respond emotionally to stimuli that focuses attention on body weight and the extent of their reactions depended on their body image.

Body image distortion appears to be related to personality traits and is not exclusive to eating disordered subjects. Noles et al (1985) hypothesized and confirmed that depressed

subjects were less satisfied with their body parts and their physical appearance. Further to this objective raters perceived the depressed subjects as less attractive than the non-depressed. Also, the depressed subjects negatively distorted their degree of attractiveness more than did the objective raters.

Koide (1985) found similar distortions in comparing normal and schizophrenic women. The schizophrenic subjects saw their bodies as less healthy and less well-proportioned as well as less attractive emphasizing the negative [illegible] impressions concerning their bodies across the [illegible] It was postulated that this was due to the depersonalization of the body which is characteristic as well of the eating disordered group.

An analysis of body image distortions in a nonpatient population revealed that eating disordered clients are not necessarily exclusive in the inaccurate estimation of body size. In normal and underweight groups, females described themselves as significantly more overweight than they actually were. Normal and underweight males were quite accurate in their estimates of their weight. The difference that this study emphasizes is that nonpatient normal and overweight groups did not view themselves as less attractive less likeable, or less likely to find a mate (Klesges 1983).

Hoover (1984) has argued that normal feelings of dissatisfaction are exaggerated by the conflict between subjects' values and reality. Self-acceptance is said to originate in childhood and is enhanced by the maturation and refinement of body image. The overweight female is challenged by disapproval. The ensuing feelings of inadequacy and inferiority, according to Hoover (1984) influences how she feels about herself and lends itself to general withdrawal and inhibition. These factors in turn influence the subject's presentation to the world, self-concept, and therefore personality.

## VISUALIZATION

### Visualization and Body Image

Body image is an internal symbol, an internal representation which, as has been shown, is often distorted. Focus on the correction of body image may be an intrinsic and important part of the healing process. Mental Imagery is being used in psychotherapy with a wide range of applications. A cognitive restructuring approach is the most relevant here in that its aim is to give the client a clear cognitive understanding of his own perceptual distortion. It retrains the individual from a vague awareness to one of wholistic awareness and recognition of details of the

cognitive and kinesthetic reality (Sheikh and Pantagiotou, 1975).

Govine (1983) studied the use of hypnotherapy with clients who wished to achieve a new balance between their body images and their weight. Govine suggests that body-image distortion results from a feeling of deprivation at the cellular level. This is in keeping with the concept of body image distortion being associated with a more generalized denial of the body.

> "...theorists appear to be converging on the conclusion that responsiveness to hypnotic suggestions involves a shift in set or orientation away from the pragmatic one that governs our everyday transactions to one that involves imagining. This shift in orientation appears to involve at least two interrelated components: (a) a tendancy to carry out and also to elaborate imaginings consistent with the suggestions that are administered, together with (b) a tendancy to simultaneously ignore or reinterpret information that contradicts the imaginings." (page 68-69 Barber and Wilson, 1979)

Self-actualizing individuals are said to be highly developed in the qualities required to produce strong visualizations. (Barber and Wilson 1979). These qualities include the ability to relax and to let go of extraneous concerns, to have flexibility of values which would allow for new thought and experiences, and a basic faith in the suggestor. Instead of being gullible, the subjects could be seen as

available. This subject could screen out suggestions which they had strong reactions to but would be able to benefit from those which enhanced good functioning, well-being, and furthered the ability to visualize.

Visualization and Learning

Meaningful learning is facilitated by several imagery-eliciting strategies including pictorial stimulation, concrete verbal stimulation, and imagery instructions (direct inducements). These strategies presumably elicit internal mental imagery. In children, pictures facilitate prose learning when the passages are read, are fictional narrative, when the pictures overlap the verbal content, and when the learning is assessed by factual, verbal recall. In adults, internal mental imagery is more effective than picture strategy. Learners with low verbal ability (poor readers) find pictures most helpful. When pictures replace verbal information, learning is not facilitated. (Alesandrini 1982).

Concreteness, with its higher imaging-eliciting qualities facilitates recall and therefore meaningful learning. Imagery instructions direct the learner to visualize the information concepts to be learned. This works best when there is some visualization training. Imaging stategies during presentation serve as contextual organizers

Alesandrini 1982).

Visual recall is the ability to remember by conjuring up a visual image based on a past input when a current input is no longer present. It is the active inner search of a past visual experience in the absence of a stimulus. In learning-disabled children, the new strategy of actively conjuring up, recalling, and trusting visual images that relate to aspects of written language facilitates improvement. Improvement is fostered as the learner interacts with the concrete and the symbolic.

In this strategy, the teacher, or mediator, is one who helps in the creation and the realization of events as they take place. Learning in its core comprises an interactive unit of perception during its inception and formulation. Symbols become internalized in the mind where a dramatic sequence evolves and expresses the mind's potential further.

In therapeutic settings, imagery, with its corresponding emotional and motor responses, can access otherwise unconscious feelings and events. Clients can re-experience traumas or get in touch with their internal body image and receive assistance from the therapist in integrating or in transforming the material in a useful way. Visualization is also gaining momentum and respect in the the treatment of illnesses and various physical conditions (Sheikh amd

Pantagiotou 1975). Imagining the desired result on many sensory levels has proven to have healing effects (Fish 1980).

## The Development of Visual Symbols

The emergence of the ability to create visual symbols to communicate meaning is a momentous and important step in children's development. Sensory motor development can be seen as prerepresentational (Burton 1980). Children learn to create representations by naming configurations they already know well. When children are learning to draw, they often name their creation after the fact, perhaps changing the name again and again. They go on to name their art in the process of making something by announcing what the item will be. Finally, they set out with a stated goal and get an idea which directs the course of their action with whatever material they are using.

Early artistic development and symbol making are prompted by the emergence of learning to make connections between ideas about materials and ideas about the work, as well as learning to construct or shape representational concepts.

In the representational stage (Burton 1980), children select from subject matter whose features are central to the story. They select from a reperatoire of ideas about material (ie.

paint) those properties of a line, mark, patch, color, that would best act as the vehicle or carrier of the idea. The interaction of idea and material characterize sensory, structural, and functional properties. The development of symbols becomes a matter of deliberation, reflection, and choice using many senses and images.

Imagery is a form of mental action that is basically a reconstruction. It can never be an exact duplicate of what was seen before. In effect, it is the present recreating the past, or, the present creating the future.

Johnson (1979) conducted a study on blind and sighted adolescents learning paired-associate word lists related to high and low visual imagery. It was suggested that blind children are deficient in their ability to abstract since limited play patterns lead to repetitive, self-stimulating movements that restrict their creative drive toward a mastery of the external world. Yet on divergent thinking tasks, blind and sighted children showed few differences. The congenitally blind youngsters were found to be deficient in visual imagery (as were those blinded before the age of six), yet they scored significantly higher on more complex and symbolic analogies. This was found to be due in part to the blind drawing on other senses evidenced by their recall performance superiority on auditory word imagery. The onomatopoeic (sound suggests the sense) stimulus words also

contributed to this result.

Some investigators have noted that blind children lagged somewhat behind sighted children in the mastery of various Piagetian tasks, though no researcher postulated that the lag was permanent (Johnson 1979). It appears that by the time youngsters reach adolescence their ability to reason is essentially the same.

Johnson (1979) discussed two basic forms of imagery derived from Piagetian theory: Reproductive (preoperational) and Anticipatory (operational). The basic difference is that Reproductive Imagery occurring before the age of six, is characterized as static - that is, the child represents events in an inflexible manner centering on outcomes. Anticipatory Imagery enables the individual to represent context and captures process and outcome. Early memories are forgotton, then, not so much because they are repressed, but rather because two different memory systems are in operation. Memories become encapsulated emerging in adulthood when situation dramatically revives the childhood event (as in therapy).

Imagery, then, must be seen as representational of other senses as well as the visual. Olfactory, auditory, kinesthetic, and gustatory images interact with memory and foster creative imagination.

Sex Differences and Visualization

Sex differences fall into two major categories - verbal, where females are typically superior and visio-spatial, where males are typically superior. McGuiness and McLaughlin (1982) conducted a study attempting to disentangle verbal and visual memory between the sexes. In the past studies they cited, verbal descriptions and verbal recall were emphasized, giving females an advantage. "Visual" material was seen, on inspection, to be a list of words. That is to say, certain pictorial stimuli, like geometric shapes, or line drawings, could easily be coded verbally. Females' ability to generate verbal descriptors for pictorial information may explain why females are generally found to be superior in tests of visual imagery.

This study showed that the sexes do not differ in absolute number of photographs recalled but differ significantly in the number of descriptors generated for each stimulus. Nor do the sexes differ in their ability to recognize pictorial information. The sex differences in visual sensory processing have failed to correlate with any higher order perceptual or cognitive tasks.

Since women experiment more than men do with radical changes in their appearance, the induction of changes in bodily

perceptions are less disturbing to women than to men. The person with sharp boundaries finds it more difficult to submit themselves to authority whereas the person with indefinite boundaries may even be inclined to seek authoritative guidance. Increased depth in hypnosis manifests in men by boundary augmentation and in women by diminished boundaries. In other words, a man will be less available to hypnosis if he has stronger body boundaries. This relationship was not replicated in a sample of women (Freundlich and Fisher 1974).

Personality and the Ability to Visualize

According to Gralton (1979), a traditional behavioristic account of mental imagery asserts that visualizations are conditioned sensory responses, established according to the principles of classical conditioning. The personality dimension of introvert-extrovert has been interpreted as an index of the ease and strength with which people may be conditioned in classical paradigms. Gralton et al (1979) found that introverts, as predicted, reported more mental imagery and produced superior performance in verbal learning than did extroverts.

These findings were due to the fact that mental imagery is an effective form of encoding information and is linked to memory and also to personality (Gralton et al 1979; Barber

and Wilson 1979). There has been much research done on the difference in imagery producing qualities of concrete and abstract words (ie. tree and week respectively). Differing personality styles use different mneumonic (assisting in memory) strategies with two sorts of stimulus materials (Gralton et al 1979).

Many researchers have studied the relationship between personality and hypnotic susceptibility. There is consensus among researchers that the imagining and hypnosis are closely related and require the same sorts of brain functioning and disposition (Barber and Wilson 1979). Early studies correlated extroversion, need for ego strength, and need for affiliation with hypnotic responsiveness. Later studies were unable to replicate these findings (Barber 1964).

One consistent and replicable finding is that hypnotic responsiveness is correlated with the degree of involvement with the image on many sensory levels and the degree of absorbtion in the imagining. It may follow here that the ability to concentrate would lend itself to improvement in the abiltiy to involve onself in the imagining.

The role of body attitudes and feelings seem to play an important role in hypnosis (Fisher 1974). The altering of body sensations seems to be a part of hypnotic experience.

Fisher found that the greater a man's boundary definiteness, the less his hypnotic susceptibility. This relationship did not hold in the female sample. It could follow that greater boundary definiteness in women could positively influence hypnotic suceptibility by making women more available to suggestion as mentioned earlier. Men, on the other hand, could be described as more defensive when their boundaries were more definite.

Fisher went on to measure the effect of the hypnotic state on boundary differentiation. His findings were that there are specific body experiences associated with the hypnotic state and that as defined by boundary dynamics, men and women differ in their adaptation to being hypnotized. According to Fisher (1974): "One of the intriguing implications of this last finding is that there may be multiple modes or styles of participating in the hypnotic process which reflect different degrees of differentiation between self and the hypnotist." (page 81)

This lends itself to the complex and perhaps inconclusive relationship between ego-strength, personal boundaries, self-concept, body image, personality, and the ability to visualize. These aspects comprise the key factors that comprise the hypothesis that body image correction is possible. It is important consider alternative ways of viewing the dilemma many women face of dissatisfaction with

their bodies, a precurssor of eating disorders and negative body image. From the body of knowledge presented in this chapter, the author has chosen to focus the study on the three aspects of body image, visualization, and personality.

# CHAPTER III

## DESIGN AND METHODOLOGY

### SUBJECTS

Eighteen subjects participated in and completed this exploratory study. All were Canadian women ranging in age from 27 to 46 years. All had participated in a workshop called YOUR PERFECT WEIGHT given by the author in the previous year. Screening for this program written and delivered by the present author would indicate that all had serious concerns about their body size, had tried and failed at diets, and considered themselves to be recovering compulsive eaters.

### DATA GATHERING PROCEDURE

Twenty-five women who had participated in YOUR PERFECT WEIGHT in the past year were invitied to attended a seminar on Visualization and Body Image. It was announced at the seminar that a research project was beginning and that anyone in attendance may consider participation. Twenty women volunteered to participate. They were then told to divide themselves into three groups and were not told what

the groups would do or what would distinguish one from another. They were told that the study would involve 21 days of participation and that the maximum time requirement would involve 34 minutes a day.

After the groupings were established, all subjects were administered the pre tests for the Creative Imagination Scale and the Body Image Distortion Test. Subjects made arrangements to be administered the Personality Orientation Inventory within 24 hours at Cochrane Branch of Alberta Mental Health where a computer scoring systems had been devised by technicians. For the subjects who could not travel to Cochrane, the same question sheets were offered, but the scores were hand recorded. The researcher later entered these data into the computer in Cochrane for scoring.

Instructions and materials were given to the partial and full treatment groups and all subjects in Groups 2 and 3 followed instructions for the twenty-one days of treatment. The Control Group were given no further instructions other than details for completing the post tests.

On the twenty-second day, all subjects completed the 3 post tests. Because the study was conducted during the summer months, it was established at the seminar which of the subjects would be out of town for the post test

administration day. Kits were prepared in advance and the commitment established from the subjects that the post test would indeed be taken on the twenty-second day - no sooner and no later. This was accomplished by pre-recording the researcher's voice to exact the script for the Creative Imagination Scale. Score sheets for the Creative Imagination Scale and the Personality Orientation Inventory were provided. In addition to this, large blank sheets of newsprint were labeled and enclosed with specific instructions for the subjects to complete the Body Image Distortion Test.

Two testing times (morning and afternoon) for the in town subjects were scheduled for the same day. Most subjects traveled to Cochrane in order to enter their answers into the computer. Again, when this was not possible, hand answered Personality Orientation Inventory answer sheets were later punched into the computer scoring program at the Cochrane Alberta Mental Health Branch.

DESIGN

Group 1, the control group, after being administered the pre test was given instructions about the post tests to follow. They were told nothing more.

Group 2, the partial treatment group, was given a tape

called Imagine Yourself Slim: Setting Your Image Goal (Miller 1980) (see transcript in Appendix A) to listen to for 21 consecutive days. Group 2 subjects were asked to keep a twenty-one day record of their experience, review of which was helpful in ascertaining that the task was indeed completed. Group 2 subjects were then given instructions regarding the post tests.

Group 3, the full treatment group, was given the same visualization tape as subjects in Group 2. In addition, subjects were given kits with instructions for "Visualization Training" which consisted of fourteen minutes of concentration exercises for each of the twenty-one days of treatment to be done before the visualization tape. They, too, were asked to keep daily records of their experiences which were submitted as evidence of their daily participation and were given instructions pertaining to the post test.

"Visualization Training" consisted of 9 minutes of practice to improve concentration adapted from Ichazo (1975) (see Appendix B). This involved the viewing of three different colored geometric designs (or "yantras") in sequence. For one minute each, the entire design was scanned. The second minute, the centre dot was viewed, and the third minute, the yantra was viewed in the mind's eye, eyes closed. Each of the three different yantras were viewed in turn to total 9

minutes.

Next, subjects in the full treatment group were instructed to stand before a mirror for 5 minutes daily. They were to scan their bodies for 1 minute, concentrate on viewing their whole body for one minute, then they were to close their eyes and imagine what they had seen in their mind's eye. After one minute, if they had difficulty replicating their image, they were to alternately open and close their eyes to "refresh their memory". The entire exercise was to be timed and to take 5 minutes. Thus the 34 minute treatment consisted of 14 minutes of Visualization Training in addition to the 20 minute visualization.

## THE INSTRUMENTS

Three tests were used pre and post with all eighteen subjects, the Personality Orientation Inventory (Shostrom 1974), the New Creative Imagination Scale (Barber and Wilson 1979), and a Body Image Distortion Test (Askevold 1975). Each of these are described in turn as per the purpose of the instrument, subscales, response format, reliability and validity.

