

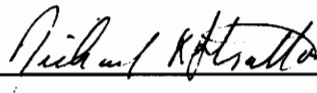
An Investigation of the Relationship of Locus of Control and Self-Monitoring  
to Body Image in Athletic Populations

by  
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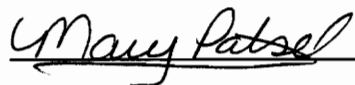
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AN INVESTIGATION OF THE RELATIONSHIP OF LOCUS OF CONTROL AND  
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(ABSTRACT)

Forty-three college athletes participated (male basketball players, n=13; female basketball players, n=11; male swimmers, n=9; female swimmers, n=10). Two administrations of four self-report questionnaires were completed. Psychological traits of locus of control and self-monitoring were compared to perceptions of body image and predisposition to eating disorders. Measurements used were Rotter Internal-External Locus of Control Scale, Self-Monitoring Scale, Multidimensional Body-Self Relations Questionnaire, and the Eating Disorder Inventory-2. Males tended to have lower drive for thinness linked with lower fat anxiety as compared to females. Females associated body dissatisfaction with perception of weight. In females, self-monitoring was correlated with feelings of physical attractiveness. Findings support previous literature proposing that women attach negative feelings to the body in relation to an cultural thin ideal. Reliability estimates lacked significance in general. This suggests that the measurements used are not predictive for these subgroups.

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## Chapter 1

### INTRODUCTION AND REVIEW OF LITERATURE

Etiological factors, including genetics, social environment, and social feedback, contribute to an individual's body experiences and are attributed with producing individual differences. Within subgroups of the population, commonalities in behavior and experiences are found. These commonalities are more salient at the extremes of a group. To locate the extremes of two athletic subgroups-- basketball and swimming-- the concepts of locus of control and self-monitoring are applied. These concepts explore the individual's behaviors and feelings related to control of the environment and actions, interpreting environmental cues, and self-presentation. Locus of control and self-monitoring are examined in relation to the individual's body image. Relationships of disposition towards eating disturbances and change in weight with body image are investigated. If we can determine that individuals display commonalities of traits and that these traits are related to the existence of disturbed attitudes and behaviors regarding one's body and eating, we will have a better understanding of body image and eating disturbances in athletes.

The concept of body image consists of three facets of bodily experiences. These bodily experiences are formed from the compilation of topological, behavioral, and somatic experiences. External, topological experiences comprise the physical characteristics of the body surface and superficial sensations. Body boundary explains how definite or indefinite a person experiences the boundary between body and environment. It is an integral part of the topological experiences that contribute to body image. Behavioral bodily experiences incorporate motor, perceptual, cognitive, and personality factors.

Internal somatic experiences result from physiological causes such as neurological, metabolic, endocrine, and hormonal sensations. Behavioral body experiences construct our perception of our body. Examination of body behaviors occurs in a manner which integrates the body as a unit, as well as discrete body areas. Individuals use external guides as measurements when observing body shape, size, and spatial relations. From exploration of the environment, understanding of the body develops. Information about the body is collected from the environment. During childhood, individuals begin to use parts of the body as measuring tools. Measurements which correspond to the body continue to be used through development; comparisons are made of body to non-body objects for size relation determinations. By obtaining body size estimates and body perceptions of subjects, the perceptual aspects of our body image can be explored.

Shontz (1969) wanted to clarify the differences between size judgments involving body and non-body objects and how measurement conditions influence size judgments. He found that people experience aspects of their body differently than those of non-body objects. In his study, subjects were draped so that they could not observe their bodies. Without a body reference, subjects estimated a size distance between two collars on a horizontal rod. Estimates of body areas which were of equal distance as non-body objects were used for comparison. Shontz found that body estimates were overestimated and less accurate than non-body estimates. Lengths of combinations of body parts, judged as a unit, were typically underestimated as compared to the sum of the estimates of those parts. The tendency to overestimate the body was previously found by Barton and Wapner (1965).

Through his exploration of body estimates, Shontz (1969) suggested that there are four techniques for obtaining estimates. Conditions for collection of data will vary for each technique. The linear method requires that subjects convert a judgment of body distance into estimates of linear distances using markers or rods. Using a configurational technique,



subjects respond to stimuli that have the form of the area to be estimated. This could be in the form of video or photo stimulus. Pictorial techniques have the subjects draw a body or fill in body areas. In verbal techniques, subjects make judgments about the body or specific areas. They are asked questions which attempt to explore perceptions and behaviors.

Another source from which we collect information about our body is our motor activity. Body image is rooted in the movements of our bodies. The judgment of body size is affected by the degree to which a body has been in movement (Fuhrer & Cowan, 1967), because we acquire body knowledge from experiences with our body in action. During movement we collect perceived changes in body shape and mass. This information contributes to our overall body image and our perception of our body size (Schilder, 1950). Some research supports an opposing view that movement experiences play a minimal part in body size judgments (Fisher, 1970; Shontz, 1969). It seems, though, that movement is a part of the overall perception of the body; movement supplies a source of interaction with the environment from which we learn to make comparisons. Rossi and Zoccolotti (1979) found that athletes are more superior in the accuracy of body size evaluations when compared to nonathletes. This finding suggests that athletes have a better knowledge of their body size, and that the quantity of their movement experiences contribute to their knowledge. A size estimate accuracy difference may exist between athletes in different sports. Individuals who engage in body building/weight lifting are more accurate in estimations than runners or sedentary individuals (Pasman & Thompson, 1988).

It is difficult to generalize about an individual's accuracy in judging his size dimensions. People react directly and more accurately to physicalities of non-body objects. In comparison, our accuracy of size judgment has more error. When we respond to the size of body areas, our pre-existing body experiences which are attached to the area influence

judgments. We construct distinctive patterns of size perception which we apply to our judgments of our body, as well as others' bodies (Shontz & McNish, 1972). The average person has more emotional feelings about their body than non-body objects. The emotional attitudes associated with the body increase the likelihood of an individual adopting biased or inaccurate attitudes. Women typically overestimate the width of their waist, while men do not. This could reflect female concerns with the standard of beauty. The greater a woman's general dissatisfaction with her body, the more she seems to overestimate her waist (Fisher, 1970). Furlong (1977) found female subjects had a tendency for bias in their body size judgments in order to compensate for feelings that their body areas were too small or too big in relation to an ideal. Men were more stable over time in their body estimates, which may be due to fewer social demands.

In a similar manner, conditions during body size judgments influence our estimations. The link between perception and judgments of linear distances, visual configurations, or pictorial drawings which target body size estimates may not be as clear as it appears to be with a verbal or written self-report. Using the Body Self Relations Questionnaire (BSRQ), Thompson and Psaltis (1988) found a high correlation between the questionnaire measure of physical appearance evaluation and a figure selection of current body size. The relationship supports perceptions of appearance as an influential factor in determination of body size. Subjective factors influence the amount of overestimation of body size (Cash & Green, 1986; Covert, Thompson, & Kinder, 1988).

Feelings and attitudes about our bodies begin at birth. Our body image develops as our body matures physically. Developmental, social, and biological factors influence the biased-- and often inaccurate-- feelings we form about our body. Body image is formed by internally and externally derived sensory experience as an individual matures biologically and developmentally. The development of body self has been conceptualized as a three stage process. The first stage consists of early psychological experiences of the body,

which includes psychological recognition of body and registration of physical sensations and experiences. During this phase a child learns “self” as an object. As Piaget expressed in his developmental theory, the child has to learn to treat self as an object. She must learn that she is differentiated from her environment. During this period, she learns the body's locomotive properties in relation to fixed objects. A child's initial movements are experienced through mirroring. Children's body experiences are central to their world and effect their perceptions. Body perceptions then provide a framework for defining self.

In the second phase, the child starts to integrate information. This time period consists of early awareness of body image and begins with the integration of inner and outer experiences. From a few months old to toddler age, we discover the definition of our body surface boundary and the differentiation of our internal body state from the environment. The child begins with a global body perception which develops to incorporate the idea that the body has definite limits, or boundaries. The body comes to be viewed as discrete parts which are interrelated. During the third stage, which begins around fifteen months of age, a child begins to create a definition and cohesion of body self as the foundation of self-awareness. The child acquires the knowledge of a separate existence and an organized self-awareness.

We continue acquiring body knowledge from our experiences with our body in action. Due to this motor aspect of body experience, our body image is fluid (Schilder, 1950). During development, children’s bodies are constantly changing, and they often lag in bringing their body concepts up to date. Their body images are behind their physical structures in development (Fisher, 1973). A component of developmental maturation is the creation of accurate knowledge of one's body, so that psychological and physical aspects are in agreement. The unity of body and body knowledge may experience developmental interruption or development may stop entirely at any point in maturation, which creates a deficit (Krueger, 1989). Body size overestimation is high in young

children, resulting from physical changes which are inconsistent with body knowledge. Change in body image to reflect a corresponding physical change of the body does not occur simultaneously. There is a lag in the time between the physical alteration and the incorporation of change into body image. The developmental lag of body image is also found in populations with eating disorders and in patients who have had a limb removed. Anorexics and bulimics display a lag in body image when they report that their body size is larger than it actually measures. Patients who have had a limb amputated display inconsistencies in a condition termed phantom limb phenomenon. Patients report feeling their limb which no longer exists. Cash, Counts, Hagen, and Hufine (1989) observed that individuals who lose a great deal of weight retain an image of themselves as overweight. They are experiencing the phenomenon of phantom fat.

At the same time biological development influences the formation of body image, life experiences play a role its development. Culturally bound ideals of what is attractive are learned through socialization. Culture projects norms to a child that he must master and control his body. We are told to keep it covered with clothing, place it on schedules for satisfying its needs, and to listen to it only at culturally determined, appropriate times. In most cultures the body represents elements of poor control, unpredictability, and dirtiness. A child learns that he will experience difficulties when the body will not do what parents and authority figures expect. Culture emphasizes gaining control over and automatizing the body. This facilitates discipline of the body, so that the child can take on the roles and responsibilities of a social creature.

Often our earliest experiences in a social atmosphere pertain to others' acceptance of our body shape. Social appraisals of body types which express physical individuality focus on somatotype. Sheldon (1942) attempted to assess personality by examining the relationship of morphology and temperament within individuals. His assessment centered around interrelations between static components of physique and dynamic components

of temperament. As part of his analytic system, he categorized somatotypes as ectomorph-- thin and linear; endomorph-- fat and chubby; and mesomorph-- average and muscular. We experience socially derived attitudes towards particular shapes. These attitudes shape our ideal image of body proportions. Attitudes about what constitutes acceptable body shape and appearance are influenced by the individuals with whom we interact and our group norms. Children receive feedback from peers and authority figures which are consistent with established body stereotypes. Biases promote the acceptance of one somatotype over another and have established that mesomorphs are more positively evaluated, while endomorphs are more negatively evaluated. The evaluation of ectomorph falls in between the two. We learn which somatotype corresponds with our body and incorporate social biases about our body type into our body knowledge. Oscarson (1969) studied girls in fifth, seventh, ninth, and eleventh grade and classified each as endomorph, mesomorph, and ectomorph. Those who had endomorph or ectomorph shapes had more negative body perceptions. Endomorphs were more negative than ectomorphs. He found that accuracy of the subjects in identifying their body types did not vary with the functions of type of body or age. Stereotypes become stronger as people approach late adolescence (Fisher, 1986).

Gender differences in body image begin during childhood. Girls from the age of three have more clear and articulated body boundaries than boys. Body awareness in women has been linked with well articulated body boundaries (Fisher, 1970). Males are eventually more superior in body differentiation, but this emerges slowly and is not fully developed until late adolescence. As women enter their adult years, they become less differentiated according to measures which attempt to determine field independence/dependence. Females are more differentiated in articulation of body concept from early childhood to 14 or 15 years old. At this point, a male's ability for differentiation equals that of a female.