### Personality Orientation Inventory

The Personality Orientation Inventory (P.O.I.) (Shostrom

1974) is an instrument designed to measure the self-actualization of individuals (A transcript of questions from the instrument appears in Appendix C). This instrument was chosen because the subscales support self-actualizing values. There are fourteen subscales in the instrument. Time competence (TC) measures the subjects orientation to "present" reality as opposed to past or future orientation. Support ratio (I) measures whether subjects are "other" directed or "inner" directed. Self-actualizing value (SAV) measures the development and affirmation of one's own potential. Existentiality (EX) measures the ability to react with a flexibility of values as opposed to adhering to rigid principles. Feeling reactivity (FR) measures the sensitivity and willingness to respond to one's own needs and feelings. Spontaneity (S) measures the ability to react in the moment and the willingness to be truly oneself. Self Regard (SR) measures affirmation of self because of worth or strength. Self-acceptance (SA) measures the acceptance of both weaknesses and strengths. Nature of Man (NC) measures the ability to transcend dichotomies. Acceptance of Aggression (A) measures the ability to accept and feel intense emotions such as anger as opposed to repression and denial of aggression. Capacity for Intimate Contact (C) measures the ability to develop meaningful contactful intimate relationships.

There are 369 items in the test which divide into the

subscales as follows:

| | | |
|---|---|---|
| Time Competence | (TC) | 23 items |
| Inner Directedness | (I) | 127 items |
| Self-Actualizing Value | (SAV) | 26 items |
| Existentiality | (EX) | 32 items |
| Feeling Reacitivity | (Fr) | 23 items |
| Spontaneity | (S) | 18 items |
| Self Regard | (Sr) | 16 items |
| Self Acceptance | (Sa) | 26 items |
| Nature of Man | (Nc) | 16 items |
| Acceptance of Agression | (A) | 25 items |
| Capacity for Intimate Contact | (C) | 28 items |

The response format for the P.O.I. is forced choice with the subscales randomly interspersed throughout the questionnaire. The instrument was scored at the Alberta Mental Health Cochrane Branch where technicians have devised a computer scoring program for the P.O.I. Some subjects did both the pre and post testing at the A.M.H. office actually answering the questions on the computer. Others hand answered questionnaires and their answers were typed into the computer for scoring.

The P.O.I. is one measure of the value system of subjects. The inventory was formulated from the theoretical orientations of Humanistic, Existential, and Gestalt therapists including Perls, Maslow, May, Reisman, and Ellis (Shostrom, 1976). In terms of predictive validity, a study was conducted by Knapp (1965) in which self-actualization as measured by the P.O.I. negatively correlated with the concept of "neuroticism" as measure with the Eysenck

Personality Inventory at a -.57 level. Atkinson (1967) measured Eysenck Personality Inventory Extraversion scale with the P.O.I. Spontaneity subscale and found a significant .39 correlations (from Shostrom 1976).

In terms of reliability, test-retest coefficients have shown between .52 and .82 depending on the subscale (page 33 manual). These are considered to be well within the acceptable ranges and comparable to similar tests.

> "A value-orientation may be defined as a generalized and organized conception, which influences behavior and which is a conception of nature, of man's place in it, of man's relation to man, and of the desirable and nondesirable as they mayrelate to man - and of the desirable and nondesirable as they may relate to man-environment and inter human relations." (page 23, Shostrom, 1974)

Body Image Distortion Test

The second testing instrument used was a Body Image Distortion test (B.I.D.) adapted from Finn Askevold's (1975) report called Measuring Body Image. The methodology in question attempts to measure distortions in body image as measured on a vertical axis. Because body image is seen to be a highly personal and subjective experience, Askevold refined a method which would allow the subjects to estimate and mark their dimensions at certain body points.

This test was replicated as per the article mentioned in the present study. Newsprint sheets six feet by four feet were taped to the wall. Subjects were paired up for the test. Each in turn stood at arms length from the paper. They held felt markers in each hand. Subjects were then asked to close their eyes and imagine their body size as a whole. Next holding their arms away from their bodies, subjects were asked to open their eyes and to place marks on either side to indicate their estimated width at the widest hips, narrowest waist, bust (acromio-clavicular joint: bust where arms begin), widest shoulders, and height.

Next, subjects placed their backs centered in the drawing between their estimated markings. Their partners then traced the outline of their real body so that markings could be seen on either side as the subject stood against the newsprint. Next, each drawings was measured by the investigator and raw scores were obtained for real size and estimated size for each of the points hips, waist, bust, shoulders in both pre and post tests. The following formula was used to compute the percentage of overestimation or underestimation for each body part measured:

$$\frac{\text{Estimated - Real}}{\text{Real}} \times 100$$

According to Askevold's data, intelligence, education, and

age do not play a role in terms of body image distortion. "As body image probably is developed parallel to the general development and plays some part in the stability of personality, it is possible that we will get another icture when we extend the investigation to lower age groups." (page 76, Askevold 1975). It was inconclusive as to whether the sex of the investigator would have bearing on the results, but since all subjects as well as the investigator were female, this should not pose a problem. This would be an understandable concern for women who worry about their image.

The Creative Imagination Scale

Subject's ability to visualize was measured by Barber and Wilson's (1975) Creative Imagination Scale (A transcript of the suggestions appears in Appendix D). The purpose of the instrument was to measure the vividness with which subject's visualized and to assess whether any learning occured in the treatment groups. Ten subscales make up the inventory listed as follows:

1. Arm Heaviness
2. Hand Levitation
3. Finger Anesthesia
4. Water "Hallucination"
5. Olfactory-Gustatory "Hallucination"
6. Music "Hallucination"
7. Temperature Hallucination
8. Time Distortion
9. Age Regression
10. Mind-Body Relaxation

The test was administered by the investigator. A script of the induction for each of the subscales has been transcribed in Appendix III. The 10 suggestions on the Creative Imagination Scale provide detailed descriptions to guide the subjects to use their own ability to image in order to experience the suggested effects. The answer sheets asked subjects to compare what they would have experienced if the suggested experience had been actual on a scale of 0 to 4 as compared to "real".

| 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 exactly the same |

The Creative Imagination Scale (CIS) has been shown to possess satisfatory test reliability (N=22; r=.82; p less than.01), split-half reliability (N=217; r=.89; p less than.001) and factorial validity (N=217; all 10 test-suggestions load on the first and only factor) (Wilson and Barber, 1978).

Two studies (Kiddoo 1977; McConkey et al 1977) showed that scores on the CIS to be significantly correlated with scores on instruments that aim to measure either imagining and responsiveness to hypnosis. Of note here, the CIS is not

preceeded by a hypnotic induction procedure and is a measure of guided imagining. The authors of the instrument claim that the CIS is the only standardized instrument which measures active guided imagining which continues for a period of time (20 minutes) and which guides subjects to actually experience objective consequences of their imagining.

## DELIMITATIONS OF THE STUDY

The study was conducted with women who were recovering compulsive eaters and who were interested in losing weight. All women in the sample had attended Your Perfect Weight, a workshop written and conducted by the author.

## LIMITATIONS OF THE STUDY

A major limitation of this exploratory study occurred when the groups were being "randomly" assigned. Three of the potential participants indicated that they would be willing to participate in the study but that they had time restrictions. In order to ensure that participants indeed would complete the treatment/training on a daily basis, a decision was made to move the two women who would have been in Treatment Groups into what the researcher knew would be the Control Group. This affected the randomization of the sample and was compensated for by using non-parametric

statistical test to analyse the data.

A further limitation of the study was the size of the sample, 18 women divided into 3 groups. Statistical analysis was limited with 6 people per group. The study was conducted with the numbers available that would guarantee full participation rather than a greater number of perhaps less reliable subjects.

Also, it could be seen that the 2 methods of scoring the P.O.I. could influence the data. This was more a matter of convenience in scoring. In all cases, the questions were read from the same question sheets. It has been assumed that the hand marking of answer sheets and the hand punching numbers on a computer keyboard would offer little or no differences in the overall scores.

## HYPOTHESES

In the following hypotheses, Group 1 refers to the Control Group; Group 2 is a Partial Treatment Group; anad Group 3 is a Full Treatment Group.

1. (a) There will be no significant difference between Group 1 and Group 3 Body Image Correction scores.

(b) There will be no significant difference between Group 1

and Group 2 Body Image Correction scores.

(c) There will be no significant difference between Group 2 and Group 3 Body Image Correction scores.

2. There will be no significant correlation between Visualization Gain scores and Body Image Correction scores.

3. There will be no significant correlation between Inner Directedness (I of the P.O.I.) and Visualization pre test scores.

4. There will be no significant difference between pre and post test scores on the 10 subscales of the Creative Imagination Scale for Groups 1, 2, and 3.

5. There will be no significant difference between pre and post test scores for all 12 subscales of the Personality Orientation Inventory in Groups 2 and 3.

# CHAPTER IV

## FINDINGS AND RESULTS

The findings are reported in the following section. The formal hypotheses are restated followed by pertinent information regarding the data, descriptions of the statistical tests used, and the relevant tables and graphs, and the apapropriate conclusions. A section follows on descriptive but non-statistical findings. A discussion on all of the above follows in Chapter V.

### HYPOTHESIS 1

(a) There will be no significant difference between Group 1 and Group 3 Body Image Correction scores.

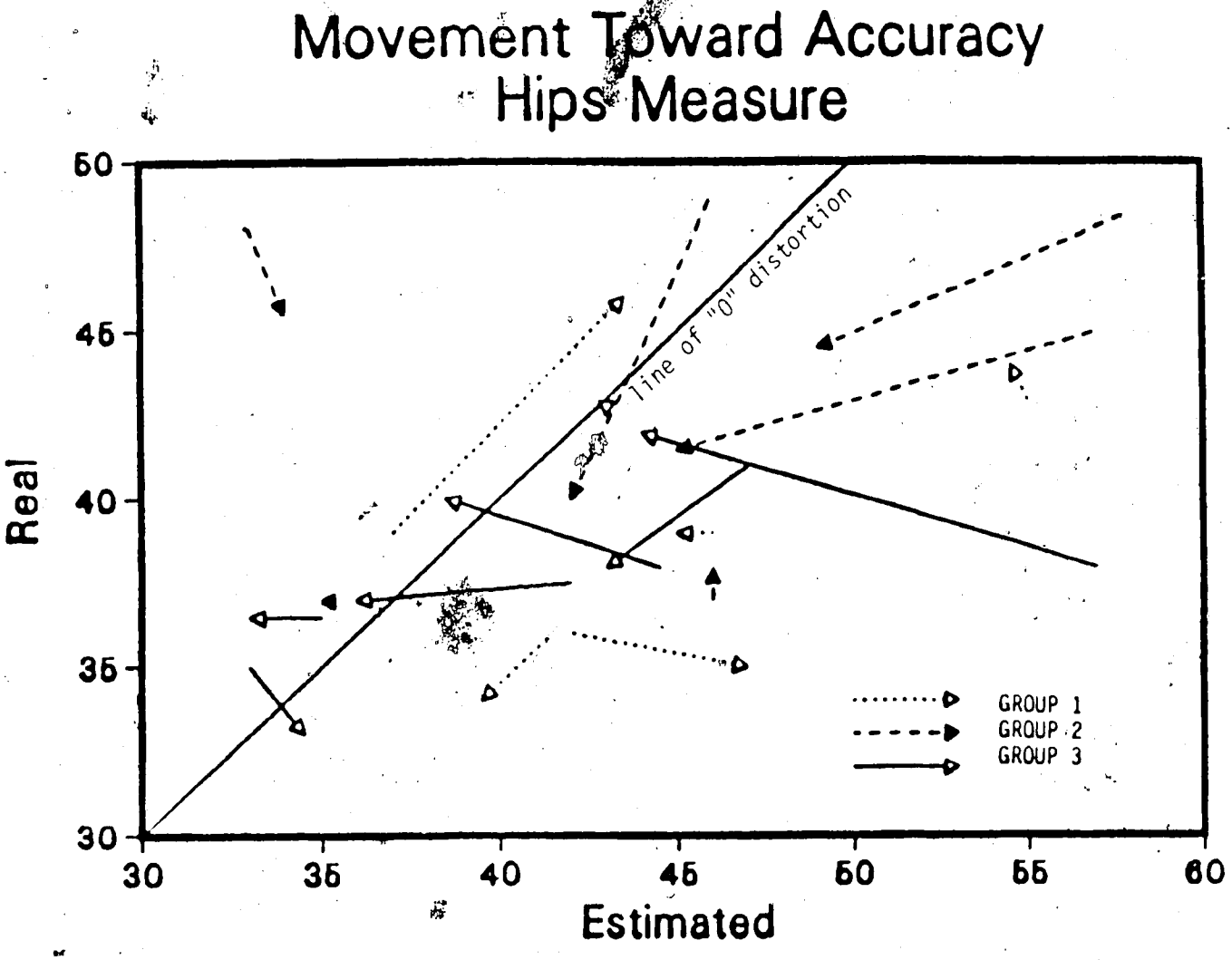
Body Image Correction Scores were obtained by using the following equation:

$$bi = \sin(\alpha)\sqrt{(x_2-x_1) + (y_2-y_1)}$$

In this formula, X 1 is the pre test estimated measure; X 2 is the post test estimated measure; Y 1 is the pre test real measure; Y 2 is the post test real measure; and alpha is the angle between the vector representing a subject's movement between pre and post test and the line of zero distortion (see figure 1) (the figures for Waist, Bust, and Shoulders measurements in Appendices E, F, and G). The more the subject moved toward the line of zero distortion, indicating body image correction, the higher the Body Image Correction score. A negative score would indicate further body image distortion.

In addition to using this equation, a correction factor was applied to account for the crossing of the "zero distortion" line. If subjects crossed the line into the zone of overestimation (below the "zero distortion" line), their score was multiplied by a factor of .5. This showed a negative reaction to treatment. If a subject crossed the line into a slight underestimation, their score was multiplied by a factor of 2. This showed movement to a new internal image that indicated movement in a desired direction. Since all subject were trying to lose weight, movement to an area of slight underestimation indicated that their internal body image was manifesting in the "desired state". In analysing the vectors, movement to this area was considered ideal.

FIGURE 1




Real and Estimated measures for hips are plotted: the tail of the arrow represents the pre test; the head of the arrow represents the post test; Movement Toward Accuracy is depicted when the arrowhead approaches the line of "0" Distortion or in the region slightly above the line.

A non-parametric test was used to rank the differences between groups where no assumptions were made as to the random sampling or the normal distribution of the sample. This procedure was chosen to account for the small sample size. The Mann-Whitney test (Minitab, Ryan et al 1976) was chosen to compare the medians of 2 groups at a time. It performs a two sample rank test of the null hypothesis against the two-sided alternative hypothesis. It calculates for a 95% confidence interval. Thus differences in change scores can be considered important if significant to the p is less than .05 level (see Table 1) (Tables for Waist, Bust and Shoulders measures appear in Appendix H).

In comparing Group 1 with Group 3 as per Table 1, significance was found at the p is less than .05 level (p=.0453) with a ranking score (W) of 26. The null hypothesis was thus rejected.

Conclusion

Body image, then, was improved. A significant difference was found between Group 1 and Group 3 Body Image Correction Scores at a p is less than .05 confidence interval.

(b) There will be no significant difference between Group 1 and Group 2 Body Image Correction scores.

TABLE 1

BODY IMAGE CORRECTION SCORES - HIPS MEASURE

| | | PRE TEST | | POST TEST | | BODY IMAGE CORRECTION |
|---|---|---|---|---|---|---|
| | | EST. | REAL | EST. | REAL | SCORE |
| GROUP I | 1 | 41.5 | 36.0 | 39.5 | 34.0 | 0.000 |
| | 2 | 43.0 | 43.0 | 43.0 | 42.5 | 0.000 |
| | 3 | 37.0 | 39.0 | 43.5 | 46.0 | 0.353 |
| | 4 | 42.0 | 36.0 | 47.0 | 35.0 | -4.240 |
| | 5 | 55.0 | 43.0 | 54.5 | 44.0 | 1.060 |
| | 6 | 46.0 | 39.0 | 45.0 | 39.0 | 0.710 |
| GROUP II | 1 | 33.0 | 48.0 | 34.0 | 45.5 | 2.470 |
| | 2 | 46.0 | 49.0 | 42.0 | 40.0 | 1.770 |
| | 3 | 58.0 | 48.5 | 49.0 | 44.5 | 3.530 |
| | 4 | 57.0 | 45.0 | 45.0 | 41.5 | 6.010 |
| | 5 | 35.5 | 37.0 | 35.0 | 37.0 | 0.350 |
| | 6 | 46.0 | 37.0 | 46.0 | 38.0 | 0.710 |
| GROUP III | 1 | 44.5 | 38.0 | 38.5 | 40.0 | 11.320 |
| | 2 | 57.0 | 38.0 | 44.0 | 42.0 | 12.020 |
| | 3 | 42.0 | 37.5 | 36.0 | 37.0 | 4.960 |
| | 4 | 33.0 | 35.0 | 34.5 | 33.0 | 1.250 |
| | 5 | 47.0 | 41.0 | 42.0 | 38.0 | 1.410 |
| | 6 | 35.0 | 36.5 | 33.0 | 36.5 | -1.410 |

In comparing Group 1 with Group 2 as per Table 2, significance was found at the p is less than .05 level (p=.0374) with a ranking score (W) of 25.5 (see Table 1). The null hypothesis was thus rejected.

Conclusion

Again, body image was improved. A significant difference was found between Group 1 and Group 2 Body Image Correction Scores significant to the p is less than .05 confidence level.

(c) There will be no significant difference between Group 2 and Group 3 Body Image Correction scores.

In comparing Group 2 with Group 3 as per Table 3, significance was not found at the p is less than .05 level (p=.6889) with a ranking score (W) of 36 (see Table 1). The null hypotesis was thus accepted.

Conclusion

A significant difference was not found between Group 2 and Group 3 Body Image Correction Scores.

HYPOTHESIS 2

There will be no significant correlation between Visualization Gain scores and Body Image Correction scores.

Visualization Gain Scores were obtained by subtracting pre test visualization scores from post test visualization scores.

Spearman Row non-parametric correlation test was used (SPSS) on all 18 subjects looking for a relationship between Visualization Gain scores and Body Image Correction scores. A non-significant correlation (p=.328) was found with a correlation of .1128 (see Table 2, Table 3, and Table 4). The null hypothesis was thus accepted.

Conclusion

There is no significant correlation between Visualization Gain scores and Body Image Correction scores.

HYPOTHESIS 3

There will be no significant correlation between Inner Directedness (I of the P.O.I ) and the ability to visualize pre test scores.

Pearson Product Moment Correlations (SPSS) were used to

TABLE 2

**CREATIVE IMAGINATION SCALE**

GROUP I

| | MEAN | STANDARD DEVIATION | T VALUE | DEGREE OF FREEDOM | 2-TAIL PROB. |
|---|---|---|---|---|---|
| ARM | * 2.0000 | 1.265 | -1.58 | 5 | 0.175 |
| HEAVINESS | # 2.3333 | 1.211 | | | |
| HAND | 1.8333 | 1.472 | -0.54 | 5 | 0.611 |
| LEVITATION | *2.1667 | 1.169 | | | |
| FINGER | 1.8333 | 1.169 | 0.54 | 5 | 0.611 |
| ANESTHESIA | 1.5000 | 0.548 | | | |
| WATER | 1.0000 | 0.632 | -1.58 | 5 | 0.175 |
| HALLUCINATION | 2.0000 | 1.265 | | | |
| OLFACTORY- | | | | | |
| GUSTATORY | 1.3333 | 0.816 | -2.39 | 5 | 0.062 |
| HALLUCINATION | 2.6667 | 0.816 | | | |
| MUSIC | 2.1667 | 1.169 | 0.00 | 5 | 1.000 |
| HALLUCINATION | 2.1667 | 1.472 | | | |
| TEMPERATURE | 0.6667 | 0.816 | -2.24 | 5 | 0.076 |
| HALLUCINATION | 1.6667 | 1.033 | | | |
| TIME | 2.5000 | 1.643 | 0.00 | 5 | 1.000 |
| DISTORTION | 2.5000 | 1.517 | | | |
| AGE | 1.6667 | 1.366 | 0.35 | 5 | 0.741 |
| REGRESSION | 1.5000 | 1.378 | | | |
| MIND-BODY | 2.3333 | 1.506 | -0.20 | 5 | 0.849 |
| RELAXATION | 2.5000 | 1.643 | | | |

*Pre & # post test scores for Group 1 on the Creative Imagination Scale.

TABLE 3

**CREATIVE IMAGINATION SCALE**

**GROUP II**

| | MEAN | STANDARD DEVIATION | T VALUE | DEGREE OF FREEDOM | 2-TAIL PROB. |
|---|---|---|---|---|---|
| ARM | * 3.3333 | 1.033 | -1.58 | 5 | 0.175 |
| HEAVINESS | # 3.6667 | 0.516 | | | |
| HAND | 2.8333 | 0.753 | 0.00 | 5 | 1.000 |
| LEVITATION | 2.8333 | 0.983 | | | |
| FINGER | 2.0000 | 1.265 | -3.00 | 5 | 0.030 |
| ANESTHESIA | 3.5000 | 0.548 | | | |
| WATER | 3.0000 | 1.095 | -0.79 | 5 | 0.465 |
| HALLUCINATION | 3.3333 | 0.816 | | | |
| OLFACTORY-GUSTATORY | 3.1667 | 0.753 | -1.46 | 5 | 0.203 |
| HALLUCINATION | 3.6667 | 0.516 | | | |
| MUSIC | 1.8333 | 1.169 | -1.58 | 5 | 0.175 |
| HALLUCINATION | 2.5000 | 1.049 | | | |
| TEMPERATURE | 2.0000 | 0.632 | -2.71 | 5 | 0.042 |
| HALLUCINATION | 2.8333 | 0.983 | | | |
| TIME | 2.5000 | 1.378 | -0.59 | 5 | 0.580 |
| DISTORTION | 3.0000 | 1.095 | | | |
| AGE | 2.6667 | 1.506 | -1.46 | 5 | 0.203 |
| REGRESSION | 3.6667 | 0.516 | | | |
| MIND-BODY | 2.3333 | 1.633 | -1.22 | 5 | 0.275 |
| RELAXATION | 3.3333 | 1.506 | | | |

*Pre and # post test scores for the Creative Imagination Scale Group 2.

TABLE 4

**CREATIVE IMAGINATION SCALE**

**GROUP III**

| | MEAN | STANDARD DEVIATION | T VALUE | DEGREE OF FREEDOM | 2-TAIL PROB. |
|---|---|---|---|---|---|
| ARM | *2.8333 | 0.753 | -5.00 | 5 | 0.004 |
| HEAVINESS | #3.6667 | 0.516 | | | |
| HAND | 2.6667 | 1.211 | -0.35 | 5 | 0.741 |
| LEVITATION | 2.8333 | 0.753 | | | |
| FINGER | 2.1667 | 0.408 | -6.32 | 5 | **0.001** |
| ANESTHESIA | 3.5000 | 0.548 | | | |
| WATER | 2.6667 | 1.033 | -2.00 | 5 | 0.102 |
| HALLUCINATION | 3.3333 | 0.516 | | | |
| OLFACTORY-GUSTATORY | 3.0000 | 0.632 | -1.46 | 5 | 0.203 |
| HALLUCINATION | 3.5000 | 0.548 | | | |
| MUSIC | 2.1667 | 1.169 | 0.47 | 5 | 0.661 |
| HALLUCINATION | 1.8333 | 1.169 | | | |
| TEMPERATURE | 1.6667 | 1.366 | -2.61 | 5 | 0.048 |
| HALLUCINATION | 3.5000 | 0.548 | | | |
| TIME | 1.5000 | 1.378 | -2.71 | 5 | 0.042 |
| DISTORTION | 3.1667 | 0.983 | | | |
| AGE | 1.5000 | 1.517 | -1.05 | 5 | 0.341 |
| REGRESSION | 2.6667 | 1.506 | | | |
| MIND-BODY | 2.0000 | 1.549 | -1.08 | 5 | 0.328 |
| RELAXATION | 3.1667 | 1.602 | | | |

*Pre and #post test scores for the Creative Imagination Scale Group 3.

compare the I score of the P.O.I. and pre-test Visualization scores. The correlation was .1160 and found not to be significant (p=.326) (see Table 5, Table 6, and Table 7). The null hypothesis was thus accepted.

Conclusion

It would appear from the statistical correlations on the data of this study that inherent personality factors do not influence the ability to visualize. No significant correlation between Inner Directedness (I of the P.O.I ) and the ability to visualize pre-test scores was found.

HYPOTHESIS 4

There will be no significant difference between pre and post test scores on the 10 subscales of the Creative Imagination Scale for Groups 1, 2, and 3.

Two-tailed t-tests (SPSS) were run on the 10 subscales of the Creative Imagination Scale pre and post test scores and repeated for Group 1 (Table 2), Group 2 (Table 3), and Group 3 (Table 4). Analysis of the results show that significance was found to the p is less than .05 level on 2 subscales in Group 2, and on 4 subscales in Group 3. The null hypothesis was thus rejected.

TABLE 5

**PERSONALITY ORIENTATION INVENTORY**

GROUP I

| | | MEAN | STANDARD DEVIATION | T VALUE | df | 2-TAIL PROB. |
|---|---|---|---|---|---|---|
| TC | * | 40.5000 | 13.780 | -1.72 | 5 | 0.147 |
| | # | 50.0000 | 9.633 | | | |
| ** I | | 45.0000 | 11.419 | -1.91 | 5 | 0.115 |
| | | 51.8333 | 11.923 | | | |
| SAV | | 46.6667 | 12.111 | -1.20 | 5 | 0.285 |
| | | 53.1667 | 13.393 | | | |
| EX | | 45.0000 | 9.187 | 1.61 | 5 | 0.168 |
| | | 51.0000 | 11.645 | | | |
| FR | | 49.6667 | 9.438 | -2.47 | 5 | 0.056 |
| | | 55.8333 | 8.954 | | | |
| S | | 51.5000 | 7.007 | -0.38 | 5 | 0.271 |
| | | 53.0000 | 12.744 | | | |
| SR | | 42.0000 | 17.889 | -1.66 | 5 | 0.157 |
| | | 50.6667 | 17.963 | | | |
| SA | | 41.0000 | 9.695 | -2.92 | 5 | **0.033** |
| | | 46.6667 | 11.308 | | | |
| NC | | 47.1667 | 8.010 | -2.22 | 5 | 0.077 |
| | | 49.8333 | 8.841 | | | |
| SYN | | 42.1667 | 13.556 | -1.29 | 5 | 0.253 |
| | | 50.5000 | 13.722 | | | |
| A | | 43.3333 | 7.394 | -1.21 | 5 | 0.280 |
| | | 48.1667 | 9.827 | | | |
| C | | 48.8333 | 6.765 | -2.27 | 5 | 0.073 |
| | | 54.6667 | 11.147 | | | |

*Pre and # post test scores for the Personality Orientation Inventory for Group 1.

** Inner Directedness Measure

TABLE 6

**PERSONALITY ORIENTATION INVENTORY**

**GROUP II**

| | MEAN | S.D. | T-VAL. | df | 2-tail prob. |
|---|---|---|---|---|---|
| TC | *40.3333<br>#47.5000 | 10.520<br>8.526 | -1.23 | 5 | 0.272 |
| ** I | 43.3333<br>52.6667 | 5.203<br>3.830 | -3.68 | 5 | **0.014** |
| SAV | 48.8333<br>55.5000 | 9.968<br>8.781 | -1.85 | 5 | 0.123 |
| EX | 43.6667<br>52.0000 | 5.428<br>3.347 | -3.76 | 5 | **0.013** |
| FR | 49.0000<br>56.8333 | 8.295<br>5.154 | -2.12 | 5 | 0.088 |
| S | 49.8333<br>56.5000 | 7.441<br>9.854 | -1.73 | 5 | 0.143 |
| SR | 48.0000<br>57.3333 | 4.195<br>6.408 | -2.44 | 5 | 0.058 |
| SA | 38.5000<br>47.6667 | 5.718<br>3.615 | -7.50 | 5 | **0.001** |
| NC | 50.6667<br>54.6667 | 5.164<br>2.582 | -2.00 | 5 | 0.102 |
| SYN | 44.8333<br>54.5000 | 12.449<br>9.670 | -2.37 | 5 | 0.064 |
| A | 42.3333<br>53.8333 | 6.218<br>9.745 | -3.50 | 5 | **0.017** |
| C | 48.5000<br>57.1667 | 8.191<br>7.387 | -2.12 | 5 | 0.088 |

*Pre and # post test scores for the Personality Orientation Inventory for Group 2.

**Inner Directedness Measure.

TABLE 7

**PERSONALITY ORIENTATION INVENTORY**

GROUP III

| | MEAN | S.D. | T-VAL. | df | 2-tail prob. |
|---|---|---|---|---|---|
| TC | *39.6667 | 15.958 | -1.64 | 5 | 0.161 |
| | #48.0000 | 13.653 | | | |
| ** I | 47.3333 | 7.711 | -1.43 | 5 | 0.213 |
| | 53.1667 | 6.401 | | | |
| SAV | 51.5000 | 6.411 | -1.66 | 5 | 0.158 |
| | 58.1667 | 6.911 | | | |
| EX | 44.6667 | 5.317 | -1.87 | 5 | 0.120 |
| | 52.0000 | 7.694 | | | |
| FR | 48.8333 | 7.910 | -1.02 | 5 | 0.356 |
| | 54.0000 | 8.579 | | | |
| S | 53.1667 | 12.624 | -0.80 | 5 | 0.460 |
| | 56.5000 | 6.411 | | | |
| SR | 53.3333 | 10.558 | -1.03 | 5 | 0.350 |
| | 56.3333 | 9.331 | | | |
| SA | 38.6667 | 9.913 | -1.79 | 5 | 0.133 |
| | 42.5000 | 5.891 | | | |
| NC | 53.1667 | 8.377 | 0.30 | 5 | 0.779 |
| | 51.6667 | 7.501 | | | |
| SYN | 42.3333 | 9.973 | -1.00 | 5 | 0.361 |
| | 49.3333 | 18.917 | | | |
| A | 48.0000 | 10.954 | -0.07 | 5 | 0.945 |
| | 48.3333 | 11.928 | | | |
| C | 52.3333 | 11.639 | -0.70 | 5 | 0.515 |
| | 55.8333 | 5.154 | | | |

*Pre and # post test scores for the Personality Orientation Inventory for Group 3.

** Inner Directedness Measure.

In Group 2, a significant difference between the pre test and the post test for "Finger Anesthesia" (C.I.S. subscale #3) was found significant to the p is less than .05 level (p=.030) and for "Temperature Hallucination" (C.I.S. subscale #7) (p=.042). In Group 3, significance was found for "Arm Heaviness" (C.I.S. subscale #1) at the p is less than .01 level (p=.004), for "Finger Anesthesia" at the p is less than .001 level (p=.001), for "Temperature Hallucination" at the p is less than .05 level (p=.048), and for "Time Distortion" (C.I.S. subscale #8) at the p is less than .01 level (p=.0042). The null hypotesis was thus rejected.

Conclusion

The ability to visualize therefore can be improved. A significant difference between pre and post test scores on some subscales of the Creative Imagination Scale was found for Groups 2 and 3 at confidence intervals of either p is less than .05, p is less than .01, or p is less than .001.

HYPOTHESIS 5

There will be no significant difference between pre and post tests for all 12 subscales of the Personality Orientation Inventory in Groups 2 or 3.

Two-tailed t-tests (SPSS) were performed on the 12 subscales of the P.O.I. comparing group means for Groups 2 (Table 6) and Group 3 (Table 7). Significance was found in Group 2 on 4 subscales. No significant differences were found for Group 3. The null hypothesis was thus accepted.

In Group 2, significance was found for "Inner Directedness" (measures whether subjects are "inner" directed or "other" directed) at the p is less than .05 level (p=.014). Also, significant differences were found for "Existentiality" (measures flexibility of values) at the p is less than .05 level (p=.013). An even stronger significance was found at a pis less than .001 level was found for "Self Acceptance" (measures acceptance of both weaknesses and strengths) (p=.001). Lastly, a significant difference was found when comparing Group 2 means at the p is less than .05 level for "Acceptance of Aggression" (measures the ability to accept and feel intense emotions such as anger as opposed to repression and denial of aggression) (p=.017). (Data for the P.O.I. subscales for Group 1 appear in Table 5). The null hypothesis was thus rejected.