Secord and Jourard (1955) developed a Body Cathexis Test to explore self-ratings of body parts and attitudes in order to determine the importance of body areas in defining physical attractiveness. During the test they asked the subject to imagine the same sex figure in a drawing was a character in a story. The subject was subsequently asked to rate the parts of the drawing's body. Boys were slightly more accurate than girls in estimating sizes of parts of the body and did not seem to express as much dissatisfaction with body appearance as girls. A female's readiness to express dissatisfaction may mean that she is less defensive about her body. Women do not have a more inferior or anxious concept of the body as compared to men; they seem to express more overt criticism (Secord & Jourard, 1955). Males may be more inferior in feelings of security and body adequacy.

Koff, Rierdan, and Silverstone (1978) found data to indicate that a change occurs in the body image of females around the time of menarche. The explanation for this trend proposed that this is a dramatic event which starts the restructuring of a girl's body image around the role of a woman. As a woman, she learns to integrate the sense of self into a whole psychosocial identity. More women are open to awareness of their bodies and are more likely to feel comfortable tuning into their body sensations than men (Fisher, 1970). An event which is a clear demarcation of adulthood does not occur for males. Males experience voice change, facial hair growth, and bone growth over a period of years. Without a cultural ritual for passage into adulthood, a man may develop feelings of confusion about his masculine, adult identity and the body image which is a part of it.

Although some sex differences have emerged, there is a similarity in the way the two sexes evaluate and assign importance to body regions. In college males, the face, its complexion, teeth, weight, and body build were valued. For females, face, complexion, teeth, weight, body build, and shape of legs were important (Fisher, 1970). College females judge their current figure to be significantly heavier than their ideal figure. Women may distort the extent of congruence between their actual shape and their ideal. A partial

explanation for the difference in actual and ideal shapes derives from a biological perspective. Women biologically have more body fat than men, and, therefore, deviate slightly from the lean toned form of ideal body shape. Fat content for women is usually 20-26%, while men normally have a 15-22% content (Richardson, 1993). This has to do with adipose mass, not exercise habits. If women are using the male norm as a reference in constructing an ideal body shape, they are misjudging and increasing the opportunity to attach feelings that they are overweight when it is not so. False perceptions contribute to the motivation of women obsessed with weight and dieting.

The trend for females to express less body satisfaction may be due to this judgment mistake and negative feelings attached to the body. Social factors and group norms seem to have more adverse influence on women's body image than men's body image. Females are more preoccupied and dissatisfied with their body parts (Cash et al, 1986; Franzoi & Herzog, 1987). The parts of the body that women judge most harshly are those they consider most essential to female attractiveness (Franzoi & Shields, 1984). On the BSRQ, women are more appearance-oriented and more sensitive to weight issues than men (Cash & Brown, 1989). There are suggestions that male dissatisfaction with the body is underestimated. Culture directs most weight-related messages to females, but males are affected as well (Cash & Hicks, 1990; Drownowski & Yee, 1987). How a person of normal weight classifies his/her weight has a strong bearing on attitudinal body image, eating behaviors, and psychosocial well-being. Normal weight individuals of either sex who evaluate their bodies as overweight have a more negative body image and a greater dissatisfaction with appearance, fitness, and health. When asked to report about self, 58% of female and 20% of male college students of normal weight reported that they were overweight (Klesges, 1983). In a Psychology Today survey on Body Image, 47% of female respondents and 27% of male respondents of normal weight classified themselves as overweight (Cash, Winstead, & Janda, 1986). Body satisfaction is negatively correlated

with anxiety and depression in both male and female college students (Goldberg & Folkins, 1974).

There may be an overgeneralization and exaggeration of stereotypical perceived sex differences. Cash (1988) points out that researchers tend to perpetuate stereotypes by focusing primarily on females as the subject pool in studies dealing with body image. Others offer the support that sex differences are less extensive than we think (Jackson, Sullivan, & Rostker, 1988; Keeton, Cash, & Brown, 1990; Silberstein, Striegel-Moore, Timko, & Rodin, 1988). Of men studied, 95% expressed dissatisfaction with some part of their body. In undergraduate men, 70% perceive a discrepancy between their actual body and their ideal body (Striegel-Moore, Silberstein, & Rodin, 1986). Cash and Brown (1989) compared women and men who completed the Multidimensional Body-Self Relation Questionnaire for three instructional sets-- their self, a typical male, and a typical female. They found modest differences attributable to gender.

A child who develops a perception that his body deviates from the norm or that his social group disapproves will have difficulty with body image development. Disapproval from members of society, psychosocial, and physical characteristics constitute demands on the child to adapt. Disapproval may be in the form of attitudes, expectations, and behaviors of parents, teachers, and coaches. These people are significant others in the child's environment. Their demands are both verbally and nonverbally expressed and are understood by an individual. If the individual seeks approval or acceptance, the demands become influential, and he will adapt his behavior to fit. A person has individuality in the choice of action to meet the demands and will receive feedback from the social environment about the behavior's effectiveness. There is an adjustment problem when a lack of match occurs between the behavior and the demands. This is termed goodness of fit. Adolescents whose choices of behaviors meet the expectations are awarded social feedback confirming that the demands were met. Often social feedback is provided in the



form of favorable evaluations and appraisals. If characteristics and demands do not match, the individual will receive feedback telling him that he failed. Individuals develop body images and characteristics of psychosocial development which are derived from the corresponding type of feedback. If an individual receives positive social feedback about his/her body, the behaviors associated with the approved outcome are reinforced. While negative feedback will inhibit the behaviors which produced it, and the individual will search for behaviors to achieve positive affirmation.

For people who look to their environment for cues to use as comparisons in self evaluation, goodness of fit demands will increase the behaviors which control and drive the body. The belief that thinness is a measure of beauty and will bring acceptance is prominent in women with eating disorders. These women use social and environmental cues to determine if their body is accepted. Their body image is based on cultural ideals which are self-perpetuated by relying on externalities as measurements. To understand groups of people who develop poor body image but who are not clinically diagnosed as having eating disorders, it is helpful to determine the individuals who tend to exhibit behaviors that depend on external cues. Concepts which attempt to understand an individual's orientation in relation to his/her environment include self-monitoring and locus of control. Self-monitoring is concerned with specific forms of self-awareness. The components of self-monitoring as described by the measure of self-monitoring developed by Lennox and Wolfe (1984) are the ability to modify self-presentation and a sensitivity to expressive behavior in others. The measure of self-monitoring is typically viewed on a continuum in experimental studies; the higher the amount of self-monitoring an individual exhibits, the more he/she uses cues in social interactions for evaluating others and monitoring his/her self presentation. Locus of control is an individual's generalized expectancy of the degree of control he/she holds over events which occur in experiences. Those individuals who have an external locus of control perceive events as being unrelated

to their behavior, while those who exhibit an internal locus of control feel that events are contingent upon their own behavior.

The behavior of self-monitoring is constituted by the disposition to try to fit in and manipulate one's social environment. Manipulation of the environment allows an individual an active role in the construction of others' perceptions. Individuals who self-monitor are attempting to maximize others' perceptions of one's degree of fit for a particular image or action (Carson & Mowesian, 1993). Individuals are capable of exercising control over expressive behavior which controls the impression others receive from them. Social cues are used to monitor and adapt an individual's self presentation to convey the appropriate image for a particular audience (Hamid, 1989). Those who are considered high in self-monitoring are social chameleons due to the frequency and use of social cues and monitoring of self presentation. In contrast, those who exhibit a low degree of self-monitoring behave consistently regardless of the social environment. The tendency to monitor behavior not only affects the behavior, but the view of the world and the dynamics of personal relationships (Montgomery, Haemmerlie, & Meichers, 1987).

High self-monitors are sensitive to external cues in interactions with others, gather their information from others to search for situational appropriate behavior. They pay more attention to the information provided by others and make more inferences based on the information than those who exhibit a low degree of self-monitoring. High self-monitors are more dependent on their perceptions of others' evaluations of their self. This does not mean that they are more accurate in the deduced self-assessments; they perceive more from social cues and place a stronger emphasis on their perceptions received from social interaction (Buri & Mueller, 1988). High self-monitors place a greater importance on physical appearance and engage in more appearance-related behaviors than low self-monitors (Harnish & Sullivan, 1987). Because high self-monitors tend to control the projection of self-images during social interactions, they are often motivated to perform

behaviors which avoid pain and rejection. They develop competence in behavior as a means to control their lives (Cohn & Adler, 1992).

The locus of control associated with an individual deals with his/her perception of how behaviors and actions effect life experiences. Those who are considered internal in locus of control feel that they control what occurs in their interactions; these individuals are more perceptually sensitive in learning processes, as compared with individuals who exhibit an external locus of control. Individuals who have an external locus of control view others as governing and perceive that people with authority are controlling in teaching situations (Wheless, Stewart, Kearney, & Plax, 1987). Dasch (1978) found that high instructor ratings of dance performance, evaluated by posture and technique, were associated with internal locus of control in college dance students. Adame, Radell, and Johnson (1991) found that dancers were more internal in locus of control than non-dancers in the age range of seventeen to twenty-one years of age.

The expectancies for dancers to have a high ability for spatial imagery promotes an internal locus of control (Adame et al, 1991; Overby, 1990). This internalization may influence the self-perception and body image that a dancer possesses. Social cues impact the perceptions that are internalized and the behaviors which follow. Athletes who participate in individual sports which require a high ability for spatial imagery may experience the internalization influence. When experiencing lack of fit due to negative social feedback, an individual who exhibits an internal locus of control will attribute the inconsistency to self-chosen actions. This individual will also perceive that she has the capability to institute the behavior which will reconcile the incongruity between the social demand and prior behavior.

In dancers, the demand of an ideal body shape for performance is a challenge when individuals do not fit the shape. The demands may be unrealistic for individuals who are not genetically predisposed to that shape. Body shape has biological determinants for

weight gain and retention. Individuals who are hereditarily predisposed to a particular body shape turn to control of the body as a means to achieve the ideal. Exercise, dietary habits, and other behaviors which alter the body's physicalities are means to develop competence and produce change. The amount of calories expended in one hour of a ballet class are 200 kilocalories per hour. This is less than in other sports with thin ideals and would seem to inhibit a dancer from physically maintaining a thin shape solely through exercise in the dance studio. Subculture's demands place individuals exhibiting behaviors considered high in self-monitoring and internal in locus of control in a state of incongruity. They acquire and instate new behaviors to change their appearance. Repeated attempts at adapting may instill extreme actions to change body shape through restriction of food. In some cases eating disorders may develop, but short term effects of food restriction produce health concerns in the form of fatigue, depression, and muscle deterioration.

Hamilton, Brooks-Gunn, Warren, and Hamilton (1988) researched elite dancers and the role of selectivity in relation to the occurrence of eating problems. They suggested in their findings that dancers who have undergone a stringent process of early selection may be less susceptible to the development of eating problems, because they are more naturally suited to the thin ideal required by the profession. They are not addressing the population of people who did not have the advantage of the strict selection process. It is beneficial to consider how to prevent this population from injuring themselves. This problem is a concern in sports which require a thin ideal for optimal performance. Rippon, Nash, Myburgh, and Noakes (1988) found, when comparing marathon runners, dancers, and models, that a high percentage of lean athletic women have elevated Eating Attitudes Test (EAT) scores and suggest that their leanness is more the result of self-imposed starvation.

Concern for body shape and athletic ability is found in other sports as well. Social factors may be linked with body image. Behaviors of an athlete who devotes his self to

attaining perfection and ideals in his sport are shaped by social factors. Athletic motivation is influenced by social determinations. Social factors include self-worth, parental or significant other feedback, and culturally perceived inadequacies. An individual's motivation to be an athlete may be for the perceived resultant effect of increased sense of body worth. Parental or significant other socialization can encourage or constrain the importance of athletic activity. Significant others also influence behaviors and attitudes formed about an individual's body which may enhance or inhibit athletic drive. A final factor of motivation is enhancement of body to compensate for perceived vulnerabilities. An athlete who is primarily motivated to attain competence to compensate for perceived flaws will have the tendency to be more dissatisfied with the body and exhibit body image disturbances. A heightened negative body consciousness was observed in collegiate wrestlers using a pictorial measure for evaluation. Males, classified as serious weight lifters, felt insecure about their masculine identity (Johnson & Hutton, 1970). Individuals become sensitized with how aspects of their body are evaluated, and respond behaviorally by continuing the behaviors which produced the approved body or search for behaviors which will change a disapproved body. Male athletes may find social approval with musculature as well as leanness of body.

For the athlete, the body is celebrated for its success in performance, but opposed as a continual source of worry in regards to its functioning. Normatively, athletes are trained to be in optimal condition. During training, attention to the body is heightened. Sports management teams which stress body shape, body weight, or low body fat levels as components of success place demands on athletes that can increase body anxiety. Perceptions of body deviation, even to a slight degree, can become a source of threat. Often individuals learn to cope with their perceived bad body by rejecting and minimizing it. Low amounts of attention and a low importance are attached to their body feelings. They learn to rely on externalities for reports about their body. Some learn to cope by

upgrading their bad body through processes of surgery or exercise regime. Attention should be paid to individuals if they place a heightened importance in perceived external cues as a means of self-presentation or who believe that they can change inherited body structures like bone width, adipose tissue, or muscle fibers. Prevention of misperceptions and negative behaviors prior to formation or before attitudes and behaviors are perpetuated is needed for athletes who potentially perceive body deviations. This group of individuals and the importance of their identification may be better understood if we look at a well-documented group of people with body image disturbances. The population of people with eating disorders serves as a comparison.

Hutchinson (1982), while working with a group of psychologically healthy women between the ages of twenty-four and forty, discovered that most women are preoccupied with food and weight. Body image struggles for these women were inseparable from eating issues. Individuals integrate negative social feedback into their perception of their body and respond with behaviors which attempt to deal with the feedback. In our culture, the concept of body size is closely tied with weight and obesity. Many people track their body weight every twenty-four hours. Fat is viewed as bad; our attitudes about fat people center around negative images. They are thought to be weak, out of control of their body, and unattractive. Fat to an athlete inhibits optimal performance. Extra weight means mechanical readjustment in the body for the techniques that are executed during performance, and an increase in the amount of energy required for the movements.

Research on body image is prevalent in anorexic and bulimic populations. These groups participate in counseling as a component of treatment. To understand and prevent these illnesses, studies aim to locate factors which contribute to the formation of eating disorders and are conducted on patients during the treatment phase. Eating disturbance or dysfunction is correlated with body image disturbance (Brodie & Slade, 1988; Brown, Cash & Lewis, 1989; Cash & Brown, 1987; Keeton, Cash, & Brown, 1990; Thompson &

Psaltis, 1988). The correlation between a person's perceptual accuracy about their body size and eating dysfunctions is not certain (Cash & Brown, 1987). The studies to date are incongruent and inconsistent for size overestimation in individuals with eating disorders (Brodie & Slade, 1988; Coovert, Thompson, & Kinder, 1988; Fabian & Thompson, 1989; Keeton et al, 1990).

Anorexics are labeled as having a body image disorder. A part of body image is the perception of the amount of space a body inhabits. This is not necessarily the actual space; it is the individual's current perception. There is also an ideal body shape, and it has a certain amount of space an individual thinks it would fill. Most people learn to cope with the visualization of size changes in their environment while retaining a moderately stable image of how much space their bodies occupy. Situations arise in which people lose the ability to perceive their size realistically. Therefore, people have the potential to distort size dimension depending on situational and environmental factors.

Many studies have concluded that anorexics have a tendency to overestimate perceived body size. Slade and Russell (1973) support this view and suggest that the defect might be a result of a failure to adapt. Fisher (1986) speculates that a majority of anorexics are overweight before their weight loss, and the overestimation of dimensions deviate because of a developmental lag in their changing size perception. Anorexics who are emaciated report that their bodies are "fat." Pierloot and Houben (1978) and Garfinkel et al (1983) support this developmental lag. Freeman, Thomas, Solyom, and Miles (1983) recruited female subjects through a newspaper advertisement to judge when a television image truly represented her own proportions. Subjects had fasted for twelve hours and wore bathing suits during the testing. They were retested after eating a meal. Those subjects who reported having anorexic or bulimic problems typically overestimated their size. This was more frequent in bulimics. With this pool of subjects, eating a meal had little effect on their self-perception in regards to size. Crisp and Kalucy (1974) found that

size judgments obtained prior to eating meals did not differentiate anorexic from non-anorexic subjects. Their finding showed an increase in body size judgments for anorexics after a high carbohydrate meal. It was discovered that estimates of a body size by anorexics were able to be reduced if the experimenter asked the subject to be less restrictive in their response. In a similar manner, body size estimates of anorexics increased if the experimenter stressed that the subject had just eaten a high caloric meal. This suggests that anorexics' body size judgments fluctuate according to external circumstances.

Within anorexics, overestimation of size was a sign of denial of severity of the symptoms (Hsu 1982). Anorexics were found to be overestimators in studies using amorphic lens and distorted television images. Amorphic lens distort the viewer's sight. From the distorted vision of the body, the subject is asked to judge the amount of perception difference by adjusting the image of the subject's body to its current size (Garfinkel, Moldofsky, Garner, Stancer, & Coscina, 1978; Garfinkel et al, 1983; Garner, Garfinkel, Stancer, & Moldofsky, 1976). From a distorted television image of the body, subjects judged the amount of distortion of the perceived image from the actual size (Freeman et al, 1983; Touyz, Beumont, Collins, McCabe, & Jupp, 1984). Both studies found anorexics to be overestimators. As a group, anorexics may exaggerate the size of their body space when their body is observed in totality.

Other research has not found differences between anorexic and non-anorexic populations concerning size estimation perceptions. Casper, Halmi, Goldberg, Ekert, and Davis (1979) found no evidence that anorexics overestimated body size more than a comparison group without eating disorders. In the non-anorexic population, locus of control has not been successful as a predictor of a link with body size judgments using the Rotter Locus of Control Scale. In anorexic women, the sense that they lack self-control was positively correlated to body size overestimation (Garner & Garfinkel, 1981, 1982).



Anorexics as a group were more depressed, anxious, and dissatisfied as compared to their non-anorexic counterparts, and, as a group, they have significantly less positive attitudes about their bodies (Garner et al, 1983).

Examining regulatory behaviors in obese and non-obese people illustrates a contrast. Obese persons look for cues outside of their bodies to indicate when to eat while non-obese persons listen to internal cues from their stomachs in order to decide when to eat. The obese person develops a dependency on outside conditions to determine the maintenance of an internal need. The inability to interpret hunger cues develops from a lack of sensitivity for interpreting body sensations. The inability is developed further by parents who took care of interpreting behavioral needs for their child. Parents, who judge what a child's body experiences mean and respond for the child, primarily introduce food as a solution to emotional stressors. The child learns to eat to comfort, not just nourish (Fisher, 1973). In other weight-related disorders, individuals receive the body sensation which signals hunger, but choose to restrict its fulfillment. This is considered overregulating or overmonitoring and causes excessive inhibition. Overmonitoring is associated with a heightened self-awareness. Other forms of overmonitoring are compulsive weighing and use of mirrors. The constant monitoring of weight fluctuations magnifies the importance of each pound. Compulsive use of mirrors draws attention to visual proportions and heightens self-awareness. This tends to increase self-evaluation and the desire to conform to stereotype ideals (Buss, 1980; Carver & Scheier, 1978). A behavior of undermonitoring leads to addictive or impulsive behavior like binge eating (Beck, Ward-Hull, & McLear, 1976). In this case the individual fills the body, but refuses its need of the food's nutrients by purging the food after ingestion.

Women with eating disorders typically espouse low self-esteem and dread rejection or abandonment (Garfinkel & Garner, 1982; Johnson & Connors, 1987). To a woman with an eating disorder, being thin is the most important aspect of life experiences. Likewise,

they feel that significant others evaluate them according to appearance. Women clinically diagnosed with eating disorders invest their self-worth in physical appearance. Other attributes are not as important to these individuals. If the individual is not exceedingly thin, she attributes this to her self-image. She will feel weak, unlovable, and incompetent. Thinness is equivalent with success and social attractiveness (Cooper & Fairburn, 1987). Appearance takes on increasingly more importance. How an individual feels and her resulting actions involving her self-worth become increasingly more negative with this dysfunction. As negative self-esteem increases, women with established eating disorders have more body size perception problems and greater dissatisfaction (Cooper & Taylor, 1987; Dunn & Ondercin, 1981; Garfinkel, 1981; Garner & Garfinkel, 1981, 1982; Strober, 1981; Wingate & Christie, 1978). Negative self-evaluations can trigger a more negative body image.

Although our culture gives the message that thinness is important, it is only one aspect of the dysfunction. The cultural ideal of thinness is below the weight of the average woman, increasing the risk of anorexia and bulimia nervosa and other body image disorders (Garfinkel & Garner, 1982). Another key influence is the personal drive to compensate for perceived defects or deficits. Women attempt to shape their bodies into forms inconsistent with their biological disposition by reducing weight to produce a shape which reflects the thin ideal. Disorders exist because of overadaptation and overcommitment to the ideal. The age of an individual contributes to body image disturbance in terms of the knowledge of experiences an individual has had with her body. An individual's age determines where she is in the developmental process of body perceptions. She is in the early development of knowledge of her body's adult state from puberty to late adolescence and is susceptible to negative social feedback. Satisfaction with body image continues to play an important role in both women and men as they reach mid-life. Change in the physical body often leads to dissatisfaction with the body

shape, and a reshaping of one's body image must occur to resolve the conflict (Rozin & Fallon, 1988) .

In young women, body dissatisfaction is associated with problematic eating attitudes and habits. These may include perceived lack of control over food, diet or oral restraint, and binge episodes (Kiemle, Slade, & Dew, 1987; Striegel-Moore, McAuany, & Rodin, 1986; Wiedel & Dodd, 1983; Wolf & Crowther, 1983; Zakin, 1989). For teenage girls, body dissatisfaction was a better predictor of eating problems than self esteem, depression, and social anxiety (Gross & Rosen, 1988). When comparing body dissatisfaction, perfectionism, stress, competitiveness, and body weight as predictors of eating problems, the best predictor of eating disturbances was a change in body dissatisfaction for female college students in their freshman year (Striegel-Moore, Silberstein, Frensch, & Rodin, 1989). If high ideals such as a body weight that is unrealistically low for particular body shape and genetic makeup are established, young women may be easily dissatisfied when their goal is not met. The amount of energy, focus, and anxiety which had contributed to the achievement of the goal intensifies the disappointment. Often young females want to retain a small body shape in order to preserve childhood, exhibit control over their body, or avoid biological gender differences in body areas. For female adolescents involved in sports, the thin, lean body type duplicates a boyish shape and has the potential to compete athletically without the complication of broad hips, developed breasts, and excess body mass which effects performance biomechanically (Fisher, 1973). Similarly, some subgroups of men place relatively greater emphasis on physical appearance and engage in excessive weight control or muscular development.

Students who choose to pursue occupations with intense pressures to maintain low body weight have higher rates of eating disorders and disturbances than occupations with less focus on the body. Young women who are vulnerable to anorexia are attracted to

occupations with heightened focus of body (Garner & Garfinkel, 1982; Joseph, Wood, & Goldberg, 1982). Student athletes are a population who focus on body shape, weight, and performance. Young ballet students were administered the Eating Disorder Inventory and evaluated two years later for eating disorders. Scales on the inventory which assessed body dissatisfaction and drive for thinness indicated individuals who were problemated by eating disorder symptoms (Garner, Garfinkel, Rockert, & Olmstead, 1987).

The extent of eating disorders in athletes may range as high as 25% according to Thornton (1990). In sports like swimming, where weight is critical to performance, an athlete's risk of attaining a disorder may be heightened. Thornton had worked primarily with college student athletes in his study. Another study examining swimmers suggested that the concern about weight is more related to societal influences than the requirements of the sport (Drummer, Rosen, Heusner, Roberts, & Counsilman, 1987). The swimmers ranged in age from nine to eighteen years old. About 50% reported that their perceptions of being overweight were confirmed by significant others.