## Conclusion

Data show that personality can in fact be influenced by practicing visualization. There was a significant difference between pre and post tests on Group Means for

Group 2 on 4 suscales of the Personality Orientation Inventory significant to the p is less than .05 and p is less than .001 levels.

DESCRIPTIVE RESULTS

Body Image Distortion is characterized by either an overestimation or an underestimation of body size. Bruch (1978) suggested that 80% of women with eating disorders overestimated (or exaggerated) their body size while 20% underestimated (or denied) their size. Correction is characterized by a movement toward accuracy, or for overweight subjects attempting to lose weight, a slight underestimation indicated a movement toward the ideal.

Figure 2 shows the distribution of the overestimation and underestimation for all 18 subjects on the pre test scores of the Body Image Distortion test. Although the data were not showing an exact 80%-20% distribution, it does indicate a greater proportion of overestimation (66.6% hips; 72.2% waist and bust; 52.2% shoulders). It is noteworthy that hips, waist, and bust, are usually more typically troublesome to women who worry about their weight and that these measures reflect a greater resemblance to the percentages predicted in the literature.

Figure 3 shows the movement toward accuracy in the hips

FIGURE 2

BODY IMAGE DISTORTION

Distribution of Overestimation and Underestimation

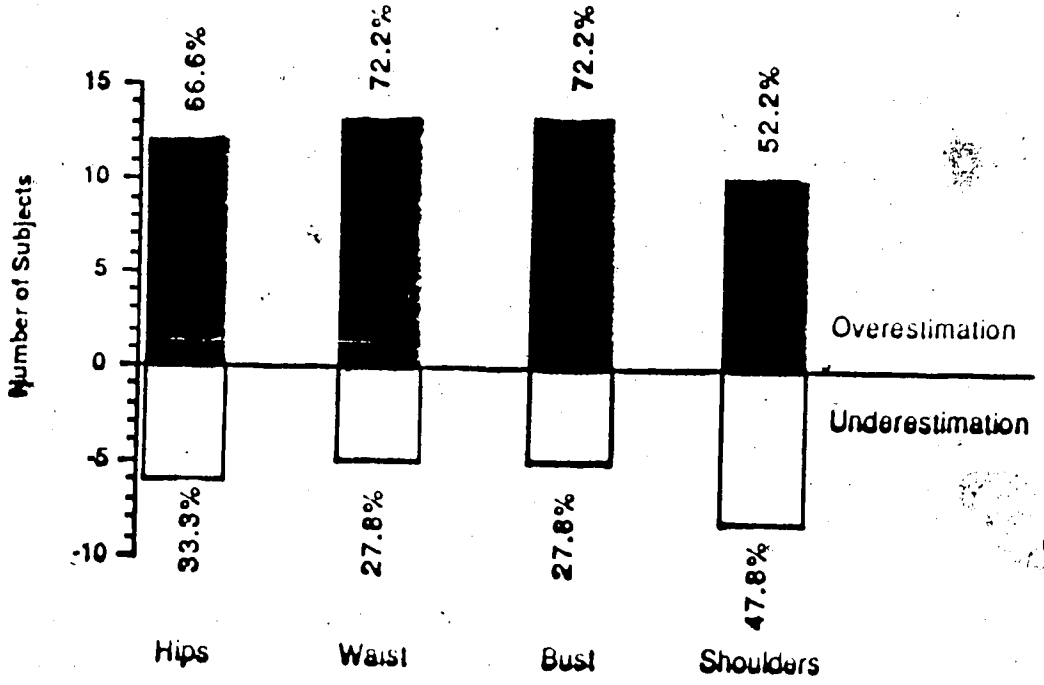


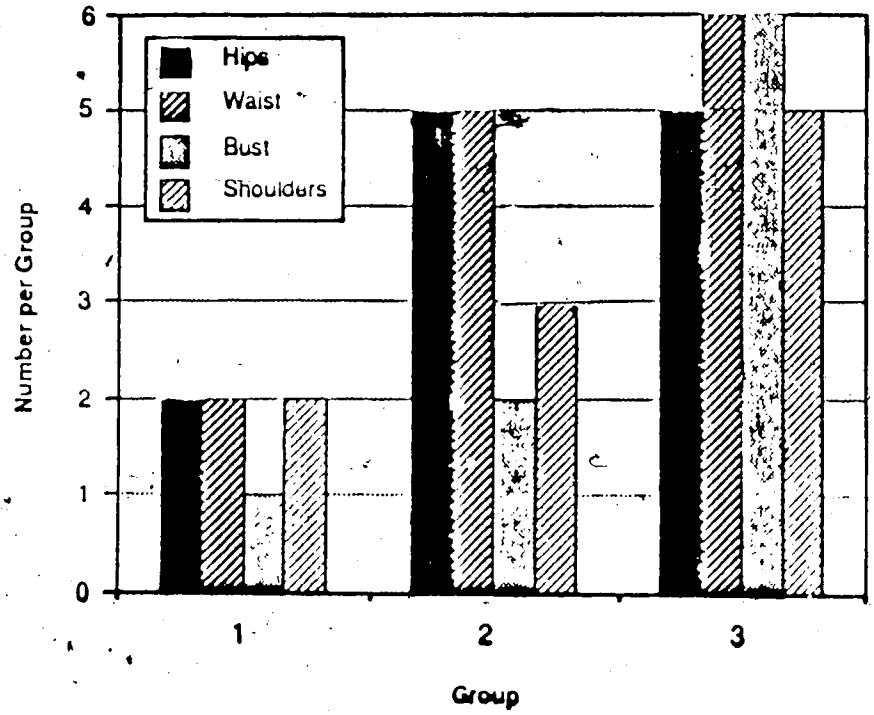
FIGURE 3



MOVEMENT TOWARD ACCURACY

Hips, Waist, Bust, and Shoulder Measures

Across Groups 1, 2, and 3



measure presumably the most troublesome part of the body for women with weight issues. Pre and post test percentage distortion across group means were plotted. Percentage distortions were arrived at by using the formula shown n Chapter III.

Measures reflected on the graph indicate that the greatest change was reflected in the full treatment group.

Figure 4 shows the distribution of subjects across the groups in all 4 measures: hips, waist, bust, and shoulders. More subjects moved toward accuracy in the partial treatment and full treatment groups than did in the control group.

Figure 5 shows the improvement in visualization ability across groups between the pre test and the post test. Subjects who dozed were not charted. It can be seen from the graph that improvement was accomplished and that partial and full treatment groups learned more than did the control group.

FIGURE 4

Body Image Correction
Percentage Distortion from Pre to Post Test
Across Group

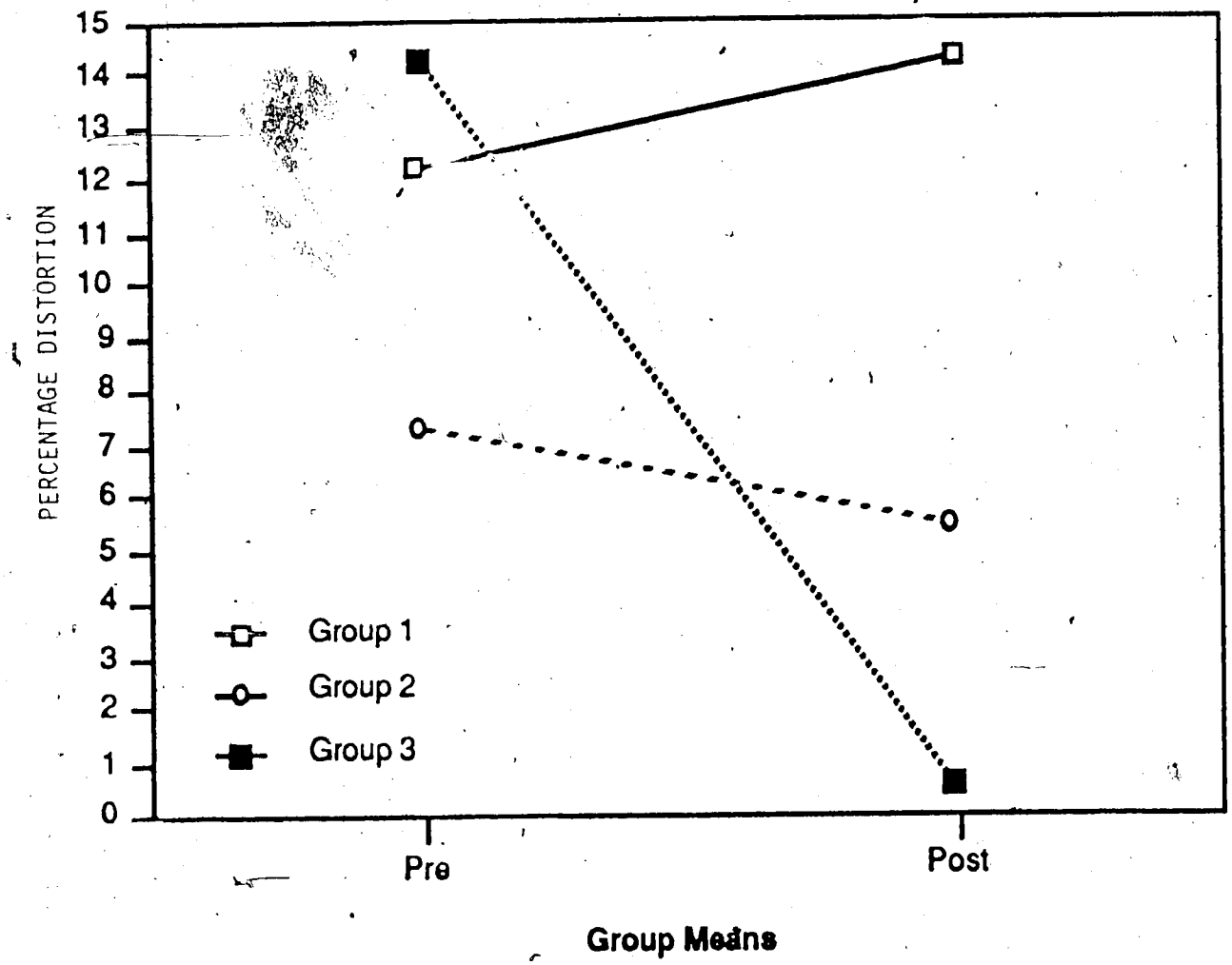
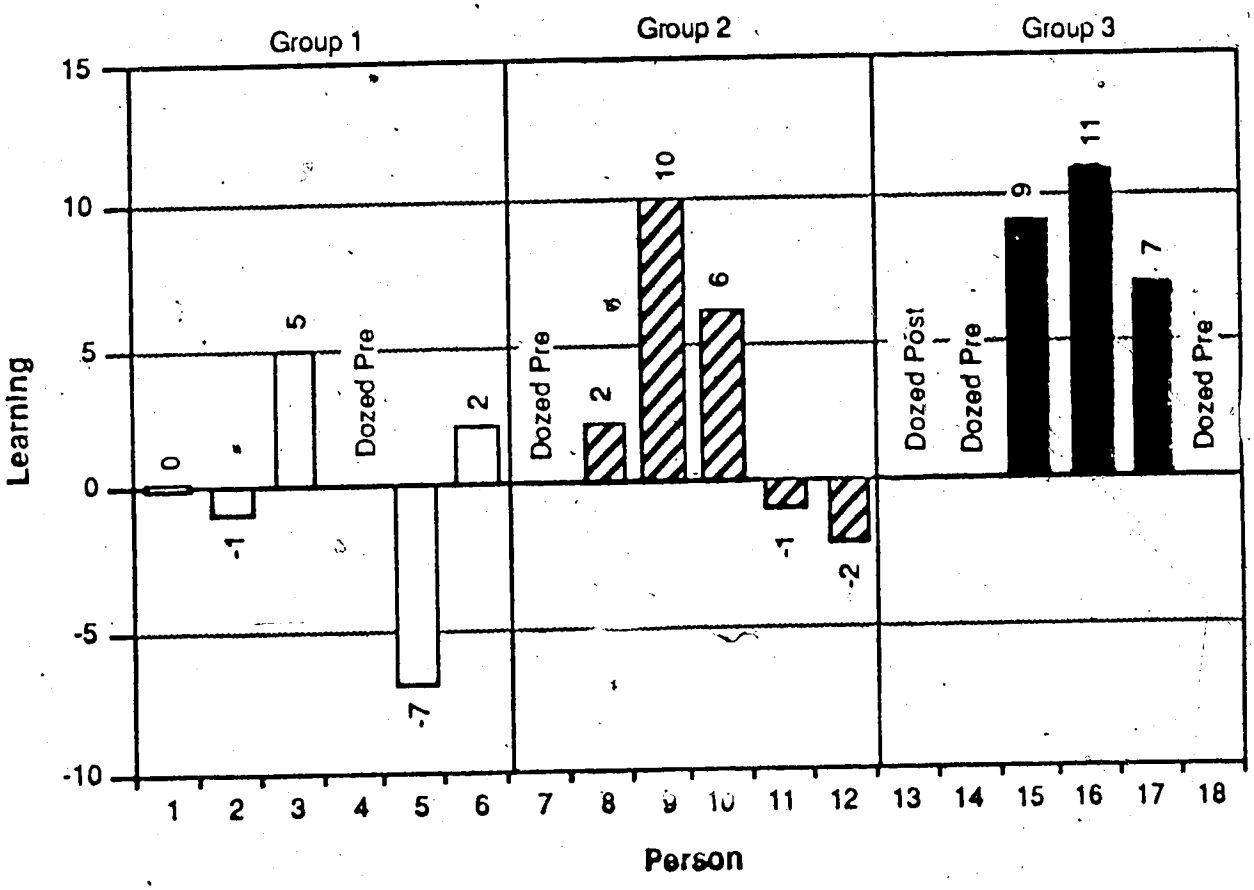


FIGURE 5

Visualization and Learning
Improvements for Pre to Post Test



# CHAPTER V

# DISCUSSION AND CONCLUSIONS

## DISCUSSION OF THE FINDINGS

It has been suggested the body and its image can be a reflection of personality and that internal conflict can manifest in a negative body image (Rivto 1984, Garner et al 1976, Bruch 1973, Kalucy 1977, Boskind-Lodahl 1971, Palazzoli 1974, Fisher and Cleveland 1968, Leon et al 1985, Bell et al 1986). Lewis and Johnson (1985), DelRosio (1984), Klesges (1983), and Hoover (1984) found negative body image linked to negative self-concept and was consistently more dramatic in women than in men.

This exploratory study was designed to examine the relationships between personality, body image, and visualization. Because there is so little research on body image correction, a treatment was designed using visualization techniques and concentration training to ascertain whether body image could be positively affected. It was further hypothesized that the ability to visualize could be improved and that there may be a relationship between this "learning" and on body image correction. Would correction of the body image and the improvement in the

ability to visuallize then, in turn, be reflected in the personality?

It was hypothesized that subjects who were "here and now" oriented, centered in themselves, developing their own potential, had flexibility of values, those who responded to their own needs and feelings, who were spontaneous and free to be themselves, had high self-worth and self-acceptance, saw the real differences between men and women, who could transcend dichotomies and not polarize themselves in "expected" behaviors, who were able to respond to intense feelings and who were able to be intimate and to make essential contact with others would be more in touch with themselves and therefore more capable of accuracy in their body image. It was further hypothesized that an increased ability to visualize would improve the body image which may in turn be reflected in an improved score on the Personality Orientation Inventory.

In the current study, the relationship between the Inner Directedness value of the Personality Orientation Inventory and the pre test scores for Visualization across all groups was examined. No significant correlation was found. This may be due to small sample size, to the fact that Inner Directedness is perhaps an indirect measure of introversion, or perhaps parallel findings that the relationship between personality and the ability to visualize is not always

replicable. It is also unlikely that, in a 21-day study, that personality factors would be affected at all.

Nonetheless, the data from the Personality Orientation Inventory was carefully examined for trends, both statistically and non-statistically. In analysing the data, unimportant relationships exist in this sample between personality and inherent ability to visualize. This may be an important finding since movement in the direction of Body Image Correction was achieved in Groups 2 and 3 and not in the Control Group. Since visualization was not related to inherent personality factors, this would indicate that the practice of visualization and the concentration exercises may have influenced the change.