Past research typically focuses on the anorexic and bulimic populations, because their dysfunction can be medically diagnosed; this serves as a convenient category in which similar individuals with related behaviors and attitudes may be explored. It also serves as a reference of contrast to groups of "normal," non-anorexic/bulimic subjects. The eating disordered population is well documented as an example of people with body image problems. Many non-eating disordered individuals have some level of appearance-related, body image disturbance such as general dissatisfaction with size and weight, or size perception inaccuracy (Cash, Winstead, & Janda, 1986; Thompson & Psaltis, 1988; Thompson & Spana, 1988). When anorexics and "normal" subjects are matched according to size of body areas, the amount of overestimations are equal in both subject groups (Penner, Thompson, & Coovert, 1990). An explanation for the lack of difference between

the populations in relation to size estimations would be that both populations exhibit body image disturbances.

For patients with eating disorders, part of the development of a treatment plan involves determining the extent of the body image disturbance and the perpetuated negative behaviors and attitudes. Counseling for the disorder involves changing behaviors, instilling positive body attitudes, and nutrition re-education. An indicator of how successful the treatment has been for an individual is to examine the change in the body image. The greater the change to a more positive image, the better the recovery and maintenance. While the “normal” population may not need to fear the consequences of eating disturbances, subgroups of the non-diagnosed anorexic/bulimic may be more vulnerable to body image disturbances. Subgroups would exhibit less body satisfaction, poor body size estimations, and anxiety about appearance. Their energy and focus would be on the social environment from which the individuals of the subgroup obtain comparisons, ideals, and regulations. People in these subgroups may have subclinical eating disturbances. Along with possible physical hindrances contributed to by improper nourishment of the body, individuals may display performance problems in their social interactions or other sets of environmental circumstances due to their body image disturbances. There is a need to identify subgroups in “normal” populations who are vulnerable to eating and body image disturbances in order to provide counseling to change behaviors and attitudes. Athletes, as a group, focus on their body as an instrument in sport, and thus may be more susceptible to disturbances. Determining factors which may be predictive for athletic subgroups is important for the prevention of damaging behaviors and attitudes.

## **Chapter 2**

### **METHODOLOGY**

#### **Subjects**

Forty-three college athletes participated. The sports represented were basketball and swimming. Male basketball players (n=13) had a mean weight of 209 lbs at the first testing and 211 lbs at the second. Mean height was 76.6 inches and mean age was 20.0 years. Female basketball players (n=11) had a mean weight of 156 lbs at the first testing and 155 lbs at the second. Mean height was 71.1 inches and mean age was 19.0 years. Male swimmers (n=9) had a mean weight of 184.2 lbs at the first testing and 184.2 at the second. Mean height was 72.8 and mean age was 19.1 years. Female swimmers (n=10) had a mean weight of 145.1 lbs at the first testing and 144.3 at the second. Mean height was 65.5 inches and mean age was 18.8 years.

#### **Procedures**

Coaches were approached prior to the testing to obtain consent for their team's participation in the study. Initial testing occurred at the beginning of the semester break for the swim team and at the beginning of the college semester for the basketball teams. After informed consent of the athletes was obtained, each subject completed four questionnaires consisting of the Multidimensional Body-Self Relations Questionnaire, the revised Self-Monitoring Scale, the Rotter Internal-External Locus of Control Scale, and the second version of the Eating Disorder Inventory. Individual numerical codes were assigned to assure confidentiality. The order in which the questionnaires were presented to each individual was randomized. Age, height, and gender were collected through subject self-reports. Weight was measured by the experimenter and recorded. A retest was

administered a month to a month and a half later depending on the teams' schedules. The subjects completed the same set of questionnaires which were presented in a randomized order. Weight was again measured and recorded.

### **Measures**

Subjects were administered four measures. These included the Multidimensional Body-Self Relations Questionnaire (MBSRQ), Self-Monitoring Scale, the Rotter Internal-External Locus of Control Scale, and the Eating Disorder Inventory-2. The MBSRQ consists of ten subscales which include appearance evaluation, appearance orientation, fitness evaluation, fitness orientation, health evaluation, health orientation, illness orientation, body area satisfaction, overweight preoccupation, and self-classified weight. These focus on the evaluation of attention and behaviors of individuals. Thompson and Psaltis (1988) found a high correlation between the questionnaire's measure of physical appearance evaluation and a figure selection of the individual's current size.

The revised Self-Monitoring Scale consists of items attempting to determine the ability to modify self-presentation and sensitivity to expressive behavior of others, was used to identify self-monitoring behavior (Lennox & Wolfe, 1984). A subscale of the self-monitoring scale focuses on an individual's concern for appropriateness. A high score is considered to represent a person's inclination to exhibit high self-monitoring behaviors.

Locus of control was measured with the Rotter Internal-External Locus of Control Scale developed by Rotter (1966). This scale is a twenty-three item forced choice questionnaire. A high score represents an individual's inclination toward external causalities.

The Eating Disorder Inventory-2 consists of eleven attitudinal and behavioral dimensions which are relevant to anorexia and bulimia nervosa. The eleven subscales are comprised of assessments including: drive for thinness, bulimia, body dissatisfaction,

ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, maturity fears, asceticism, impulse regulation, and social insecurity.

### **Research Questions**

Does an athlete's locus of control correlate with body image?

Does an athlete's degree of self-monitoring correlate with body image?

Does an athlete's change in body image correlate with change in weight?

Does an athlete's disposition to eating disorders correlate with body image?

Do male athletes have a more positive body image as compared with female athletes?

### **Predictions**

Research Question 1: A positive correlation will be found between locus of control and body image.

Research Question 2: A negative correlation will be found between self-monitoring and body image.

Research Question 3: A positive correlation will be found between change in body image and change in weight.

Research Question 4: A positive correlation will be found between eating disorder disposition and body image.

Research Question 5: No significant difference for gender will be found in regards to body image.



## Chapter 3

### RESULTS

Between group difference was examined for sport and gender for each measurement by using t-tests for comparison ( $p < 0.1$ ). Measurements were examined at the individual subscale level for each due to lack of additive predictive validity. Significant differences were found between sports and between gender. Therefore data could not be collapsed and final analysis occurs in a cell specific manner. Pearson's product moment correlations were calculated for each cell on both sets of data. Significance levels of  $p < 0.05$  were established for all correlations and were determined by applying Student's t. Finally, reliability for each measurement was examined by determining correlations between the first data collection and the second.

#### *Research Question 1*

The prediction, that a positive correlation between locus of control and body image would be found, is not supported. A negative correlation existed. In male basketball players, increases in locus of control, becoming more external, were linked to a decrease in extent of reactivity to illness at the second testing ( $r = -0.66$ ). Female basketball players exhibited an association between increased externality and decreases in perception of one's weight at the second testing ( $r = -0.62$ ). Increases in locus of control were linked to a decreased investment in health for male swimmers at the second testing ( $r = -0.81$ ). Female swimmers showed an increased locus of control associated with a decreased investment in fitness at the second testing ( $r = -0.66$ ).

### *Research Question 2*

The prediction, that a negative correlation between self-monitoring and body image, would be found is supported for male basketball players and female swimmers. A negative correlation existed. In male basketball players, an increase of concern for appropriateness was correlated with decreased feelings of physical attractiveness ( $r = -0.62$ ). Female swimmers exhibited increased self-monitoring associated with decreased feelings of fitness and athletic competence at the second testing ( $r = -0.80$ ).

The prediction is not supported for female basketball players and male swimmers. A positive correlation was found. In female basketball players, decreases in self-monitoring were linked with decreases in fat anxiety and dieting at the second testing ( $r = 0.63$ ). Male swimmers exhibited an increase in self-monitoring correlated with an increased reactivity to illness ( $r = 0.70$ ).

### *Research Question 3*

The prediction, that a positive correlation would be found between change in body image and change in weight, is supported for male swimmers. A positive correlation was found. Male swimmers exhibited an increased reactivity to being ill which was associated with an increase in weight change ( $r = 0.71$ ). No significant correlations were found for basketball players and female swimmers.

### *Question 4*

For the prediction that a positive correlation for predisposition to eating disorders, for the drive for thinness subscale, and body image would be found, findings varied for male basketball players and male swimmers. A negative correlation was found in male basketball players for decreased drive for thinness associated with increased feelings of physical attractiveness ( $r = -0.68$ ), feelings of being physically fit ( $r = -0.94$ ), and

investment in physical fitness at the second testing ( $r = -0.71$ ). A positive correlation was found for decreased drive for thinness associated with decreased fat anxiety ( $r = 0.84$ ). Male swimmers exhibited a negative correlation for decreased drive for thinness linked with increased feelings of physical health ( $r = -0.67$ ) and investment in health at the second testing ( $r = -0.77$ ). A positive correlation was found for a decreased drive for thinness linked with a decreased fat anxiety ( $r = 0.76$ ).

The prediction was not supported for females. Female basketball players exhibited decreased drive for thinness associated with decreased fat anxiety at the first testing ( $r = 0.79$ ) and the second testing ( $r = 0.68$ ) and decreased perception of one's weight ( $r = 0.74$ ). Female swimmers showed an increased drive for thinness associated with increased fat anxiety ( $r = 0.74$ ) and attention to appearance at the second testing ( $r = 0.82$ ).

The prediction, that a positive correlation for predisposition to eating disorders, for the bulimia subscale, and body image would be found, had varied findings for swimmers. Male swimmers showed a negative correlation for increased bulimic tendencies linked with a decreased perception of one's weight ( $r = -0.67$ ). Male swimmers showed a positive correlation for increased bulimic tendencies linked with an increased investment in appearance ( $r = 0.87$ ) and healthy lifestyle ( $r = 0.68$ ). Female swimmers exhibited a negative correlation for decreased bulimic tendencies linked with increased feelings of physical health ( $r = -0.67$ ) and body area satisfaction at the second testing ( $r = -0.77$ ). Female swimmers exhibited a positive correlation for decreased bulimic tendencies linked with decreased perception of one's weight at the second testing ( $r = 0.77$ ). No significant correlation was found for male basketball players.

The prediction was supported for female basketball players. A positive correlation existed for decreased bulimic tendencies associated with decreased body area satisfaction at the first testing ( $r = 0.65$ ) and at the second testing ( $r = 0.72$ ).

The findings for the prediction, that a positive correlation for predisposition to eating disorders, for the body dissatisfaction subscale, and body image would be found varied for females. Female basketball players showed a negative correlation for decreased body dissatisfaction linked with increased feelings of physical attractiveness ( $r = -0.64$ ). A positive correlation was found for decreased body dissatisfaction correlated with decreased fat anxiety ( $r = 0.62$ ) and perception of one's weight at the first testing ( $r = 0.77$ ) and at the second testing ( $r = 0.61$ ). Female swimmers showed decreased body dissatisfaction linked with increased feelings of physical attractiveness at the first testing ( $r = -0.67$ ) and at the second testing ( $r = -0.90$ ). Female swimmers exhibited a negative correlation for increases in body dissatisfaction associated with decreased feelings of fitness at the second testing ( $r = -0.70$ ), investment in physical health at the second testing ( $r = -0.64$ ), and satisfaction with appearance of body areas ( $r = -0.90$ ). A positive correlation was found for decreased body dissatisfaction linked with decreased perception of one's weight at the first testing ( $r = 0.67$ ) and at the second testing ( $r = 0.66$ ).

The prediction was not supported for male basketball players. A negative correlation was found for decreased body dissatisfaction, dissatisfaction with overall body shape, was associated with increased feelings of physical fitness ( $r = -0.65$ ).

The prediction was supported for male swimmers. A positive correlation showed increased body dissatisfaction associated with increased fat anxiety and dieting at the second testing ( $r = 0.80$ ).

The prediction, that a positive correlation for predisposition to eating disorders, for the ineffectiveness subscale, and body image would be found, had varied findings for male swimmers. A negative correlation was found for decreased feelings of inadequacy and lack of control linked with increased investment in physical appearance ( $r = -0.76$ ). A positive correlation was found for decreased feelings of inadequacy and lack of control linked with

decreased feelings of physical attractiveness ( $r = 0.86$ ) and satisfaction with appearance of body areas ( $r = 0.73$ ).

The prediction was not supported for female swimmers. A negative correlation was found for increased feelings of inadequacy and lack of control linked with decreased feelings of physical health ( $r = -0.73$ ), investment in physical health ( $r = -0.63$ ), and satisfaction with appearance of body areas ( $r = -0.72$ ). No significant correlation was found for female basketball players.

The prediction was supported for male basketball players. A positive correlation was found for increased feelings of inadequacy and lack of control correlated with increased satisfaction with appearance of body areas at the second testing ( $r = 0.63$ ).

The prediction, that a positive correlation for predisposition to eating disorders, for the perfectionism subscale, and body image would be found, is not supported for male swimmers. A negative correlation was found. Decreased perfectionism was associated with an increased investment in appearance ( $r = -0.70$ ). No significant correlation was found for male basketball players and female swimmers.

The prediction was supported for female basketball players. Decreased perfectionism was linked with decreased investment in healthy lifestyle ( $r = 0.77$ ) and investment in physical fitness ( $r = 0.60$ ).

The prediction, that a positive correlation for predisposition to eating disorders, for the interpersonal distrust subscale, and body image would be found, was not supported for male basketball players. They showed increased feelings of alienation and interpersonal distrust linked with decreased attention to appearance ( $r = -0.56$ ) and investment in physically healthy lifestyle at the second testing ( $r = -0.62$ ). No significant correlation was found for female basketball players or swimmers.

The prediction, that a positive correlation for predisposition to eating disorders, for the interoceptive awareness subscale, and body image would be found, had varied findings

for male and female swimmers. Male swimmers exhibited a negative correlation for increased confusion in recognition and response to emotional states associated with decreased feelings of physical health ( $r = -0.69$ ). Male swimmers exhibited a positive correlation for increased confusion in recognition and response to emotional states linked with increased fat anxiety and dieting ( $r = 0.77$ ). Female swimmers showed a negative correlation for decreased confusion in recognition and response to emotional states linked with increased feelings of physical attractiveness at the first testing ( $r = -0.65$ ) and at the second testing ( $r = -0.87$ ), investment in physical fitness ( $r = -0.72$ ), and satisfaction with appearance of body areas at the first testing ( $r = -0.71$ ) and at the second testing ( $r = -0.67$ ). Female swimmers exhibited a positive correlation for decreased confusion in recognition and response to emotional states linked with decreased perception of one's weight at the second testing ( $r = 0.66$ ).

The prediction was supported for basket ball players. A positive correlation was found. In male basketball players, decreased confusion in recognition and response to emotional states was linked with decreased fat anxiety ( $r = 0.78$ ). Female basketball players showed decreased confusion in recognition and response to emotional states associated with decreased feelings of physical attractiveness ( $r = 0.62$ ) and satisfaction with appearance of body areas ( $r = 0.63$ ).

The hypothesis, that a positive correlation for predisposition to eating disorders, for the maturity fears subscale, and body image would be found, is not supported for male basketball players and swimmers. A negative correlation was found. Male basketball players showed decreased maturity fears linked with increased feelings of physical fitness ( $r = -0.78$ ) and investment in fitness ( $r = -0.61$ ). Female swimmers showed decreased maturity fears associated with increased feelings of physical health ( $r = -0.86$ ) and investment in health at the first testing ( $r = -0.76$ ) and at the second testing ( $r = -0.88$ ). No significant correlation was found for female basketball players.

The findings varied for male swimmers. A positive correlation was found for decreased maturity fears was linked with decreased investment in health ( $r = 0.83$ ). Male swimmers showed a positive correlation for decreased maturity fears associated with increased satisfaction in appearance of body areas ( $r = -0.83$ ).

The prediction, that a positive correlation for predisposition to eating disorders, for the impulse regulation subscale, and body image would be found, is not supported for male basketball players and female swimmers. A negative correlation was found. In male basketball players, decreased impulsivity was linked with increased feelings of physical attractiveness ( $r = -0.65$ ), feelings of being physically fit ( $r = -0.76$ ), investments in physical fitness ( $r = -0.68$ ), and satisfaction with appearance of body areas ( $r = -0.64$ ). Female swimmers showed a decreased impulsivity associated with increased feelings of physical health ( $r = -0.68$ ). No significant correlation was found for male swimmers.

The prediction was supported for female basketball players. A positive correlation was found. Increased impulsivity was associated with increased satisfaction of appearance of body areas at the second testing ( $r = 0.67$ ).

The prediction, that a positive correlation for predisposition to eating disorders, for the social insecurity subscale, and body image would be found, is not supported for female basketball players. A negative correlation was found. Increased social insecurity was linked with decreased investment in healthy lifestyle at the second testing ( $r = -0.67$ ). No significant correlations were found for swimmers.

The prediction was supported for male basketball players. A positive correlation was found. Increased social insecurity was associated with increased satisfaction with appearance of body areas ( $r = 0.65$ ) and fat anxiety ( $r = 0.62$ ).

### *Question 5*

The prediction that no significant difference for gender would be found is not supported. A difference was found between male and female swimmers for their investment in physical fitness at the first testing ( $t = 0.96, p < 0.1$ ) and at the second testing ( $t = 1.39, p < 0.1$ ). A difference existed between males and females for feelings of physical attractiveness at the second testing ( $t = 2.25, p < 0.1$ ).

A difference was found between male and female basketball players for their investment in physical fitness ( $t = 0.86, p < 0.1$ ) and feelings of physical health ( $t = 0.01, p < 0.1$ ) at the first testing.

### **Reliability Correlations**

All reliability correlations were tested for significance at  $p < .05$ . Reliabilities for locus of control for all subsets ranged from correlations of  $r = 0.68$  to  $r = 0.85$ . Female reliability for self-monitoring ranged from  $r = 0.67$  to  $r = 0.78$ . No significant correlations of self-monitoring were found for males.

Reliabilities for the body image subscale of appearance evaluation ranged from  $r = 0.81$  to  $r = 0.92$  for all subsets but male basketball players. No significant correlations were found for male basketball players. Reliabilities for the appearance orientation subscale for females ranged from  $r = 0.77$  to  $r = 0.78$ . No significant correlations were found for males. Reliability of the fitness evaluation subscale for female basketball players was  $r = 0.90$ . No significant correlations were found for the other subsets. The reliabilities for the fitness orientation subscale ranged from  $r = 0.72$  to  $r = 0.85$  for all subsets. Reliability for female swimmers on the health evaluation subscale was  $r = 0.64$ . No significant correlations were found for the other subsets. Reliabilities for health orientation ranged from  $r = 0.76$  to  $r = 0.92$  for swimmers and female basketball players. No significant correlations were found for male basketball players. Reliabilities for illness orientation



ranged from  $r = 0.80$  to  $r = 0.83$  for swimmers. No significant correlations were found for basketball players. Reliabilities for body area satisfaction ranged from  $r = 0.79$  to  $r = 0.84$  for all subsets. Reliabilities for self-classified weight ranged from  $r = 0.90$  to  $r = 0.91$  for all subsets. Reliabilities for overweight preoccupation ranged from  $r = 0.80$  to  $r = 0.94$  for male swimmers and female basketball players. No significant correlations for female swimmers and male basketball players were found.

Reliabilities for the eating disorder subscale of drive for thinness ranged from  $r = 0.66$  to  $r = 0.94$  for females. No significant correlations were found for men. Reliabilities for the bulimia subscale ranged from  $r = 0.68$  to  $r = 0.76$  for females. No significant correlations were found for males. For the body dissatisfaction subscale, reliabilities for females ranged from  $r = 0.80$  to  $r = 0.73$ . No significant correlations for males were found. Reliability for ineffectiveness was  $r = 0.90$  for male swimmers and female basketball players. No significant correlations for male basketball players and female swimmers were found. Reliabilities for perfectionism ranged from  $r = 0.61$  to  $r = 0.89$  for all subsets. Reliabilities for interoceptive awareness ranged from  $r = 0.61$  to  $r = 0.92$  for all subsets but male basketball players. No significant correlations were found for male basketball players. Reliability for maturity fears was  $r = 0.72$  for female swimmers. No significant correlations were found for all other subsets. Reliability for interpersonal distrust was  $r = 0.62$  for male basketball players. No significant correlations were found for all other subsets. Reliability for impulse regulation ranged from  $r = 0.71$  to  $r = 0.75$  for male swimmers and female basketball players. No significant correlations were found for male basketball players and female swimmers. Reliabilities of social insecurity ranged from  $r = 0.75$  to  $r = 0.96$  for swimmers. No significant correlations were found for basketball players.

In summary of the data findings, the predicted positive correlation between locus of control and body image was not supported for any subset. In general, it was found that

higher loci of control were associated with a lowered investments of fitness and health and responsiveness to illness.

Negative correlations were found, as predicted, between self-monitoring and body image for male basketball players and female swimmers. In general, increases in self-monitoring were associated with decreased feelings of attractiveness and fitness.

The prediction of a positive correlation between change in body image and change in weight was supported found for male swimmers. An increased reactivity to illness correlated with an increase in weight change.

Predicted positive correlations for predisposition to eating disorders and body image were found for subject subsets on certain subscales of EDI-2. For the drive for thinness subscale, basketball players and male swimmers showed a decreased drive for thinness associated with decreased fat anxiety and perception of weight. Female swimmers showed an increased drive for thinness associated with an increased fat anxiety and attention to appearance. For the bulimia subscale, male swimmers exhibited increased bulimic tendencies linked with increased investment in appearance. Female swimmers showed decreased bulimic tendencies associated with decreased perception of weight. For the body dissatisfaction subscale females showed decreased body dissatisfaction associated with decreased perception of weight. Male swimmers showed an increased body dissatisfaction associated with increased fat anxiety. For the perfectionism subscale, female basketball players exhibited decreased perfectionism associated with decreased investment in health and fitness. For the interoceptive subscale, male basketball players and female swimmers showed decreased interoceptive awareness associated with decreased fat anxiety and perception of weight. Male swimmers exhibited increased interoceptive awareness linked with increased fat anxiety. For the social insecurity subscale, male basketball players showed increased social insecurity correlated with increased fat anxiety.

Raw data was examined from each subset to determine the patterns of increase or decrease of specific subscales for each significant correlation. For male basketball players the raw data indicated that the correlations which were found were associated with attitudes and behaviors displaying a generally healthy nature. Examination of the change in attitudes and behaviors will be useful as preventive information. Behaviors which exhibit an increased concern for appropriateness linked with decreased feelings of attractiveness, as was found in this study, may be a warning that individuals are looking to social cues for evaluation of appearance. Decreased drive for thinness and decreased impulsivity linked with increased feelings of attractiveness, increased feelings of physical fitness, and increased investment in physical fitness are healthy attitudes and behaviors for an individual. Alarm should be raised if these inclinations change. Likewise, behaviors and attitudes of decreased impulsivity linked with increased body area satisfaction, and decreased drive for thinness and decreased confusion in recognition of emotional states associated with decreased fat anxiety are a positive perspective to one's body. A sport management team should be concerned if a decline occurs in these.

Female basketball players exhibited similarly overall healthy attitudes and behaviors toward their bodies. Behaviors and attitudes which should be monitored for decline or change were: decreased drive for thinness and decreased body dissatisfaction linked with decreased perception of one's weight and decreased body fat anxiety, decreased self-monitoring associated with decreased fat anxiety, increased externality of locus of control linked with decreased perception of one's weight, and decreased body dissatisfaction associated with increased feelings of attractiveness. A possible concern may be with the attitudes and behavior associated with between increased social insecurity and decreased investment in a healthy lifestyle.