In terms of comparing the pre and post test on all 12 subscales of the Personality Orientation Inventory, significant differences were found in Group 2 for Inner Directedness ($p=.014$). This may indicate that visualization produced a change and that subjects became more inner-directed rather than outer-directed. Since this finding was not replicated in Group 3, the full treatment group, the relationship is perhaps a weak predictor of visualization influencing Inner Directedness.

Significant changes were also found in Existentiality ($p=.013$). This would indicate a positive change and a

bridging of the aforementioned dichotomy. This subscale measure the flexibility of values of a subject. Given all of the socio-cultural implications detailed in this thesis, it is a positive sign that a subject would be able to improve their ability to examine and to consequently alter their values.

Self acceptance was also improved in Group 2 (p=.001). According to Shostrom (1976), this would reflect in a significant reduction in perfectionistic behavior and a more realistic view of self.

Lastly, acceptance of aggression scores had significant changes (p=.017). This measures the ability to accept and feel intense emotions such as anger as opposed to the denial of such feelings. Therapeutically this is very important for women, since the socialization process is heavily vested in women being "nice" and not expressing intense feelings.

Group 3 did not show significant improvements on any of the P.O.I. subscales from pre tesst to post test. It is highly unlikely that concentration training would negatively affect these scores but it is curious that Group 2, the partial treatment group, would show significant change while Group 3, the full treatment group, would not. This would indicate that additional research is necessary to further explain this finding. The fact that on some subscales, personality

orientations were influenced has interesting implications for further work with visualization.

In comparing the Body Image Correction Scores with Visualization Gain scores, no significant correlation was found. Group 2 and Group 3 had the significant Body Image Correction, and it is assumed that this is due to the practicing visualization and the concentration exercises and not the subjects' ability to learn visualization or their predisposition to visualization. Again, this is an important finding because it indicates that the trend toward the correction of body image may be due to practice and to improved concentration.

In considering whether or not the ability to visualize can be improved, significance was found. Group 2 showed significant improvement on two subscales while Group 3 improved on 4 subscales. The greater strength of Group 3 may indicate that the concentration training enhanced the visualization. Some subscales were not influenced. Though the null hypothesis was rejected, results are inconclusive. Also, due to the length of the study, it could be said that the ability to visualize was altered in a positive direction due to practice.

It could be argued that the amount of time spent in relaxation had bearing on the results. The Creative

Imagination Scale test itself is a type of hypnotic induction lasting approximately 25 minutes and was administered to alal subjects twice. The visualization and concentration training provided further relaxation time to subjects in Group 2 and Group 3. Since the study was attempting to positively influence body image, and since Group 1 had little evidence of body image correction, this possibility is deemed remote.

The order that subjects were instructed to do the visualization exercises and concentration training also warrants discussion. In Group 3, the full treatment group, subjects were asked to complete 2 concentration exercises before listening to the visualization tape. The researcher suggests that the concentration exercise would improve the subjects ability to concentrate on the tape. The "mirror exercise" was designed to assist subjects in practicing visualizing their bodies after using the "yantras" or concentration posters (see Appendix B) adapted from Ichazo (1975). One of the premises of effective visualization is that the deeper the state of relaxation, the greater the benefits of visualization. It could be argued that the concentration training and mirror exercise did not induce the "alpha state" of brain waves which foster effective visualization. It is the author's opinion that any form of concentration or of meditation does in fact induce "alpha" states and that this would contribute to the effectiveness

of the treatment rather than inhibit it. It is likely that the deepest state of relaxation was promoted by the visualization tape. As can be noted from the transcript in Appendix A, a substantial proportion of the tape focuses on inducing relaxation.

## IMPLICATIONS FOR FURTHER RESEARCH

It would be useful to replicate this exploratory study with a larger sample size. It may be interesting to use a different personality test - one that measured for locus of control and introversion/extroversion. Another suggestion, would be to have a second control group consisting of women who were involved in a traditional weight loss program to see the differences between groups.

It would also be important to extend the study beyond 21 days to perhaps as much as 3 months. It is unrealistic to expect major changes to occur over such a short period of time though the process of change was begun.

In a longer study, subjects could be weighed before and after the study. It would be important to keep the weights discreet and not tell the subjects. The rationale for is discussed in the body of the thesis.

Comparing women in therapy with women who are not in therapy

with the same visualization exercises and concentration training would provide further information as to the influences of changes in self-image and body image. Comparing women who have eating disorders with women who did not would also provide additional information to the researcher.

The use of relaxation techniques and of other imagery-eliciting strategies, as well as the use of hypnosis may also be effective in inducing change in body image.

IMPLICATIONS FOR CLINICAL PRACTICE :

Should a relationship between the internal body image and the external body image exist, the implications for clinical practice could be great. For all practicioners dealing with eating disordered women and who conduct weight loss programs, working to correct the "internal" image could be important for permanent weight loss and for personal transformation. To attempt to change just the flesh, or "external" image through caloric reduction and increased metabolic rates, may prove to be predictive of recidivism since the "internal" image is not being reprogramed.

SUMMARY

Perhaps the most important finding of the study was that

inherent ability to visualize did not necessarily predispose subjects to greater learning of visualization nor predispose them to greater body image correction. There were no apparent personality orientations that predisposed subjects to visualize better or to learn to visualize better. No group was predisposed to greater body image correction.

From careful examination of all the data collected, it is possible to conclude that in this study, practicing visualization and concentration training was the factor that oriented the subjects most to body image correction. It is both interesting and encouraging to surmise that practice made the difference rather than predisposition.

## REFERENCES


ALESANDRINI, Kathryn Lutz. (1982). Imagery-eliciting strategies and meaningful learning. Journal of Mental Imagery, 6: 120-140.

ASKEVOLD, Finn. (1975). Measuring body image: preliminary report on a new method. Psychotherapy and Psychosomatic Medicine, 26: 71-77.

BARBER, Theodore X. (1984). Changing 'unchangeable' bodily processes by (hypnotic) suggestions: a new look at hypnosis, cognitions, imagining, and the mind-body problem. Imagination and Healing. A Sheikh (Ed.), New York.

BARBER, Theodore X., WILSON, Sheryl C. (1979). Guided imaging and hypnosis: theoretical and empirical overlap and convergence in a new creative imagination scale. The Potential of Fantasy and Imagination. A. Sheikh & J. Shafter (Eds.), New York: Random House.

BECKER, Selwyn., CARROLL, Jean. (1962). Ordinal position and conformity. Journal of Abnormal and Social Psychology, 65 (2): 129-131.

BELL, Crystal., IRKPATRICK, Sue W., RINN, Roger. (1986). Body image of anorexic, obese and normal females. Journal of Clinical Psychology, 42 (3): 431-439.

BELL, Richard Q. (1971). Stimulus control of parent or caretaker behavior by offspring. Developmental Psychology, 4: 63-72.

BIJOU, S.W., BAER, D.M. (1973). A social learning model of attachment. Early Human Development. Corinne Hutt & S.J. Hutt (Eds.), Oxford University Press.

BIRNS, Beverly. (1965). Individual differences in human neonates' responses to stimulation. Child Development, 36: 249-256.

BOSKIND-LODAHL, M., WHITE, W.C. (1978). The definition and treatment of bulimarexia in college women - a pilot study. Journal of the American College Health Association, 22 (2).

BOSKIND-LODAHL, Marlene. (1971). Cinderella's stepsisters: feminist perspectives on anorexia nervosa. Signs: Journal of Women and Culture and Society, 2 (2): 342-356.

BRUCH, Hilde. (1978). Eating Disorders - Obesity, Anorexia, and the Person Within. New York: Basic Books.

BRUCH, Hilde. (1978). The Golden Cage - An Enigma of Anorexia Nervosa. New York: Vintage Books.

BURTON, Judith M. (1980). Developing Minds: the first symbols. School Arts Magazine, 80 (2): 60-65.

CALDEN, Lundy, SCHAKTER. (1959). Journal of Consulting Psychiatry, 23: 378.

DELROSIO, Marlene W., BRINES Joey L., COLEMAN, Warren R. (1984). Emotional response to body weight related cues: influence of body image. Personality and Social Psychology Bulletin, 10 (3): 41-48.

DYRENFORTH, Sue. R., WOOLEY, Orland W., WOOLEY Susan C. (1980). A woman's body in a man's world. A Woman's Conflict - The Special Relationship Between Women and Food. Jane Rachael Kaplan (Ed.), Engelwood Cliffs: Prentice Hall.

FADIMAN, Anne. (1982). The skeleton at the Feast - a case study of anorexia nervosa. Life Magazine, 2: 61-75.

FISH, Jefferson M. (1980). Direct versus indirect approaches to imagery and psychotherapy: the status of the transferance explanation. Journal of Mental Imagery, 4 (1): 161-163.

FISHER, Seymour, CLEVELAND, Sidney E. (1968). Body Image and Personality. New York: Dover Publications.

FISHER, Seymour, FREUDLICH, Bob. (1974). The role of body experience in hypnotic behavior. The International Journal of Clinical and Experimental Hypnosis, XII (1): 68-83.

FREEMAN, Richard J., BEACH, Barbara, DAVIS, Ron, SOLYOM, Leslie. (1985). The prediction of relapse in bulimia nervosa. Journal of Psychiatric Research, 19 (2-3): 349-353.

FREEDMAN, Rita J. (1984). Reflections of beauty as it relates to health in adolescent females. Women and Health, 9 (2-3): 29-45.

FREUNDLICH, Bob, FISHER, Seymour. (1974). The role of body experience in hypnotic behavior. The International Journal of Clinical and Experimental Hypnosis, XXII (1): 68-83.

GARFINKEL, Paul E., MOLDOFSKY, Harvey, GARNER, David M., STANCER, Harvey C., COSCINA, Donald V. (1978). Body awareness in anorexia nervosa, disturbances in body image and satiety. Psychosomatic Medicine, 40 (6): 478-498.

GARFINKEL, Paul E., MOLDOFSKY, Harvey, GARNER, David M. (1979). The stability of perceptual disturbances in anorexia nervosa and obesity. Psychosomatic Medicine, 9: 703-798.

GARNER, David M., GARFINKEL, Paul E., STANCER, Harvey C., MOLDOFSKY, Harvey. (1976). Body image disturbances in anorexia nervosa and obesity. Psychosomatic Medicine, 38 (5): 327-336.

GARNER, David M., GARFINKEL, Paul E. (1979). The eating attitude test - an index of the symptoms of anorexia nervosa. Psychological Medicine, 9: 273-279.

GARNER, David M., GARFINKEL, Paul E. (1980). Socio-cultural factors in the development of anorexia nervosa. Psychological Medicine, 10: 647-656.

GARNER, David M., GARFINKEL, Paul E., SCHWARTZ, Donald, THOMPSON, Michael. (1980). Cultural expectations of thinness in women. Psychological Reports, 47: 483-491.

GESELL, A. (1946). The embryology of behavior. Hamish Hamilton Medical Book, 46.

GOLDBLATT, Phillip B., MOORE, Mary E., STUNKARD, Albert J. (1965) Social factors in obesity. JAMA, 192: 1039-1044.

GOVINE, Barbara F. (1983). Think thin- stay thin: the use of hypnosis for keeping your figure. International Hypnosis and Handwriting Psychology Congress, 24 (2): 189-193.

GRALTON, M.A., HAYES, Y.A. RICHARDSON, J.T.E. (1979). Introversion -extroversion and mental imagery. Journal of Mental Imagery, 3 (1-2): 1-10.

HARPER, LAWRENCE. (1971). The young as source of stimuli controlling caretaker behavior. Developmental Psychology, 4: 63-72.

HOLLAND, Jimmie, MASLING, Joseph, COPLEY, Donald. (1970). Mental illness in lower class normal, obese, and hyperobese women. Psychosomatic Medicine, 32 (4): 351-357.

HOOVER, Michele L. (1984). Self-image of overweight adolescent females - a review of the literature. Maternal-Child Nursing Journal, 13 (2): 125-137.

HEUNEMAN, R.L., SHAPIRO, L.R., HAMPTON, M.C. MITCHELL, B. (1966). A longitudinal study of gross body composition and conformation and their association with food and activity in a teenage population. American Journal of Clinical Nutrition, 18: 325-338.

HUNT, Valerie V., WEBER, Mary Ellen. (1960). Body image projective test. Journal of Projective Techniques, 23 (24): 59-67.

HUTCHINSON, Marcia G. (1982). Current feminist issues in psychotherapy. Women and Therapy, 1 (3): 59-67.

ICHAZO, Oscar. (1979). Improving Concentration, New York: Arica Institute.

JOHNSON, Roger A. (1979). Creative imagery in blind and sighted adolescents. Journal of Mental Imagery, 3 (1-2): 23-30.

KALUCY, R.S., CRISP, A.H., MARDING, Britta. (1977). A study of 56 families with anorexia nervosa. British Journal of Medical Psychology, 50: 381-395.

KAPLAN, Jane Rachael. (1980). A Woman's Conflict: The Special Relationship Between Women and Food. Englewood Cliffs: Prentice Hall.

KATCHER L., LEVIN A. (1955). Children's conception of body size. Child Development, 26: 103-110.

KELLEY, R., FISKE, P. (1951). The Prediction of Performance in Clinical Psychology. Ann Arbor: University of Michigan Press.

KIDDOO, Kimberly P. (1976). The creative imagination scale a measure of hypnotic responsiveness: applications to experimental and clinical hypnosis. Personality, Cognitive Style and Imagination Related Behaviors. S.C. Wilson & T.X. Barber (Eds.), Medfield: Heed University.

KLESGES, Robert C. (1983). An analysis of body image distortions in a nonpatient population. International Journal of Eating Disorders, 2 (2): 35-41.

KOIDE, Reiko. (1985). Body image differences between normal and skitzophrenic female adults. International Review of Applied Psychology, 34 (3): 335-347.

KORNER, Anneliese, GROBSTEIN, Ross. (1966). Visual alertness as related to soothing in neonates: implications for maternal stimulation and early deprivation. Child Development, 37: 867-876.

LEON, Gloria. (1985). Sexual, body image, and personality attitudes in anorexia nervosa. Journal of Abnormal Child Psychology, 13 (2): 245-257.

LERNER, Richard M., IWAWKI, Saduro, CHIHARA, Takashir, SORELL, Gwendolin T. (1981). Self-concept, self-esteem, and body attitudes among Japanese males and female adolescents. Annual Congress in Child Psychiatry and Child Development, 11: 494-507.

LEWIS, Linda D., JOHNSON, Craig A. (1985). Comparison of sex role orientation between wo men with bulimia and normal controls. International Journal of Eating Disorders, 4 (3): 247-259.

MARTIN, Joan E., (1985). Body image, anorexia nervosa patients and occupational students. Brithish Journal of Occupational Therapy, 48 (4): 96-98.

McCLELLAND, D. (1951). Personality. New York.

McGUINNESS, Diane, McLAUGHLIN, Lorraine. (1982). An investigation of sex differences in visual recognition and recall. Journal of Mental Imagery, 6: 203-212.

MENDELSON, Beverly K., WHITE, Donna R. 1985. Development of self-body-esteem in overweight youngsters. Developmental Psychology, 21 (1): 90-96.

MILLER, Emmett. (1980). Setting your image Goal. Imagine Yourself Slim (Audio tape). Stanford: Source Casettes.

MISCHEL, Walter. (1966). A social learning view of sex differences in behavior. The Development of Sex Differences. Eleanor E. Maccoby (Ed.), Stanford: Stanford University Press.

MORRISON, James K., COMETA, Michael S. (1980). A cognitive re-constructive approach to psychotherapeutic use of imagery. Jounral of Mental Imagery, 4 (1): 35-42.

MOSS, Howard A. (1967). Sex, age, status as determinants of mother-infant interaction. Merill Palmer Quarterly, 13 (1): 19-36.

MOSS, Howard A., ROBBIN, Kenneth S. (1968). Maternal influences in early social and visual behavior. Child Development, 39: 401-408.

MRAZEK, Joachim. (1984). Self concept and body concept. Psychologie Schweizerische Zeitschrift fur Psychologie und ihre Anwendungen, 43 (1-2): 1-23.

NEUMAN, P.A., HALVERSON, P.A. (1983). Anorexia Nervosa and Bulimia: A Hnadbook for Counsellors and Therapists. New York: Van Nostranc Reinhold.

NOLES, Steven W., CASH, Thomas F., WINSTEAD, Barbara. (1985). Body image, physical attractiveness, and depression. Journal of Consulting and Clinical Psychology, 53 (1): 88-94.

ORBACH, Susie. (1978). Fat is a Feminist Issue. New York: Paddington Press.

PALAZZOLI, M.S. (1978). Anorexia Nervosa and the contradictory roles of modern women. Self-Starvation: From Individual to Family Therapy in the Treatment of Anorexia Nervosa. 35-37.

PALAZZOLI, Mara Selvini. (1974). Self-starvation - From Individual to Family Therapy in the Treatment of Anorexia Nervosa. New York: Human Context Books.

PALMER, R.L. (1980). Anorexia Nervosa - A Guide for Sufferers and Their Families. New York: Penguin Books.

PEARCE, Joseph Chilton. Magical Child. New York: Bantam Books.

RIVTO, Camuel. (1984) The image and uses of the body in psychic conflicts: special reference to eating disorders in adolescence Psychoanalytic Study of the Child, 39: 449-469.

RYAN, Thomas A., JOINER, Brian L., RYAN, Barbara F. (1976). Minitab Student Handbook. P W S Publisher.

SCARF, Maggie. (1979). The more sorrowful sex. Psychology Today, 4: 45-52, 89-90.

SCOTT, Clifford. (1948). Some embryological, neurological, psychiatric, and psychoanalytic implications of the body scheme. International Journal of Psychoanalysis, XXIX (3): 141-155.

SHEIKH, A., PANTAGIOTOU, Nancy C. (1975). The use of mental imagery in psychotherapy: a critical review. Perceptual and Motor Skills, 41: 555-585.

SHONTZ, Franklin C. (1974). Body image and its disturbances. International Journal of Medicine, 5 (4): 461-472.

SHOSTROM, Everett L. (1976). Actualizing Therapy - Foundations for a Scientific Ethic. San Diego: Edits Publishing.

SHOSTROM, E.L. (1963). Personality Orientation Inventory. Educational and Industrial Testing Service.

SILVERSTONE, J.T. (1974). Psychological and social factors in the pathogenesis of obesity. Obesity Symposium. Borland (Ed.), New York: Churchill Livingstone.

SINGER, J.E., LAMB, P.F. (1966). Social concern, body size, and birth order. Journal of Social Psychology, 68: 143-151.

STECHLER, Gerald. (1964). A longitudinal follow-up of neonatal apnea. Child Development, 35: 333-348.

STUNKARD, A.J. (1959). Eating patterns and obesity. Psychiatric Quarterly, 33: 284-295.

STUNKARD, A.J., d'ACQUILIE, J., FOX, A. (1971). The influence of social class on obesity and thinness in childhood. JAMA, 221: 579-584.

TISSERON, S. (1984). Body image connected with mother-infant separation. Information Psychiatrique, 60 (10): 1277-1285.

VERNY, Thomas. (1981). The Secret Life of the Unborn Child. New York: Dell Publishing.

VINCENT, L.M. (1979). Competing with the Sylph - Dancers in the Pursuit of the Ideal Body Form. New York: Andrews and McMeel.

WATERS, E.B., VAUGHN, Brian E., EGELAND, Byron R. (1980). Individual differences in infant-mother attachment relationships at age one: antecedents in neonatal behavior in an urban economically disadvantaged sample. Child Development, 51: 208-216.

WHITELAW, A.G. (1971). The association of social class and sibling number with skinfold thickness in London schoolboys. Human Biology, 43: 414-420.

WILSON, Sheryl C., BARBER, Theodore X. (1979). The Creative Imagination Scale as a Measure of Hypnotic Responsiveness: Applications to Experimental and Clinical Hypnosis. Doctoral Dissertation, Medfield: Heed University.

WOODMAN, Marion. (1980). The Owl was a Baker's Daughter - Obesity and Anorexia Nervosa. Toronto: Inner City Books.

ZAKIN, David F., BLYTHE, Dale A., SIMMONS, Roberta G. (1984). Physical attractiveness as a mediator of the impact of early pubertal changes for girls. Journal of Youth and Adolescence, 13 (5): 439-450.

# APPENDICES

# APPENDIX A

## TRANSCRIPT FROM TAPE

from Emmett Miller, M.D., "Setting Your Image Goal", Imagine Yourself Slim, Stanford, California, 1980.

It is often said...that the fruit is already present in the seed...within an acorn, there is an oak tree...and within a caterpillar, is a butterfly...the purpose of this part is to develop a clear image goal...you should have a sketch...a drawing...a photograph...or a mental image which approximates how you want your body to look in the future...concentrate on this image for about a minute, and then sit or lie in a comfortable position...make sure you are in a place where you won't be disturbed for about 15 minutes...loosen any constricting clothing...take a deep breath in...and as you let it out allow your eyes to focus on a point off in the distance...letting the air breathe for you...just noticing the rising and the falling of your chest...and the focus of your eyes on that point in the distance...now let that point gradually fade out of focus so that you are staring off into space as though you are daydreaming...and as this happens you'll notice your eyelids may begin to give you signals that they would like to close...when your eyelids would feel more comfortable to be closed...take another deep breath in and as you let this breath out allow your eyelids to close...and as your eyes roll gently upwards behind your closed eyelids...feel the muscles of your eyelids relaxing...good...and imagine that written on the back of your forehead you can see the word RELAX...and as you see the word relax...you may notice a certain fluttering feeling in your eyelids...a sign they're beginning to relax more and more completely relaxed...in fact you may already be able to feel how heavy they have become by gently testing your eye lids and discover that they prefer to stay closed...and as you test them, let the relaxation from your eyelids flow throughout all the rest of your body...into your forehead...into your scalp...feel it flow around over your ears...through the muscles of your face...feeling the muscles around your nose and mouth relaxing...your lips...and tongue letting go...and as the muscles of your jaw relax you may notice your mouth drooping open slightly...and each sensation...each movement...and each sound that you notice in your body will just be a further sign of its growing more and more relaxed...and more and more comfortable with each breath in and out...more...and more calm...and you may notice how relaxed your eyelids have become by testing them again, and this time as you test them, let the relaxation flow out and through your neck...and through your shoulders...down your arms..and through your elbows...into your forearms...into your wrists...and your hands...and your fingers...all the way down to the tips of your fingers...perhaps you can feel a feeling of warmth or tingling at the tips of your fingers which is a good sign the relaxation has reached there...now take a deep breath in...and as you do, draw that relaxation up from your fingertips into the centre of your chest...and as you let this breath out, let it be a feeling of letting go like a baloon letting out all the air, becoming completely flat and relaxed...and stop breathing, and let the air breath for you...and notice how your chest knows just how high to rise and fall with each breath, and

APPENDIX A (cont'd)

how each breath tends to cause a gentle rising and falling of your abdomen...a rising and falling that relaxes all the muscles of your abdomen...that relaxes all you internal organs...that relaxes you more, and more, with each breath...and now feel your back relaxing, as though you are sinking deeper and deeper into the surface beneath you... deeper and deeper, and more and more relaxed...and now feel that relaxation flowing down through your pelvis...all the pelvic organs relaxing...thighs relaxing...knees relaxing...legs letting go...letting that feeling of relxation flow down into your ankles...all the way down into your feet...down to the tips of your toes...more and more comfortable...more and more relaxed with each breath...good...and no matter how relaxed you become, it is always possible to let this relaxation increase...imagine now...you can let your relaxation double...to do this, in a moment I am going to ask you to open your eyes and close them again...you will notice that as you eyelids open and close, the relaxation you have will double over what it is now...open your eyes...and let them close...good...and now let your relaxation double...and when you can feel that doubled relaxation in your eyelids, let your eyes roll gently upward as though to picture the word relax...and as you again test your eyelids sending that doubled relaxation throughout all the rest of your body...from the top of your head all the way down to the tips of your toes...feel the gentle continuous flow of comfort...and any time any unnecessary thoughts come along...you can imagine those unnecessary thoughts or images are like words written in the sand...and remember the relaxation of your eyelids...and as you test your eyelids...let that be a signal to send a wave up across the sand...washing away the words...and sending ripples of relaxation flowing from your eyelids throughout all the rest of your body...all the way down right through the palms of your hands and the soles of your feet...more and more comfortable and more and more relaxed with each breath...good...and each time you let go of unnecessay thoughts in this way...you will allow yourself to relax even more deeply...good...and now let yourself begin to travel a certain ways forward in the future, as though you could look at a movie that's been made of the future...picture yourself looking just the way you want to...you might begin by seeing yourself wearing little or no clothing, so that you can make out the details of the shape of your body...some parts may come in clearly and other parts may not come in so clearly at first...so begin to let yourself mentally picture this image...perhaps making out the overall outlines first, or maybe first focusing on one particular part such as your waist...or chest...or thighs...or hips...gradually let this image come in more and more clearly...and as it comes in more and more clearly, perhaps you can see your hair...maybe you can even see a happy expression on your face, for it feels good to have this body...and as it comes in still more and more clearly...imagine you are looking in a mirror..and each of the aspects of your body that your are seeing now.. is just a reflection of the real you that is standing in front of the mirror at this moment...see all the parts of you...and turn to the side so you can see your side view and profile...and see how that

look...enjoy looking at yourself now...in this ideal body...and see your posture...how you're standing tall...and you really feel good about yourself...and now begin to get dressed...put on come clothes that you really look good in...clothes you really feel good in...and as you put on each article of clothing....see its color and feel its texture..feel yourself slipping it over this wonderfully comfortable...light...and strong body...and as you get dressed...check in the mirror to let yourself really enjoy the way you're looking...great...and now take yourself someplace...anyplace at all that you'd to go...a place where you can be completely comfortable...far away from anything that could disturb you...far away from any concern...far away from any problem...anyplace in the whole world that you might want to go...slowly let yourself travel to this place...and when you arrive...you can let yourself do something that you'd really like to do...anything at all...whatever feels most pleasant to you right now...something you can really enjoy with your light...and strong...and healthy body...and as you drift into this place...bring it in clearly..experienced with all your senses...look around you...see the colors...the shapes...and the movements...hear the sounds around you...smell the smells... feel the temperature and the sensations of the air around you...and feel the movement of your body as you are doing what you are doing...great...and notice how good you're feeling inside...how great it feels to be yourself doing what you want to do...looking and feeling the way you want to...really let yourself become one with this image now and experience it fully...each time you do you become more and more aware that this is the person you really want to be...this is the persona you already are down deep inside...each time you clear your body of tension and your mind of unnecessary thoughts and visualize your image goal...you are beginning to feel and behave more and more like this person...and your body's needs and desires and gradually changing...so that this mental image is gradually becoming a physical reality...and now step outside for a moment...see this image from the outside...and begin to picture in your mind the transformation from what you were to this ideal self-image...you may view it like a series of snapshots...or like a speeded-up movie showing the transformation of your body...visualize the process of transformation...watching yourself become more and more the person you really want to be...see your waist as it grows smaller...your chest...your legs...your arms...and really enjoy watching it...good...that's it...let the process complete itself so that you can visualize now your ideal image once again...and let yourself step into it..and again feel how good it feels to be in this body...and let yourself be again in a place you really want to be...doing something you really want to be doing...clearing all of the thoughts from your mind and just really enjoying being who you are...and as you are enjoying seeing and hearing and feeling all these sensations...you may just let my voice fade into the background without paying attention to it so your deeper mind can listen carefully...and understand as your conscious mind focuses only upon the pleasant feelings in this image of yourself...and as this image goal becomes clearer to you, you will find it will occur to you from time to

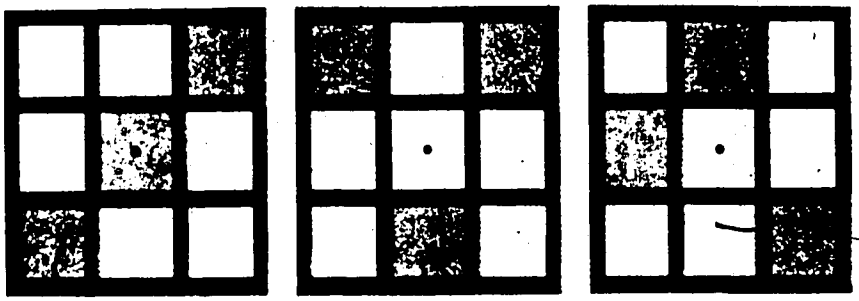
APPENDIX A (cont'd)

time throughout the day...each time it occurs...it will encourage you to make the right choices...whenever it occurs to your deeper mind...or whenever you consciously bring it to awareness..as you are doing at this moment..you will feel more relaxed...more independent...more confident...more able to make the choices that you want to make...you will feel indifferent toward foods that would slow down your progresss towards your image goal...their momentary pleasures but a pale shadow of the joy and satisfaction you receive, knowing that each moment is bringing you one step closer to this image you are now enjoying...feel it more and more fully...feel the movements of your body really enjoying where you are...you are gradually becoming more and more interested in activities which encourage you to move your body...you are beginning to enjoy more and more the feelings in your body as it moves...good...and now in a moment...I am going to ask you to gradually let your awareness return to that place and space and time we call here and now...but this image will remain vivid and clear deep within you...anytime you begin to react to your environment in a maladaptive way...just recalling this image and the word relax will enable you to slow down and let go of tension, and to make the choices which are best for you...slowly now...allow yourself to become aware of your physical environment...and as you come back, bring back all these pleasant feelings with you...each time you listen to this recording, you will be able to relax more completely...and more rapidly...let yourself tune into the sounds around you now...and as your eyelids gradually begin to feel like opening, you may want to let you body enjoy stretching...Perhaps your hands...fingers...your arms...your legs and feet...taking a deep breath in...and as you let it out...letting your eyelids open...wide awake...feeling refreshed...and clear...and take a moment and notice how comfortable you feel...

# APPENDIX B

## Instructions for Improving Concentration

1. Observe the poster in all its detail for 1 minute.
2. Focus on the centre of the poster for 1 minute.
3. Close your eyes and imagine the poster for 1 minute.



POSTER 1 POSTER 2 POSTER 3

Repeat this sequence for each of the three posters.

adapted from Ichazo (1975) Improving Concentration

# APPENDIX C

## Questions from the Personality Orientation Inventory

1.a. I am bound by the principle of fairness.
b. I am not absolutely bound by the principle of fairness.

2.a. When a friend does me a favor, I feel that I must return it.
b. When a friend does me a favor, I do not feel that I must return it.

3.a. I feel I must always tell the truth.
b. I do not always tell the truth.

4.a. No matter how hard I try, my feelings are often hurt.
b. If I manage the situation right, I can avoid being hurt.

5.a. I feel that I must strive for perfection in everything that I undertake.
b. I do not feel that I must strive for perfection in everything that I undertake.

6.a. I often make my decisions spontaneously.
b. I seldom make my decisions spontaneously.

7.a. I am afraid to be myself.
b. I am not afraid to be myself.

8.a. I feel obligated when a stranger does me a favor.
b. I do not feel obligated when a stranger does me a favor.

9.a. I feel that I have a right to expect others to do what I want of them.
b. I do not feel that I have a right to expect others to do what I want of them.

10.a. I live by values which are in agreement with others.
b. I live by values which are primarily based on my own feelings.

11.a. I am concerned with self-improvement at all times.
b. I am not concerned with self-improvement at all times.

12.a. I feel guilty when I am selfish.
b. I don't feel guilty when I am selfish.

13.a. I have no objection to getting angry.
b. Anger is something I try to avoid.

14.a. For me, anything is possible if I believe in myself.
b. I have a lot of natural limitations even though I believe in myself.

15.a. I put others' interests before my own.
b. I do not put others' interests before my own.

16.a. I sometimes feel embarrassed by compliments.
b. I am not embarrassed by compliments.

17.a. I believe it is important to accept others as they are.
b. I believe it is important to understand why others are as they are.

18.a. I can put off until tomorrow what I ought to do today.
b. I don't put off until tomorrow what I ought to do today.

19.a. I can give without requiring the other person to appreciate what I give.
b. I have a right to expect the other person to appreciate what I give.

20.a. My moral values are dictated by society.
b. My moral values are self-determined.