In contrast to the basketball players, male swimmers had more attitudes and behaviors which should be of concern to a sports management team. The associations with potential

interest are: increased self-monitoring linked with change in weight, increased externality of locus of control linked with decreased investment in health, increased body dissatisfaction and increased confusion in recognition of emotional states associated with increased fat anxiety, increased bulimic tendencies associated with increased investment in appearance, and increased confusion of recognition of emotional states linked with decreased feelings of health. Currently healthy attitudes and behaviors which should be monitored for decline or change, are decreased drive for thinness associated with decreased fat anxiety and increased feelings of health and decreased maturity fears linked with increased body area satisfaction.

In contrast to the basketball players, female swimmers had more attitudes and behaviors which should be of concern to a sports management team. The associations of interest include: increased externality of locus of control associated with a decreased investment in fitness, increased body dissatisfaction and increased self-monitoring linked with decreased feelings of fitness, increased feelings of inadequacy and lack of control and increased body dissatisfaction associated with decreased feelings of healthy lifestyle, increased body dissatisfaction linked with decreased body area satisfaction, and increased body dissatisfaction and increased feelings of inadequacy and lack of control linked with decreased investment in health. Currently healthy attitudes and behaviors which should be monitored for decline or change, are decreased confusion in recognition of emotional states associated with increased investment in fitness, decreased body dissatisfaction linked with decreased perception of weight, decreased maturity fear and decreased bulimic tendencies associated with increased feelings of health, decreased maturity fears linked with increased investment in health, decreased bulimic tendencies and decreased confusion in recognition of emotional states linked with increased body area satisfaction and decreased perception of weight, and decreased body dissatisfaction and confusion in recognition of emotional states associated with increased feelings of attractiveness.

## Chapter 4

### DISCUSSION

A difference was found between males and females for body image. In general males shared behaviors and attitudes associated with lowered drive for thinness linked with lowered fat anxiety. Athletic men do not exhibit feelings associated with the fear of fat. They do not show anxiety for a thinner body. While this subgroup of men does not represent all athletes and all males, the findings for these individuals support literature which suggests that males are less concerned with the thin ideal as compared to females. Positive correlations between interoceptive awareness and fat anxiety were also found for males.

Females shared behaviors and attitudes associated with decreased body dissatisfaction linked with decreased perception of weight. As women became more satisfied with their overall body shape, they perceived that their weight was normal to underweight. This finding supports literature which proposes that women, as compared to men, attach negative feelings to the body depending on how they perceive the body in relation to the thin ideal.

The lack of significant reliability estimates for the measurements used suggest that these questionnaires may not be the best instruments to use with these particular subgroups as predictive sources. The lack of reliability infers that error contributed greatly to the derived scores. The measurements which were reliable for all subgroups include locus of control, the subscales of fitness orientation, body area satisfaction, and self-classified weight for body image, and the perfectionism subscale for eating disorders. Reliability estimates for females were significant for self-monitoring, appearance evaluation, appearance orientation, health orientation, drive for thinness, bulimia, body dissatisfaction, and interoceptive awareness. Measurements dealing with monitoring and

appearance as compared with cultural ideal and feelings associated with the body were fairly stable, displaying a small amount of error. The stability of these attitudes supports the past findings that place importance in appearance and thinness as compared to men. Women had less error than men in their responses regarding these factors and were more stable in responding to questions which addressed concern for appearance. Reliability for these measurements also reinforces that women are more vocal than men in expressing dissatisfaction with their body.

Swimmers had significant reliability estimates for health orientation, illness orientation, interoceptive awareness, and social insecurity. Stability of behaviors related to health and feelings of emotional responsiveness and personal interaction was found for an individual sport, not a team sport. Swimmers displayed behaviors which indicate difficulty with health in association with emotions and insecurity in social interactions. This supports past research findings which links responsiveness to emotions and social interactions with overall well-being. The findings may suggest that personal interrelations are more uncomfortable for individual competitors.

Factors that influence the reliability of these measurements are the accuracy of individuals' self-reports, the instability of feelings and behaviors, and the training environment. The nature of self-reports introduces error. An individual may not respond honestly or may interpret instructions or statements on measurements differently at separate times which increases the amount of difference between two sets of responses. The lack of reliability for these measures may be due to the instability of feelings. Even if individuals self-disclose accurately, the amount of change in feelings over time may be too great to assess stable factors with relatively small error. Change in feelings may be extenuated by stressors and the environment. The training environment may have induced change in the swimmers feelings and behaviors. The swimmers in this study lost their coach two-thirds of the way through their season. A change was apparent for this

subgroup and can be attributed to the change in their training environment and stress which may have accompanied it. Training environment and the schedules of a student athlete may influence the amount of control an individual attributes to self. A student athlete is constantly working within a structured daily schedule, including when meals will be consumed. Athletes who are traveling to other schools for competition may be concerned with factors including missing classes to trying to sleep on a bus. Philosophies of trainers and feedback from trainers may be in conflict with internal feelings of individual athletes. This conflict may contribute to the mixed reactions of athletes on the measurements used in this study. An athlete may think they are strong and competent in their sport in general, but feel inadequate when using an upcoming competitor or team as a comparison.

Some of the subscales appear to not indicate responses for which they were designed for the athletic subgroups in this study. While significant correlations are found for the factors of bulimia, interoceptive awareness, maturity fears and body area appearance satisfaction, most of the associations involving these factors are not justifiable. An example is the correlation for male basketball players that a increased confusion in recognition to emotional states was linked to an increased satisfaction of body area appearance. Correlations involving these variables are not necessarily assessing factors intended by the authors of the measurements. Perhaps the measurements are not sensitive to athletes' assessments of body and health. Further research with athletes is needed to determine what is being evaluated by these factors, or if the subscales' questions are appropriate in addressing these factors for these specific athletic populations.

- Adame, D.D., Radell, S.A., & Johnson, T.C. (1991). Physical fitness, body image, and locus of control in college women dancers and nondancers. *Perceptual and Motor Skills*, 72, 91-95.
- Barton, M.I., & Wapner, S. (1965). Apparent length of body parts attended to separately and in combination. *Perceptual and Motor Skills*, 20, 904.
- Beck, S.B., Ward-Hull, C.I., & McLear, P.M. (1976). Variables related to women's somatic preferences of the male and female body. *Journal of Personality and Social Psychology*, 34, 1200-1210.
- Brodie, D.A., & Slade, P.D. (1988). The relationship between body-image and body-fat in adult women. *Psychological Medicine*, 18, 623-631.
- Brown, T.A., Cash, T.F., & Lewis, R.J. (1989). Body-image disturbances in adolescent female binge-purgers: A brief report of the results of a national survey in the U.S.A. *Journal of Child Psychiatry and Psychology*, 30, 605-613.
- Buri, J.R., & Mueller, J.R. (1988). Self-monitoring and the looking glass self. Annual convention of the American Psychological Association, Georgia.
- Buss, A.H. (1980). *Self-consciousness and social anxiety*. San Francisco: Freeman.
- Carson, A.D., & Mowesian, R. (1993). Self-monitoring and private self-consciousness: relations to Holland's vocational personality types. *Journal of Vocational Behavior*, 42, 212-222.



- Carver, C.S., & Scheier, M. F. (1978). Self-focusing effects of dispositional self-consciousness, mirror presence, and audience presence. *Journal of Personality and Social Psychology*, 36, 324-332.
- Cash, T.F. (1988). The psychology of cosmetics: A research bibliography. *Perception and Motor Skills*, 69, 17-18.
- Cash, T.F., & Brown, T.A. (1989) Gender and body images: Stereotypes and realities. *Sex Roles*, 21, 361-373.
- Cash, T.F., Counts, B., Hagen, J., & Hufine, C.E. (1989). How much do you weigh?: Determinants of validity of self-reported body weight. *Perceptual and Motor Skills*, 69 (1), 248-251.
- Cash, T.F., & Green, G.K. (1986). Body weight and body image among college women: Perception, cognition, and affect. *Journal of Personality Assessment*, 50, 290-301.
- Cash, T.F., & Hicks, K.L. (1990). Being fat versus thinking fat: Relationships with body image, eating behaviors, and well-being. *Cognitive Therapy and Research*, 14, 327-341.
- Cash, T.F., Winstead, B.A., & Janda, L.H. (1986). The great American shape-up: Body image survey report. *Psychology Today*, 20 (4), 30-37.
- Casper, R.C., Hamli, K.A., Goldberg, S.C., Eckert, E.D., & Davis, J.M. (1979).

Disturbances in body image estimation as related to other characteristics and outcomes in anorexia nervosa. *British Journal of Psychiatry*, 134, 60-66.

Cohn, L.D., & Adler, N.E. (1992). Female and male perceptions of ideal body shapes: distorted views among Caucasian college students. *Psychology of Women Quarterly*, 16, 69-79.

Cooper, P.J., & Taylor, M.A. (1987). Body image disturbance in bulimia nervosa. *British Journal of Psychiatry*, (Suppl. 2), 34-38.

Cooper, Z., & Fairburn, C.G. (1987). The eating disorder examination: A semi-structured interview for the assessment of the specific psychopathology of eating disorders. *International Journal of Eating Disorders*, 7, 495-502.

Coovert, D.L., Thompson, J.K., & Kinder, B.N. (1988). Interrelationships among multiple aspects of body image and eating disturbance. *International Journal of Eating Disorders*, 7, 495-502.

Crisp, A.H., & Kalucy, R.S. (1974). Aspects of the perceptual disorder in anorexia nervosa. *British Journal of Medical Psychology*, 47, 349-361.

Dasch, C.S. (1978). Relation of dance skills to body cathexis and locus of control orientations. *Perceptual and Motor Skills*, 46, 465-466.

Drewnowski, A., & Yee, D.K. (1987). Men and body image: Are males satisfied with their body weight? *Psychosomatic Medicine*, 49, 626-634.

- Drummer, G.M., Rosen, L.W., Heusner, W.W., Roberts, P.J., & Counsilman, J.E. (1987). Pathogenic weight-control behaviors of young competitive swimmers. *The Physician and Sportsmedicine*, 15, 75-84.
- Dunn, P., & Ondercin, P. (1981). Personality variables related to compulsive eating in college women. *Journal of Clinical Psychology*, 37, 43-49.
- Fabian, L.J., & Thompson, J.K. (1989). Body image and eating disturbance in young females. *International Journal of Eating Disorders*, 8, 63-74.
- Fisher, S. (1970). *Body experience in fantasy and behavior*. New York: Appleton-Century-Crofts.
- Fisher, S. (1973). *Body consciousness: You are what you feel*. New Jersey: Prentice-Hall, Inc.
- Franzoi, S.L., & Herzog, M.E. (1987) Judging physical attractiveness: What body aspects do we use? *Personality and Social Psychology Bulletin*, 13, 19-33.
- Franzoi, S.L., & Shields, S.A. (1984). The body esteem scale: Multidimensional structure and sex differences in a college population. *Journal of Personality Assessment*, 48, 173-178.
- Freeman, R.J., Thomas, C.D., Solyom, L., & Miles, J.E. (1983). Body image disturbances in anorexia nervosa: A re-examination and a new technique. In P.L.

- Darby, P.E. Garfinkel, D.M. Garner, & D.V. Coscina (Eds.), *Anorexia Nervosa. Recent Developments in Research*. New York: Liss, 117-127.
- Furher, M.J., & Cowan, C.O. (1967). Influence of active movements, illumination, and sex on estimates of body-part size. *Perceptual and Motor Skills*, 20, 904.
- Furlong, G.A. (1977) The impact of subjective deformity on configurational body-size perception. Unpublished doctoral dissertation, University of Montreal.
- Garfinkel, P.E. (1981). Some recent observations on the pathogenesis of anorexia nervosa. *Canadian Journal of Psychiatry*, 26, 218-223.
- Garfinkel, P.E., & Garner, D.M. (1982). *Anorexia nervosa: A multidimensional perspective*. New York: Brunner/Mazel.
- Garfinkel, P.E., Garner, D.M., Rose, J., Darby, P.L., Brandes, J.S., O'Hanlon, J., & Walsh, N. (1983). A comparison of characteristics in the families of patients with anorexia nervosa and normal controls. *Psychological Medicine*, 13, 821-828.
- Garfinkel, P.E., Moldofsky, H., Garner, D.M., Stancer, H.C., & Coscina, D.V. (1978). Body awareness in anorexia nervosa: Disturbances in "body image" and "satiety." *Psychosomatic Medicine*, 40, 487-498.
- Garner, D.M., & Garfinkel, P.E. (1981-82). Body image in anorexia nervosa: Measurement, theory, and clinical implications. *International Journal of Psychiatry in Medicine*, 11, 263-284.

- Garner, D.M., Garfinkel, P.E., Rockert, W., & Olmstead, M.P. (1987). A prospective study of eating disturbances in ballet. *Psychotherapy and Psychosomatic*, 48, 170-175.
- Garner, D.M., Garfinkel, P.E., Stancer, H.C., & Moldofsky, H. (1976). Body image disturbances in anorexia nervosa and obesity. *Psychosomatic Medicine*, 38, 327-336.
- Goldberg, B., & Folkins, C. (1974). Relationship of body image to negative emotional attitudes. *Perceptual and Motor Skills*, 39, 1053-1054.
- Gross, J., & Rosen, J.C. (1988). Bulimia in adolescents: Prevalence and psychosocial correlates. *International Journal of Eating Disorders*, 7, 51-61.
- Hamid, P.N. (1989). Self-monitoring and locus of control as determinants of social interaction: A preliminary investigation. *Social Behavior and Personality*, 17, 125-134.
- Hamilton, L.H., Brooks-Gunn, J., Warren, M.P., & Hamilton, W.G. (1988). The role of selectivity in the pathogenesis of eating problems in ballet dancers. *Medicine and Science in Sports and Exercise*, 20, 560-565.
- Harnish, R.J., & Sullivan, L.A. (1987). Body image, self-monitoring, and gender. Annual convention of the American Psychological Association, New York.
- Hsu, L.K.E. (1982). Is there a disturbance in body image in anorexia nervosa? *Journal of Nervous and Mental Disease*, 170, 305-307.
- Hutchinson, M.G. (1982). Transforming body image: Your body, friend or foe? *Women*

*and Therapy*, 1, 59-67.

Jackson, L.A., Sullivan, L.A., & Rostker, R. (1988). Gender, gender role, and body image. *Sex Roles*, 19, 429-443.

Johnson, C., & Connors, M.E. (1987). *The etiology and treatment of bulimia nervosa: A biopsychological perspective*. New York: Basic Books.

Johnson, W.R., & Hutton, D.C. (1970). Effects of a combative sport upon personality dynamics as measured by a projective test. In W.P. Morgan (Ed.), *Contemporary Readings in Sport Psychology*. Springfield, IL: Thomas, 291-297.

Joseph, A., Wood, I.K., & Goldberg, S.C. (1982). Determining populations at risk for developing anorexia nervosa based on selection of college major. *Psychiatry Research*, 7, 53-58.

Keeton, W.P., Cash, T.F., & Brown, T.A. (1990). Body image or body images?: Comparative, multidimensional assessment among college students. *Journal of Personality Assessments*, 54, 213-230.

Kiemle, G., Slade, P.D., & Dewey, M.E. (1987). Factors associated with abnormal eating attitudes and behaviors: Screening individuals at risk of developing an eating disorder. *International Journal of Eating Disorders*, 6, 713-724.

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

- Koff, E., Rierdan, J., & Silverstone, E. (1978). Changes in representation of body image as a function of menarcheal status. *Developmental Psychology*, 14, 635-642.
- Krueger, D. (1989). *Body self and psychological self: Developmental and clinical integration disorders of the self*. New York: Brunner/Mazel.
- Lennox, R.D., & Wolfe, R.N. (1984). Revision of the self-monitoring scale. *Journal of Personality and Social Psychology*, 46, 1349-1364.
- Montgomery, R.L., Haemmerle, F.M., & Meichers, J.A. (1987). The revised self-monitoring scale and social skills. Annual convention of the Southwestern Psychological Association, Louisiana.
- Oscarson, J.M. (1969). A study of adjustment, body cathexis, perceived ideal body type, and objective body type in pre-, mid-, and post-pubescent girls. Unpublished doctoral dissertation, Indiana University.
- Overby, L.Y. (1990). A comparison of novice and experienced dancers' imagery ability. *Journal of Mental Imagery*, 14, 173-184.
- Pasman, L., & Thompson, J.K. (1988). Body image and eating disturbance in obligatory runners, obligatory weight lifters, and sedentary individuals. *International Journal of Eating Disorders*, 7, 759-769.
- Penner, L., Thompson, J.K., & Covert, D.L. (1991). Size estimation among anorexics:

Much ado about very little. *Journal of Abnormal Psychology*, 100(1), 90-94.

Pierloot, R.A., & Houben, M.E. (1978). Estimation of body dimensions in anorexia nervosa. *Psychological Medicine*, 8, 317-324.

Richardson, L.A. (1993). *Diets and weight loss*. Virginia: Banta Company, 42.

Rippon, C., Nash, J., Myburgh, K.H., & Noakes, T.D. (1988). Abnormal eating attitude test scores predict menstrual dysfunction in lean females. *International Journal of Eating Disorders*, 7, 617-624.

Rossi, B., & Zoccolotti, P.L. (1979). Body perception in athletes and non-athletes. *Perceptual and Motor Skills*, 49, 723-726.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80, (Whole No. 609).

Rozin, P., & Fallon, A. (1988). Body image, attitudes to weight, and misperceptions of figure preference of the opposite sex: A comparison of men and women in two generations. *Journal of Abnormal Psychology*, 97, 324-345.

Schilder, P. (1950). *The image and appearance of the human body*. London: Kegan, Paul, Trench, Trubner.

Secord, P.F., & Jourard, S. (1955). Body cathexis and the ideal female figure. *Journal of Abnormal and Social Psychology*, 50, 243-246.



Sheldon, W.H. (1942). *The varieties of temperament*. New York: Harper.

Shontz, F.L. (1969). *Perceptual and cognitive aspects of body experience*. New York: Academic Press.

Shontz, F.L., & McNish, R.D. (1972). The human body as a stimulus object: Estimates of distances between body landmarks. *Journal of Experimental Psychology*, 95, 20-24.

Silberstein, L.R., Striegel-Moore, R.H., Timko, C., & Rodin, J. (1988). Behavioral and psychological implications of body dissatisfaction: Do men and women differ? *Sex Roles*, 19, 219-232.

Slade, P.D., & Russell, G.F.M. (1973). Experimental investigations of bodily perception, anorexia nervosa, and obesity. *Psychotherapy and Psychosomatics*, 22, 359-363.

Striegel-Moore, R.H., McAvay, G., & Rodin, J. (1986). Psychological and behavioral correlates of feeling fat in women. *International Journal of Eating Disorders*, 5, 935-947.

Striegel-Moore, R.H., Silberstein, L.R., Frensch, P., & Rodin, J. (1989). A prospective study of disordered eating among college students. *International Journal of Eating Disorders*, 8, 499-509.

Striegel-Moore, R.H., Silberstein, L.R., & Rodin, J. (1986). Toward an understanding of risk factors for bulimia. *American Psychologist*, 41, 246-263.

- Strober, M. (1981). The relation of personality characteristics to body image disturbances in juvenile anorexia nervosa: A multivariate analysis. *Psychosomatic Medicine*, 43, 323-330.
- Thompson, J.K., & Psaltis, K. (1988). Multiple aspects and correlates of body figure ratings: A replication and extension of Fallon and Rozin (1985). *International Journal of Eating Disorders*, 7, 813-818.
- Thompson, J.K., & Spana, R.E. (1988). The adjustable light beam method for the assessment of size estimation accuracy: Description, psychometrics, and normative data. *International Journal of Eating Disorders*, 7, 521-526.
- Thorton, J.S. (1990). Feast or famine: Eating disorders in athletes. *The Physician and Sportsmedicine*, 18, 116-122.
- Touyz, S.W., Beaumont, P.J.V., Collins, J.K., McCabe, M., & Jupp, J. (1984). Body shape perception and its disturbance in anorexia nervosa. *British Journal of Psychiatry*, 144, 167-171.
- Wheless, L.R., Stewart, R.A., Kerney, P., & Plax, T.G. (1987). Locus of control and personal constructs in students' reaction to teacher compliance attempts: A reassessment. *Communication Education*, 36, 250-258.
- Wiedel, T.C., & Dodd, J.M. (1983). The relationship between dietary restraint, personality measures, and weight in college students. *Journal of Obesity and Weight*

*Regulation*, 2, 88-96.

Wingate, B.A., & Christie, M.J. (1978). Ego strength and body image in anorexia nervosa. *Journal of Psychosomatic Research*, 22, 201-204.

Wolf, E.M., & Crowther, J.H. (1983). Personality and eating habit variables as predictors of severity of binge eating and weight. *Addictive Behaviors*, 8, 335-344.

Zakin, D.F. (1989) Eating disturbances, emotional separation, and body image. *International Journal of Eating Disorders*, 8, 411-416.

## **Appendix A**

## The Multidimensional Body-Self Relations Questionnaire

Brown, T.A., Cash, T.F., & Mikulka, P.J., 1990

The following pages contain a series of statements about how people think, feel, or behave. You are asked to indicate *the extent to which each statement pertains to you personally*.

Your answers to the items in the questionnaire are anonymous, so please do not write your name on any of the materials. In order to complete the questionnaire, read each statement carefully and decide how much it pertains to you personally. Using a scale like the one below, indicate your answer on the computerized answer sheet by blackening the appropriate circle to the right of the number of the statement.

A	B	C	D	E
Definitely Disagree	Mostly Disagree	Neither Agree Nor Disagree	Mostly Agree	Definitely Agree

There are no right or wrong answers. just give the answer that is most accurate for you. Remember, your responses are anonymous, so please be *completely honest*. Please give an answer to all the items.

1. Before going out in public, I always notice how I look.
2. I am careful to buy clothes that will make me look my best.
3. I would pass most physical-fitness tests.
4. It is important that I have superior physical strength.
5. My body is sexually appealing.
6. I am not involved in a regular exercise program.
7. I am in control of my health.
8. I know a lot about things that affect my physical health.
9. I have deliberately developed a healthy lifestyle.
10. I constantly worry about being or becoming fat.
11. I like my looks just the way they are.
12. I check my appearance in the mirror whenever I can.

13. Before going out, I usually spend a lot of time getting ready.
14. My physical endurance is good.
15. Participating in sports is unimportant to me.
16. I do not actively do things to keep physically fit.
17. My health is a matter of unexpected ups and downs.
18. Good health is one of the most important things in my life.
19. I don't do anything that I know might threaten my health.
20. I am conscious of even small changes in my weight.
21. Most people would consider me good-looking.
22. It is important that I always look good.
23. I use very few grooming products.
24. I easily learn physical skills.
25. Being physically fit is not a strong priority in my life.
26. I do things to increase my physical strength.
27. I am seldom physically ill.
28. I take my health for granted.
29. I often read books and magazines that pertain to health.
30. I like the way I look without my clothes.
31. I am self-conscious if my grooming isn't right.
32. I usually wear whatever is handy without caring how it looks.
33. I do poorly in physical sports or games.
34. I seldom think about my athletic skills.
35. I work to improve my physical stamina.
36. From day to day I never know how my body will feel.
37. If I am sick, I don't pay much attention to my symptoms.
38. I make no special effort to eat a balanced and nutritious diet.
39. I like the way my clothes fit me.
40. I don't care what people think about my appearance.
41. I take special care with my hair grooming.
42. I dislike my physique.
43. I don't care to improve my abilities in physical activities.
44. I try to be physically active.
45. I often feel vulnerable to sickness.
46. I pay close attention to my body for signs of illness.
47. If I'm coming down with a cold or flu, I just ignore it and go on as usual.
48. I am physically unattractive.