21.a. I do what others expect of me.
b. I feel free to not do what others expect of me.

22.a. I accept my weaknesses.
b. I don't accept my weaknesses.

APPENDIX C (cont'd)

23.a. In order to grow emotionally, it is necessary to know why I act as I do.
b. In order to grow emotionally, it is not necessary to know why I act as I do.

24.a. Sometimes I am cross when I am not feeling well.
b. I am hardly ever cross.

25.a. It is necessary that others approve of what I do.
b. It is not always necessary that others approve of what I do.

26.a. I am afraid of making mistakes.
b. I am not afraid of making mistakes.

27.a. I trust the decisions I make spontaneously.
b. I do not trust the decisions I make spontaneously.

28.a. My feelings of self-worth depend on how much I accomplish.
b. My feelings of self-worth do not depend on how much I accomplish.

29.a. I fear failure.
b. I don't hear failure.

30.a. My moral values are determined, for the most part, by the thoughts, feelings and decisions of others.
b. My moral values are not determined, for the most part, by the thoughts, feelings and decisions of others.

31.a. It is possible to live life in terms of what I want to do.
b. It is not possible to live life in terms of what I want to do.

32.a. I can cope with the ups and downs of life.
b. I cannot cope with the ups and downs of life.

33.a. I believe in saying what I feel in dealing with others.
b. I do not believe in saying what I feel in dealing with others.

34.a. Children should realize that they do not have the same rights and privileges as adults.
b. It is not important to make an issue of rights and privileges.

35.a. I can "stick my neck out" in my relations with others.
b. I avoid "sticking my neck out" in my relations with others.

36.a. I believe the pursuit of self-interest is opposed to interest in others.
b. I believe the pursuit of self-interest is not opposed to interest in others.

37.a. I find that I have rejected many of the moral values I was taught.
b. I have not rejected any of the moral values I was taught.

38.a. I live in terms of my wants, likes, dislikes, and values.
b. I do not live in terms of my wants, likes, dislikes and values.

39.a. I trust my ability to size up a situation.
b. I do not trust my ability to size up a situation.

40.a. I believe I have an innate capacity to cope with life.
b. I do not belive I have an innate capacity to cope with life.

41.a. I must justify my actions in the pursuit of my own interests.
b. I need not justify my actions in the pursuit of my own interests.

42.a. I am bothered by fears of being inadequate.
b. I am not bothered by fears of being inadequate.

43.a. I believe that man is essentially good and can be trusted.
b. I believe that man is essentially evil and cannot be trusted.

APPENDIX C (cont'd)

44.a. I live by the rules and standards of society.
b. I do not always need to live by the rules and standards of society.

45.a. I am bound by my duties and obligations to others.
b. I am not bound by my duties and obligations to others.

46.a. Reasons are needed to justify my feelings.
b. Reasons are not needed to justify my feelings.

47.a. There are times when just being silent is the best way I can express my feelngs.
b. I find it difficult to express my feelings by just being silent.

48.a. I often feel it necessary to defend my past actions.
b. I do not feel it necessary to defend my past actions.

49.a. I like everyone I know.
b. I do not like everyone I know.

50.a. Criticism threatens my self-esteem.
b. Criticism does not threaten my self-esteem.

51.a. I believe that knowledge of what is right makes people act right.
b. I do not believe that knowledge of what is right necessarily makes people act right.

52.a. I am afraid to be angry at those I love.
b. I feel free to be angry at those I love.

53.a. My basic responsibility is to be aware of my own needs.
b. My basic responsibility is to be aware of others needs.

54.a. Impressing others is most important.
b. Expressing myself is most important.

55.a. To feel right, I need always to please others.
b. I can feel right without always having to please others.

56.a. I will risk a friendship in order to say or do what I believe is right.
b. I will not risk a friendship just to say or do what is right.

57.a. I feel bound to keep the promises I make.
b. I do not always feel bound to keep the promises I make.

58.a. I must avoid sorrow at all costs.
b. It is not necessary for me to avoid sorrow.

59.a. I strive always to predict what will happen in the future.
b. I do not feel it necessary always to predict what will happen in the future.

60.a. It is important that others accept my point of view.
b. It is not necessary for others to accept my point of view.

61.a. I only feel free to express warm feelings to my friends.
b. I feel free to express both warm and hostile feelings to my friends.

62.a. There are many times when it is more important to express feelings than to carefully evaluate the situation.
b. There are very few times when it is more important to express feelings than to carefully evaluate the situation.

63.a. I welcome criticism as an opportunity for growth.
b. I do not welcome criticism as an opportunity for growth.

64.a. Appearances are all-important.
b. Appearances are not terribly important.

APPENDIX C (cont'd)

65.a. I hardly ever gossip.
b. I gossip a little at times.

66.a. I feel free to reveal my weaknesses among friends.
b. I do not feel free to reveal weaknesses among friends.

67.a. I should always assume responsibility for other people's feelings.
b. I need not always assume responsibility for other people's feelings.

68.a. I feel free to be myself and bear the consequences.
b. I do not feel free to be myself and bear the consequences.

69.a. I already know all I need to know about my feelings.
b. As life goes on, I continue to know more and more about my feelings.

70.a. I hesitate to show my weaknesses among strangers.
b. I do not hesitate to show my weaknesses among strangers.

71.a. I will continue to grow only by setting my sights on a high-level, socially approved goal.
b. I will continue to grow best by being myself.

72.a. I accept inconsistencies within myself.
b. I cannot accept inconsistencies within myself.

73.a. Man is naturally cooperative.
b. Man is naturally antagonistic.

74.a. I don't mind laughing at a dirty joke.
b. I hardly ever laugh at a dirty joke.

75.a. Happiness is a by product in human relationships.
b. Happiness is an end in human relationships.

76.a. I only feel free to show friendly feelings to strangers.
b. I feel free to show both friendly and unfriendly feelings to strangers.

77.a. I try to be sincere but I sometimes fail.
b. I try to be sincere and I am sincere.

78.a. Self-interest is natural.
b. Self-interest is unnatural.

79.a. A neutral party can measure a happy relationship by observation.
b. A neutral party cannot measure a happy relationship by observation.

80.a. For me, work and play are the same.
b. For me, work and play are opposites.

81.a. Two people will get along best if each concentrates on pleasing the other.
b. Two people can get along best if each person feels free to express himself.

82.a. I have feelings of resentment about things that are past.
b. I do not have feelings of resentment about things that are past.

83.a. I like only masculine men and feminine women.
b. I like men and women who show masculinity as well as femininity.

84.a. I actively attempt to avoid embarrassment whenever I can.
b. I do not actively attempt to avoir embarrassment.

85.a. I blame my parents for a lot of my trouble.
b. I do not blame my parents for my troubles.

86.a. I feel that a person should be silly only at the right time and place.
b. I can be silly when I feel like it.

87.a. People should always repent their wrong-doings.
b. People need not always repent their wrong-doings.

88.a. I worry about the future.
b. I do not worry about the future.

89.a. Kindness and ruthlessness must be opposites.
b. Kindness and ruthlessness need not be opposites.

90.a. I prefer to save good things for future use.
b. I prefer to use good things now.

91.a. People should always control their anger.
b. People should express honestly-felt anger.

92.a. The truly spiritual man is sometimes sensual.
b. The truly spiritual man is never sensual.

93.a. I am able to express my feelings even when they sometimes result in undesirable consequences.
b. I am unable to express my feelings if they are likely to result in undesireable consequences.

94.a. I am often ashamed of some of the emotions that I feel bubbling up within me.
b. I do not feel ashamed of my emotions.

95.a. I have had mysterious or ecstatic experiences.
b. I have never had mysterious or ecstatic experiences.

96.a. I am orthodoxly religious.
b. I am not orthodoxly religious.

97.a. I am completely free of guilt.
b. I am not free of guilt.

98.a. I have a problem in fusing sex and love.
b. I have no problems fusing sex and love.

99.a. I enjoy detachment and privacy.
b. I do not enjoy detachment and privacy.

100.a. I feel dedicated to my work.
b. I do not feel dedicated to my work.

101.a. I can express affection regardless of whether it is returned.
b. I cannot express affection unless I am sure it will be returned.

102.a. Living for the future is as important as living for the moment.
b. Only living for the moment is important.

103.a. It is better to be yourself.
b. It is better to be popular.

104.a. Wishing and imagining can be bad.
b. Wishing and imgaining are always good.

105.a. I spend more time preparing to live.
b. I spend more time actually living.

106.a. I am loved because I give love.
b. I am loved because I am lovable.

107.a. When I really love myself, everybody will love me.
b. When I really love myself, there will still be those who won't love me.

108.a. I can let other people control me.
b. I can let other people control me if I am sure they will not continue to control me.

109.a. As they are, people sometimes annoy me.
b. As they are, people do not annoy me.

APPENDIX C (cont'd)

110.a. Living for the future gives my life its primary meaning.
b. Only when living for the future ties into living for the present does my life have meaning.

111.a. I follow diligently the motto, "Don't waste your time."
b. I do not feel bound by the motto, "Don't waste your time."

112.a. What I have been in the past dictates the kind of person I will be.
b. What I have been in the past does not necessarily dictate the kind of person I will be.

113.a. It is important to me how I live in the here and now.
b. It is of little importanve to me how I live in the here and now.

114.a. I have had an experience where life seemed just perfect.
b. I have never had an experience where life seemed just perfect.

115.a. Evil is the result of frustration in trying to be good.
b. Evil is an intrinsic part of human nature which fights good.

116.a. A person can completely change his essential nature.
b. A person can never change his essential nature.

117.a. I am afraid to be tender.
b. I am not afraid to be tender.

118.a. I am assertive and affirming.
b. I am not assertive and affirming.

119.a. Women should be trusting and yielding.
b. Women should not be trusting and yielding.

120.a. I see myself as others see me.
b. I do not see myself as others see me.

121.a. It is a good idea to think about your greatest potential.
b. A person who thinks about his greatest potential gets conceited.

122.a. Men should be assertive and affirming.
b. Men should not be assertive and affirming.

123.a. I am able to risk being myself.
b. I am not able to risk being myself.

124.a. I feel the need to be doing something significant all of the time.
b. I do not feel the need to be doing something significant all of the time.

125.a. I suffer from memories.
b. I do not suffer from memories.

126.a. Men and women must be both yielding and assertive.
b. Men and women must not be both yielding and assertive.

127.a. I like to participate actively in intense discussions.
b. I do not like to participate actively in intense discussions.

128.a. I am self-sufficient.
b. I am not self-sufficient.

129.a. I like to withdraw from others for extended periods of time.
b. I do not like to withdraw from others for extended periods of time.

130.a. I always play fair.
b. Sometimes I cheat a little.

131.a. Sometimes I feel so angry I want to destroy or hurt others.
b. I never feel so angry that I want to destroy or hurt others.

132.a. I feel certain and secure in my relationships with others.
b. I feel uncertain and insecure in my relationships with others.

APPENDIX C (cont'd)

133.a. I like to withdraw temporarily from others.
b. I do not like to withdraw temporarily from others.

134.a. I can accept my mistakes.
b. I cannot accept my mistakes.

135.a. I find some people who are stupid and uninteresting.
b. I never find any people who are stupid and uninteresting.

136.a. I regret my past.
b. I do not regret my past.

137.a. Being myself is helpful to others.
b. Just being myself is not helpful to others.

138.a. I have had moments of intense happiness when I felt like I was experiencing a kind of ecstasy or bliss.
b. I have not had moments of intense happiness when I felt like I was experiencing a kind of bliss.

139.a. People have an instinct for evil.
b. People do not have an instinct for evil.

140.a. For me, the future usually seems hopeful.
b. For me, the future often seems hopeless.

141.a. People are both good and evil.
b. People are not both good and evil.

142.a. My past is a stepping stone for the future.
b. My past is a handicap to my future.

143.a. "Killing time" is a problem for me.
b. "Killing time" is not a problem for me.

144.a. For me, past, present and future is in meaningful continuity.
b. For me, the present is an island, unrelated to the past and future.

145.a. My hope for the future depends on having friends.
b. My hope for the future does no depend on having friends.

146.a. I can like people without having to approve of them.
b. I cannot like people unless I also approve of them.

147.a. People are basically good.
b. People are not bascially good.

148.a. Honesty is always the best policy.
b. There are times when honesty is not the best policy.

149.a. I can feel comfortable with less than a perfect performance.
b. I feel uncomfortable with anything less than a perfect performance.

150.a. I can overcome any obstacles as long as I believe in myself.
b. I cannot overcome every obstacle even if I believe in myself.

# APPENDIX D

## Creative Imagination Scale Transcript

1. **Arm Heaviness.** By letting your thoughts go along with these instructions, you can make your hand and arm feel heavy. Please close your eyes, and place your left arm straight out in front of you, with the palm facing up.

[Begin timing] Now imagine that a very heavy dictionary is being placed on the palm of your left hand. Let yourself feel the heaviness. Your thoughts 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 puch up on the dictionaries. Push up on the heavy dictionaries as you imagine the weight, notice how your arm feels 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. [End of timing: about 1' 20"]

Now tell yourself that your hand and arm feel perfectly normal again and just let your hand and arm come back down and relax.

2. **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 with the palm facing down.

(Begin timing) 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 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 pushed it up, just rises and pushed and just pushed it up, higher and higher. [End of timing: about 1'10"]

Now tell yourself its all in your own mind and just let your hand and arm come back down and relax.

3. **Finger Anesthesia.** By focusing your thinking you can make your fingers feel numb. Please place your left hand on your belly. Keep your eyes closed so you can focus fully on all the sensations in the fingers of your left hand.

[Begin timing] 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. Become aware of every sensation and the slight little changes as you thin 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. As you think of the novocain taking affect, the two fingers

feel duller and duller...more and more numb...dull...numb...insensitive.

Keep thinking that the two fingers are dull, numb, and insenitive 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. [End of timing: about 1'50"]

Now tell yourself its all in your own mind and you're going to bring the feeling back: bring the feeling back into the two fingers.

4. **Water 'Hallucination'**. Keep your eyes closed. By using your imagination constructively, you can experience the feeling of drinking cool, refreshing water.

[Begin timing] 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 yourself 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 cool 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. [End of timing: about 1'30"]

5. **Olfactory-Gustatory 'Hallucination'**. Keep your eyes closed. By using your imagination creatively, you can experience the smell and taste of an orange.

[Begin timing] Picture yourself picking up an orange, and imagine that you're 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 juciness of it. Now think of 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 flavorful it is as you imagine taking a deep, deep bite. Let yourself smell and taste the orange, and notice that it's absolutelu delicious. Let yourself feel now 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. [End of timing: about 1'30"]

6. **music 'hallucination'**. Keep your eyes closed.

[Begin timing] 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 fiber 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. [End of timing: about 45"]

[15-second pause] You may stop thinking of the music now.

7. **Temperature 'Hallucination'**. Keep your eyes closed, and place your hands on your belly with the palms facing down and resting comfortably on your lap. By focussing your thinking, you can make your right hand feel hot.

[Begin timing] Picture the sun shining on your right hand, and let yourself feel the heat. As you think of the sun shining brightly, let youreelf 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. [End of timing: about 1'15"]

Now tell yourself it's all in your own mind, and make your hand feel perfectly normal again.

8. **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- to 6-second pauses between statements.] [Begin timing] 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. [End of timing: about 1'40"]

(The following is to be read at a normal rate.) And now tell yourself that time is speeding back up to its normal rate as you bring time back to normal.

9. **Age Regression.** Keep your eyes closed. By directing your thinking, you can bring back the feelings that you experienced when you were in elementary school - in fact, second, third, fourth, or fifth grade.