- 49. I never think about my appearance.
- 50. I am always trying to improve my physical appearance.
- 51. I am very well coordinated.
- 52. I know a lot about physical fitness.
- 53. I play a sport regularly throughout the year.
- 54. I am a physically healthy person.
- 55. I am very aware of small changes in my physical health.
- 56. At the first sign of illness, I seek medical advice.
- 57. I am on a weight-loss diet.
- 58. I have tried to lose weight by fasting or going on crash diets.
- 59. I think I am:
  - A. Very Underweight
  - B. Somewhat Underweight
  - C. Normal Weight
  - D. Somewhat Overweight
  - E. Very Overweight

- 60. From looking at me, most other people would think I am:
  - A. Very Underweight
  - B. Somewhat Underweight
  - C. Normal Weight
  - D. Somewhat Overweight
  - E. Very Overweight

61-69. Indicate how satisfied you are with each of the following areas of your body.

A	B	C	D	E
Very Dissatisfied	Mostly Dissatisfied	Neither Satisfied Nor Dissatisfied	Mostly Satisfied	Very Satisfied

- 61. Face (facial features, complexion)
- 62. Hair (color, thickness, texture)
- 63. Lower torso (buttocks, hips, thighs, legs)

64. Mid torso (waist, stomach)
65. Upper torso (chest or breasts, shoulders, arms)
66. Muscle tone
67. Weight
68. Height
69. Overall appearance



## **Appendix B**

## Wesley-Wolfe Survey 1994

Reply to each item by entering your answer to the left of the numbered statement.

These statements concern your reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. Select the response that tells how true or false the statement is, as applied to you. Use this response format:

- A. certainly, always true
- B. generally true
- C. somewhat true, but with exception
- D. somewhat false, but with exception
- E. generally false
- F. certainly, always false

1. I tend to show different sides of myself to different people.
2. It is my feeling that if everyone else in a group is behaving in a certain manner, this must be the proper way to behave.
3. I actively avoid wearing clothes that are not in style.
4. In different situations and with different people, I often act like very different persons.
5. At parties I usually try to behave in a manner that makes me fit in.
6. When I am uncertain how to act in a social situation, I look to the behavior of others for cues.
7. Although I know myself, I find that others do not know me.
8. I try to pay attention to the reactions of others to my behavior in order to avoid being out of my place.
9. I find that I tend to pick up slang expressions from others and use them as part of my own vocabulary.
10. Different situations can make me behave like very different people.
11. I tend to pay attention to what others are wearing.
12. The slightest look of disapproval in the eyes of a person with whom I am interacting is enough to make me change my approach.
13. Different people tend to have different impressions about the type of person I am.

14. It's important to me to fit in to the group I'm with.
15. My behavior often depends on how I feel others wish me to behave.
16. I am not always the person I appear to be.
17. If I am the least bit uncertain as to how to act in a social situation, I look to the behavior of others for cues.
18. I usually keep up with clothing style changes by watching what others wear.
19. I sometimes have the feeling that people don't know who I really am.
20. When in a social situation, I tend not to follow the crowd, but instead behave in a manner that suits my particular mood at the time.
21. In social situations, I have the ability to alter my behavior if I feel that something else is called for.
22. I am often able to read people's true emotions correctly through their eyes.
23. I have the ability to control the way I come across to people, depending on the impression I wish to give them.
24. In conversations, I am sensitive to even the slightest change in the facial expression of the person I'm conversing with.
25. My powers of intuition are quite good when it comes to understanding others' emotions and motives.
26. I can usually tell when others consider a joke to be in bad taste, even though they may laugh convincingly.
27. When I feel that the image I am portraying isn't working, I can readily change it to something that does.
28. I can usually tell when I've said something inappropriate by reading it in the listener's eyes.
29. I have trouble changing my behavior to suit different people and different situations.
30. I have found that I can adjust my behavior to meet the requirements of any situation I find myself in.
31. If someone is lying to me, I usually know it at once from the person's manner of expression.
32. Even when it might be to my advantage, I have difficulty putting up a good front.
33. Once I know what the situation calls for, it's easy for me to regulate my actions accordingly.

## **Appendix C**

## The Rotter Internal-External Locus of Control Scale

Rotter, J.B., 1966

### *Social Reaction Inventory*

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered *a* or *b*. Please select the one statement of each pair (and only one) which you will more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.

Please answer these items *carefully* but do not spend too much time on any one item. Be sure to answer for *every* choice. In some cases you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item *independently* when making your choice; do not be influenced by your previous choices.

*I more strongly believe that:*

1. a. Children get into trouble because their parents punish them too much.  
b. The trouble with most children nowadays is that their parents are too easy with them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.  
b. People's misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.  
b. There will always be wars, no matter how hard people try to prevent them.
4. a. In the long run people get the respect they deserve in this world.  
b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.  
b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. a. Without the right breaks one cannot be an effective leader.  
b. Capable people who fail to become leaders have not taken advantage of their opportunities.
7. a. No matter how hard you try some people just don't like you.  
b. People who can't get others to like them don't understand how to get along with others.
8. a. Heredity plays a major role in determining one's personality.  
b. It is one's experiences in life which determine what they're like.
9. a. I have often found that what is going to happen will happen.  
b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.  
b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.  
b. Getting a good job depends mainly on being in the right place at the right time.
12. a. The average citizen can have an influence in government decisions.  
b. This world is run by the few people in power, and there is not much the little guy can do about it.
13. a. When I make plans, I am almost certain that I can make them work.  
b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good.  
b. There is some good in everybody.
15. a. In my case getting what I want has little or nothing to do with luck.  
b. Many times we might just as well decide what to do by flipping a coin.
16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.  
b. Getting people to do the right thing depends on ability; luck has little or nothing to do with it.
17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.  
b. By taking an active part in the political and social affairs the people can control the world events.
18. a. Most people can't realize the extent to which their lives are controlled by accidental happenings.  
b. There really is no such thing as "luck."
19. a. One should always be willing to admit his mistakes.  
b. It is usually best to cover up one's mistakes.
20. a. It is hard to know whether or not a person really likes you.  
b. How many friends you have depends upon how nice a person you are.
21. a. In the long run the bad things that happen to us are balanced by the good ones.  
b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22. a. With enough effort we can wipe out political corruption.  
b. It is difficult for people to have much control over the things politicians do in office.
23. a. Sometimes I can't understand how teachers arrive at the grades they give.  
b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.  
b. A good leader makes it clear for everybody what their jobs are.
25. a. Many times I feel that I have little influence over the things that happen to me.  
b. It is impossible for me to believe that chance or luck plays an important role in my life.
26. a. People are lonely because they don't try to be friendly.  
b. There's not much use in trying too hard to please people; if they like you, they like you.
27. a. There is too much emphasis on athletics in high school.  
b. Team sports are an excellent way to build character.
28. a. What happens to me is my own doing.  
b. Sometimes I feel that I don't have enough control over the direction my life is taking me.
29. a. Most of the time I can't understand why politicians behave the way they do.  
b. In the long run the people are responsible for bad government on a national as well as on a local level.



## **Appendix D**

## Eating Disorder Inventory-2

Garner, D.M., 1991

Your ratings on the items below will be made on the EDI-2 Answer Sheet. The items ask about your attitudes, feelings, and behavior. Some of the items relate to food or eating. Other items ask about your feelings about yourself.

For each item, decide if the item is true about you ALWAYS (A), USUALLY (U), OFTEN (O), SOMETIMES (S), RARELY (R), or NEVER (N). Circle the letter that corresponds to your rating on the EDI-2 Answer Sheet. For example, if your rating for an item is OFTEN, you would circle O for that item on the Answer Sheet.

Respond to all the items, making sure that you circle the letter for the rating that is true about you. DO NOT ERASE! If you need to change an answer, make an "X" through the incorrect letter and then circle the correct one.

1. I eat sweets and carbohydrates without feeling nervous.
2. I think that my stomach is too big.
3. I wish that I could return to the security of childhood.
4. I eat when I am upset.
5. I stuff myself with food.
6. I wish that I could be younger.
7. I think about dieting.
8. I get frightened when my feelings are too strong.
9. I think that my thighs are too large.
10. I feel ineffective as a person.
11. I feel extremely guilty after overeating.
12. I think that my stomach is just the right size.
13. Only outstanding performance is good enough in my family.
14. The happiest time in life is when you are a child.
15. I am open about my feelings.
16. I am terrified of gaining weight.
17. I trust others.
18. I feel alone in the world.
19. I feel satisfied with the shape of my body.

20. I feel generally in control of things in my life.
21. I get confused about what emotion I am feeling.
22. I would rather be an adult than a child.
23. I can communicate with others easily.
24. I wish I were someone else.
25. I exaggerate or magnify the importance of weight.
26. I can clearly identify what emotion I am feeling.
27. I feel inadequate.
28. I have gone on eating binges where I have felt that I could not stop.
29. As a child, I tried very hard to avoid disappointing my parents and teachers.
30. I have close relationships.
31. I like the shape of my buttocks.
32. I am preoccupied with the desire to be thinner.
33. I don't know what's going on inside me.
34. I have trouble expressing my emotions to others.
35. The demands of adulthood are too great.
36. I hate being less than best at things.
37. I feel insecure about myself.
38. I think about bingeing (over-eating).
39. I feel happy that I am not a child anymore.
40. I get confused as to whether or not I am hungry.
41. I have a low opinion of myself.
42. I feel that I can achieve my standards.
43. My parents have expected excellence of me.
44. I worry that my feelings will get out of control.
45. I think that my hips are too big.
46. I eat moderately in front of others and stuff myself when they're gone.
47. I feel bloated after eating a normal meal.
48. I feel that people are happiest when they are children.
49. If I gain a pound, I worry that I will keep gaining.
50. I feel that I am a worthwhile person.
51. When I am upset, I don't know if I am sad, frightened, or angry.
52. I feel that I must do things perfectly, or not do them at all.
53. I have the thought of trying to vomit in order to lose weight.
54. I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close).
55. I think that my thighs are just the right size.

56. I feel empty inside (emotionally).
57. I can talk about personal thoughts or feelings.
58. The best years of your life are when you become an adult.
59. I think that my buttocks are too large.
60. I have feelings that I can't quite identify.
61. I eat or drink in secrecy.
62. I think that my hips are just the right size.
63. I have extremely high goals.
64. When I am upset, I worry that I will start eating.
65. People I really like end up disappointing me.
66. I am ashamed of my human weaknesses.
67. Other people would say that I am emotionally unstable.
68. I would like to be in total control of my bodily urges.
69. I feel relaxed in most group situations.
70. I say things impulsively that I regret having said.
71. I go out of my way to experience pleasure.
72. I have to be careful of my tendency to abuse drugs.
73. I am outgoing with most people.
74. I feel trapped in relationships.
75. Self-denial makes me feel stronger spiritually.
76. People understand my real problems.
77. I can't get strange thoughts out of my head.
78. Eating for pleasure is a sign of moral weakness.
79. I am prone to outbursts of anger or rage.
80. I feel that people give me the credit I deserve.
81. I have to be careful of my tendency to abuse alcohol.
82. I believe that relaxing is simply a waste of time.
83. Others would say that I get irritated easily.
84. I feel like I am losing out everywhere.
85. I experience marked mood shifts.
86. I am embarrassed by my bodily urges.
87. I would rather spend time by myself than with others.
88. Suffering makes you a better person.
89. I know that people love me.
90. I feel like I must hurt myself or others.
91. I feel that I really know who I am.

## Vita

Vicki Wyke was born in Florida and raised in Virginia. In 1993, she received her Bachelor of Art in English with a second major in Political Science from Virginia Polytechnic Institute and State University. She was trained in classical ballet with an emphasis in Russian technique from the age of four to eighteen. While attending VPI&SU, she began studying modern and contemporary dance. She founded the Contemporary Dance Ensemble of Va Tech and directed it for two years. Vicki began her graduate work at VPI&SU in 1993. For two years she held a teaching assistantship as instructor for the university's modern dance class. She has served as movement director for university plays and as a student choreographer for student organizations. Vicki's program of study focused on Sports Psychology. She will receive a Master of Science in Education in Health and Physical Education in May, 1996.

A handwritten signature in black ink, appearing to read "Vicki Wyke". The signature is fluid and cursive, with a long, sweeping tail on the final letter.