[Begin timing] Think of time going back, going back to elementary 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 in a big desk. Notice the floor beneath you. Feel the top of the desk. You may feel some marks on the desk top, or maybe it's a smooth, cool surface. There may be a pencil slot and perhaps a large yellow pencil. Feel the under side of the desk, and you may feel some chewing gum. Observe the other children around you, and the teacher, the bulletin board, the chalkboard, the cloakroom, and the windows. Smell the eraser dust or the paste. You may hear the children and the teacher speaking. Now just observe, and see what happens, around you. [End of timing: about 1'20"]

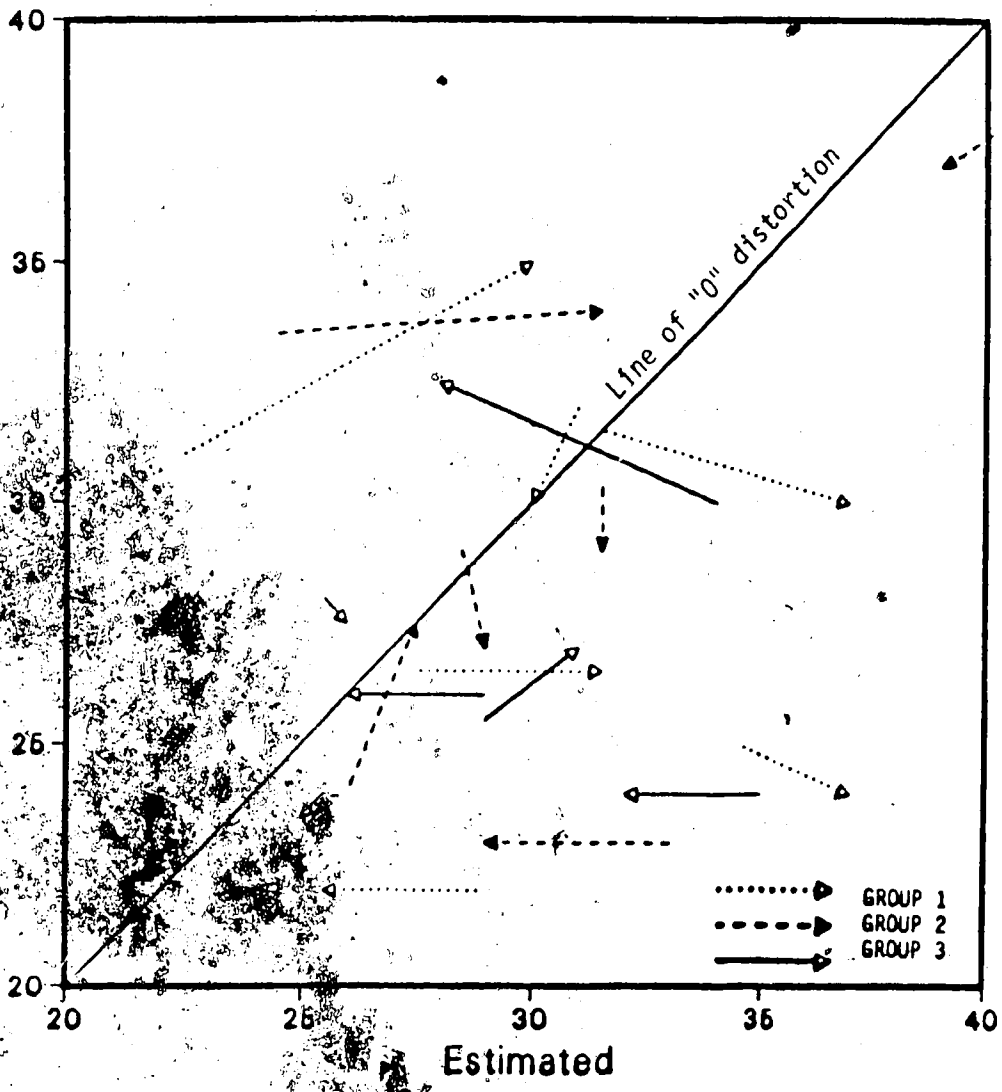
[15 second pause] Now tell yourself its all in your own mind, and being yourself back to the present.

10. **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.

[The following is to be read slowly] [Begin timing] 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 beautiful, clear, blue sky with fluffly, 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 universe...completely relaxed...relaxed, peaceful, lazy, tranquil...calm...

APPENDIX E

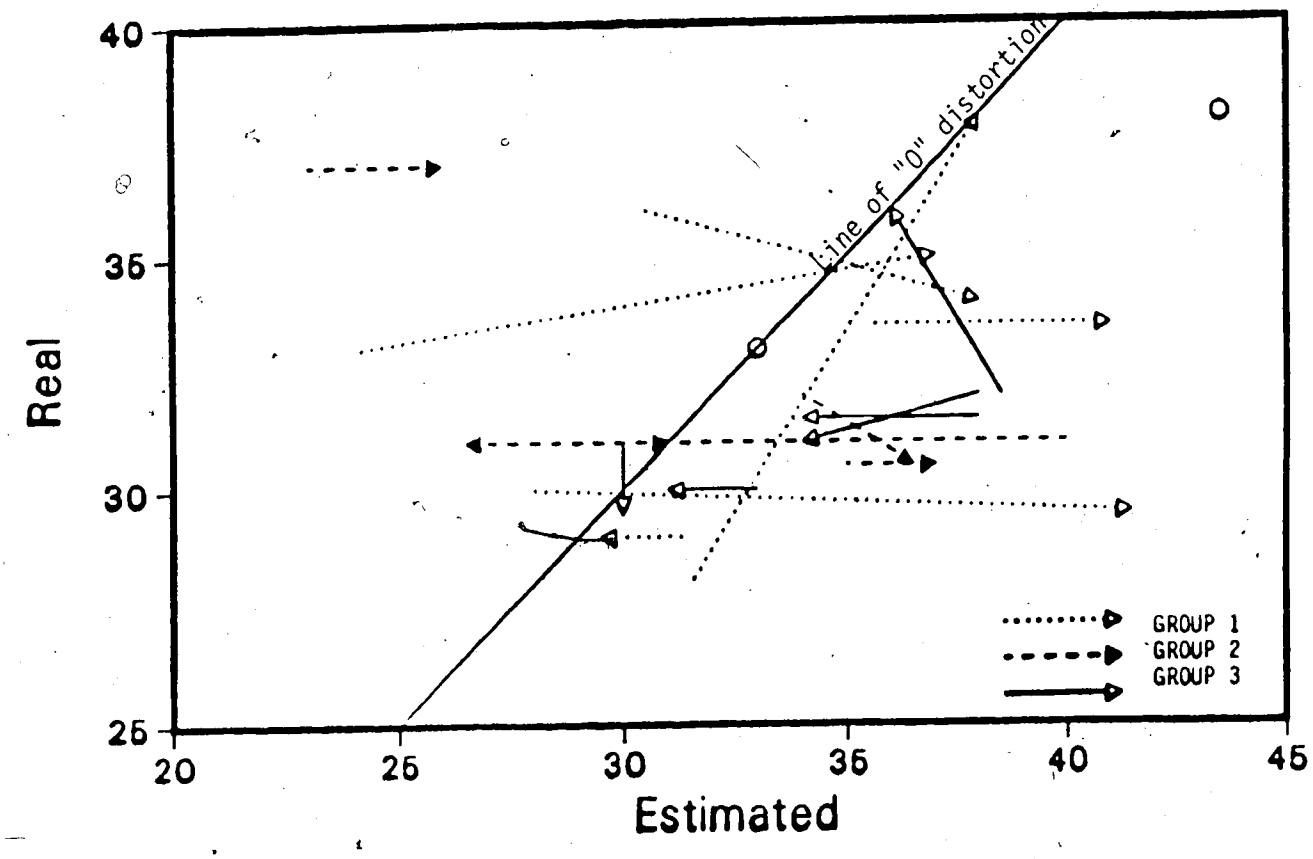
# Movement Toward Accuracy
## Waist




Real and Estimated measures for waist are plotted: the tail of the arrow represents the pre test; the head of the arrow represents the post test; Movement Toward Accuracy is depicted when the arrowhead approaches the Line of "0" distortion or in the region slightly above the line.

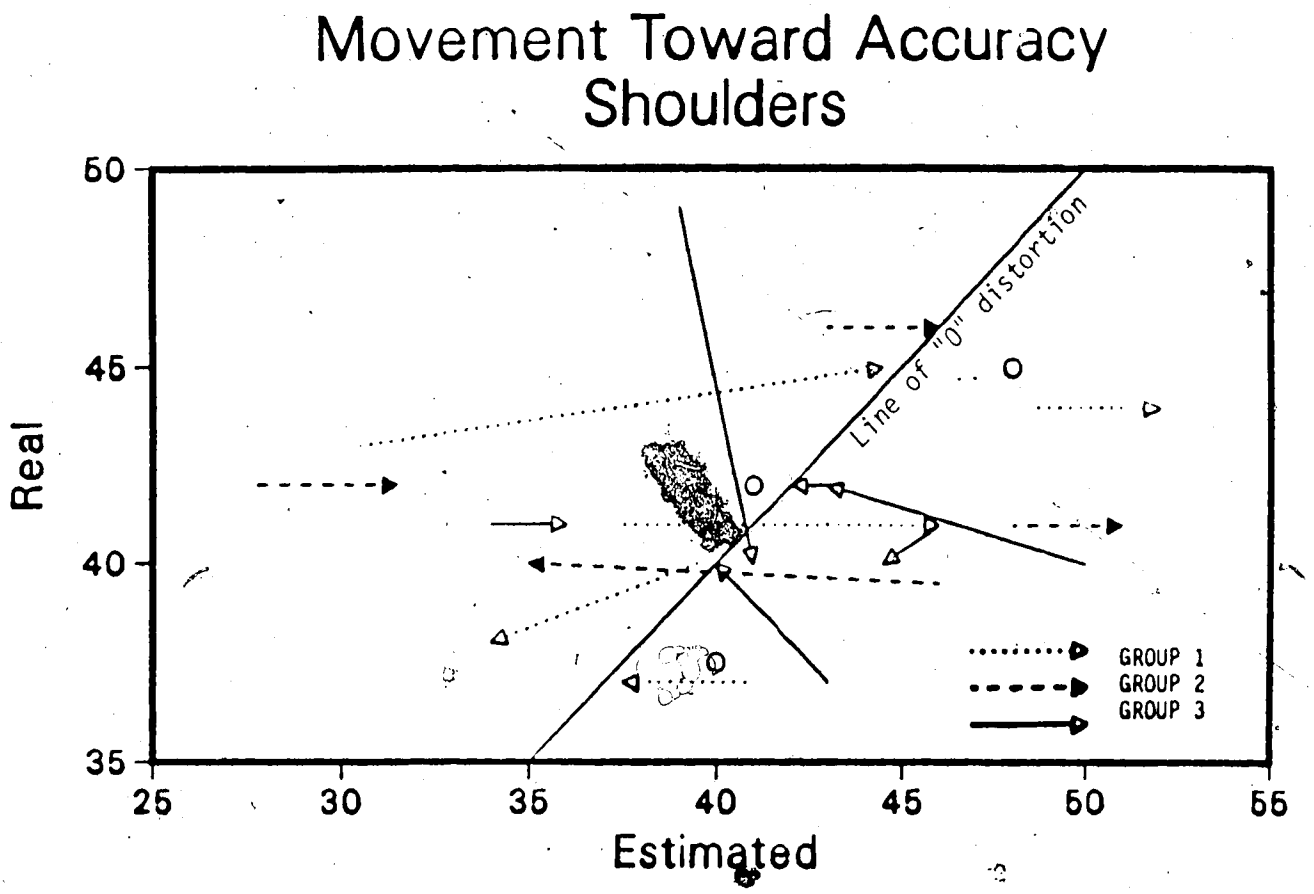
APPENDIX F

# Movement Toward Accuracy
## Bust




Real and Estimated measures for Bust are plotted: the tail of the arrow represents the pre test; the head of the arrow represents the post test; Movement Toward Accuracy is depicted when the arrowhead approaches the line of "0" distortion.

APPENDIX G




Real and Estimated measures for Shoulders are plotted: the tail of the arrow represents the pre test; the head of the arrow represents the post test; Movement Toward Accuracy is depicted when the arrowhead approaches the line of "0" distortion.

# APPENDIX, H

Body Image Distortion Scores , Waist, Bust

## WAIST

| | | PRE TEST | | POST TEST | |
|---|---|---|---|---|---|
| | | EST. | REAL | EST. | REAL |
| GROUP I | 1 | 29.0 | 22.0 | 25.5 | 22.0 |
| | 2 | 31.5 | 31.5 | 37.0 | 30.0 |
| | 3 | 22.5 | 31.0 | 30.0 | 35.0 |
| | 4 | 27.5 | 26.5 | 31.5 | 26.5 |
| | 5 | 31.0 | 32.0 | 30.0 | 30.0 |
| | 6 | 34.5 | 25.0 | 37.0 | 24.0 |
| GROUP II | 1 | 24.5 | 33.5 | 31.5 | 34.0 |
| | 2 | 28.5 | 29.0 | 29.0 | 27.0 |
| | 3 | 42.5 | 39.0 | 39.0 | 37.0 |
| | 4 | 31.5 | 30.5 | 31.5 | 29.0 |
| | 5 | 26.0 | 24.0 | 27.5 | 27.5 |
| | 6 | 33.0 | 23.0 | 29.0 | 23.0 |
| GROUP III | 1 | 34.0 | 30.0 | 28.0 | 32.5 |
| | 2 | 29.0 | 27.5 | 31.0 | 27.0 |
| | 3 | 29.0 | 26.0 | 26.0 | 26.0 |
| | 4 | 25.5 | 24.0 | 25.0 | 23.5 |
| | 5 | 35.0 | 24.0 | 32.0 | 24.0 |
| | 6 | 25.5 | 28.0 | 26.0 | 27.5 |

## BUST

| | | | | | |
|---|---|---|---|---|---|
| GROUP I | 1 | 31.5 | 29.0 | 29.5 | 29.0 |
| | 2 | 30.5 | 36.0 | 38.0 | 34.0 |
| | 3 | 24.0 | 33.0 | 37.0 | 35.0 |
| | 4 | 35.5 | 33.5 | 41.0 | 33.5 |
| | 5 | 31.5 | 28.0 | 38.0 | 38.0 |
| | 6 | 28.0 | 30.0 | 41.5 | 29.5 |
| GROUP II | 1 | 23.0 | 37.0 | 26.0 | 37.0 |
| | 2 | 34.0 | 32.0 | 36.5 | 30.5 |
| | 3 | 43.5 | 38.0 | 43.5 | 38.0 |
| | 4 | 40.0 | 31.0 | 26.5 | 31.0 |
| | 5 | 29.0 | 31.0 | 31.0 | 31.0 |
| | 6 | 35.0 | 30.5 | 37.0 | 30.5 |
| GROUP III | 1 | 38.5 | 32.0 | 36.0 | 36.0 |
| | 2 | 38.0 | 31.5 | 34.0 | 31.5 |
| | 3 | 33.0 | 33.0 | 33.0 | 33.0 |
| | 4 | 30.0 | 31.0 | 30.0 | 29.5 |
| | 5 | 38.0 | 32.0 | 34.0 | 31.0 |
| | 6 | 33.0 | 30.0 | 31.0 | 30.0 |

# APPENDIX I

## Bosy Image Distortion Scores - Shoulders

**SHOULDERS**

| | | PRE TEST | | POST TEST | |
|---|---|---|---|---|---|
| | | EST. | REAL | EST. | REAL |
| GROUP I | 1 | 41.0 | 37.0 | 37.5 | 37.0 |
| | 2 | 39.5 | 40.0 | 34.0 | 38.0 |
| | 3 | 30.5 | 43.0 | 44.5 | 45.0 |
| | 4 | 48.5 | 44.0 | 52.0 | 44.0 |
| | 5 | 48.0 | 45.0 | 48.0 | 45.0 |
| | 6 | 37.5 | 41.0 | 46.0 | 41.0 |
| GROUP II | 1 | 27.5 | 42.0 | 31.5 | 42.0 |
| | 2 | 41.0 | 42.0 | 41.0 | 42.0 |
| | 3 | 43.0 | 46.0 | 46.0 | 46.0 |
| | 4 | 46.0 | 39.5 | 35.0 | 40.0 |
| | 5 | 40.0 | 37.5 | 40.0 | 37.5 |
| | 6 | 48.0 | 41.0 | 51.0 | 41.0 |
| GROUP III | 1 | 50.0 | 40.0 | 43.0 | 42.0 |
| | 2 | 43.0 | 37.0 | 40.0 | 40.0 |
| | 3 | 43.5 | 42.0 | 42.0 | 42.0 |
| | 4 | 34.0 | 41.0 | 36.0 | 41.0 |
| | 5 | 46.0 | 41.0 | 44.5 | 40.0 |
| | 6 | 39.0 | 49.0 | 41.0 | 40.0 |