

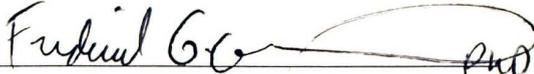
DISORDERED EATING AS A FUNCTION OF MUSCLE DYSMORPHIA

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DISORDERED EATING AS A FUNCTION OF MUSCLE DYSMORPHIA

Presented for the Master of Arts

Degree

Austin Peay State University

Kristen Virginia Daza-Taylor

July 2002

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## ABSTRACT

This study examined the relationship between muscle dysmorphia and disordered eating patterns. Participants ( $N = 107$ ) completed two surveys. The first survey was used to assess the severity of muscle dysmorphia reported by participants and the second survey assessed symptoms of disordered eating patterns. Results indicated that as the symptoms of muscle dysmorphia increase, body dissatisfaction and disordered eating patterns increase congruently. In contrast, the results did not show a relationship between the symptoms of muscle dysmorphia and thoughts related to musculature and exercise. Finally, results were discussed in comparison with the current literature on muscle dysmorphia.

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## CHAPTER I

### INTRODUCTION

It is no secret that physical activity has been found to increase the quality of many people's lives. However, what happens when people cross the line from working out to better their physical and psychological well-being to becoming obsessed with the amount of lean muscle mass they can accumulate by drastically restricting their diet and spending hours in the gym? Pope (2001) has deemed this preoccupation with one's physique the "Adonis Complex." Comprised within this complex are two important factors that have often been overlooked by both the medical and psychological professions; (1) muscle dysmorphia, a proposed addition to body dysmorphic disorder, (2) and disordered eating patterns, which can lead to full blown eating disorders. Individuals afflicted with muscle dysmorphia are preoccupied with the perception that they are insufficiently muscular and thus take drastic measures, regardless of the consequences, to alter their physiques (Pope, Gruber, Choi, Olivardia, & Phillips, 1997).

*Diagnostic Statistical Manual, Fourth Edition Criterion for Eating Disorders*

*The Diagnostic Statistical Manual of Mental Disorders, Fourth Edition, Text Revised* (DSM-IV-TR; 2000) states all eating disorders are characterized by severe disturbances in eating behavior. The two specific types of diagnoses included within the category of eating disorders are Anorexia Nervosa and Bulimia Nervosa. Anorexia Nervosa (AN) is primarily characterized by a consistent refusal to maintain a minimally prescribed body weight. Additionally, individuals suffering from AN possess an extreme fear of gaining

weight or becoming fat despite actually being extremely underweight. These individuals possess a distorted body perception and often evaluate their self worth as a function of this perception. They are unaware of, or able to deny, the physical ramifications associated with maintaining a low body weight. Finally, in postmenarcheal females, amenorrhea frequently occurs due to the insufficient amount of adipose tissue within the body. The DSM-IV-TR indicates that postmenarcheal females must experience the absence of at least three consecutive menstrual cycles subsequent to onset to qualify for a diagnosis of AN.

Bulimia Nervosa (BN) is characterized by recurring episodes of binge eating and purging. Binge eating is characterized by the consumption of a quantity of food that is well beyond the amount most people would consume within a distinct period of time, as well as by feeling a lack of control over the eating behavior during the episode. Individuals who have been diagnosed with BN display persistent compensatory behaviors to avoid weight gain, including self-induced vomiting, fasting, excessive exercise, and misuse of laxatives, diuretics, enemas or other pharmaceutical medications. Both binge eating and compensatory behaviors must occur at least twice a week for three months for a diagnosis of BN to be granted. As with AN, individuals who suffer from BN evaluate themselves based on their distorted body perception. Lastly, the previously mentioned behaviors cannot occur exclusively during an episode of AN for the individuals to qualify for a diagnosis of BN (DSM-IV-TR, 2000).

## *Prevalence*

Factors such as age, weight and gender are often associated with disordered eating and eating disorders (O'Dea & Abraham, 1999). Current research indicates that approximately 90% of the individuals who are diagnosed with an eating disorder are female, while males are said to account for five to ten percent of all reported cases (American Psychiatric Association, 2000). However, this figure is thought to be a misrepresentation because males tend not to readily seek treatment and are often misdiagnosed (Crosscope-Happel, Hutchins, & Hayes, 2000; Olivardia, Pope, Mangweth, & Hudson, 1995). Nevertheless, Olivardia et al. (1995) found that eating disorders share similar features and present in a stereotypical fashion regardless of the gender of the individual afflicted with the disorder.

Typically, the onset of AN has been estimated to begin between the ages of 10 to 19 years, whereas the onset of BN occurs between the ages of 20 to 39 years. Thus, it appears that the first incidence of AN occurs almost exclusively during adolescence, whereas the possibility of onset for BN is extended into adulthood. Although disorders of these types are often disabling, unpredictable, and difficult to treat within a clinical population, the rate of prevalence during one's lifetime is relatively low (Ben-Tovim, 2001; Lewinsohn, Striegle-Moore, & Seeley, 2000). According to Lewinsohn et al. (2000), the lifetime prevalence rate of eating disorders for female adolescents is 23 per 1000 and 1.4 per 1000 for male adolescents.

Individuals with AN and BN possess a greater risk for developing serious and often chronic physical maladies than others without either disorder. Approximately

60% of all individuals who suffer from AN, and nearly 80% of all with BN display symptoms of postural hypotension (a condition where the afflicted individual experiences a decrease in blood pressure causing lightheadedness and/or fainting; Rehab Team Site, 2002). Additionally, almost 90% of the individuals who suffer from AN and BN have bradycardia (a condition that causes a decrease in heart rate; Heart Center Online, 2002). In fact, those individuals who are in the later stages of the disorders may experience premature ventricular contractions and even develop right bundle branch blockage (Giannini, Newman, & Gold, 1990). This affliction is characterized by delayed or a total lack of electrical impulse communication between the chambers of the heart (Heart Center Online, 2002). Furthermore, these individuals' eating habits cause their bodies to develop electrolyte imbalances including, but not limited to, potassium deficiency, chloride deficiency, and metabolic acidosis (Giannini, Newman, & Gold, 1990). Mineral deficiencies often cause impairments in bodily functions specifically related to particular minerals such as potassium and chloride (Brody, T., 1999). Metabolic acidosis is defined as a pH imbalance in which the body accumulates an over abundant amount of acid within its systems and is unable to effectively neutralize and dispose of the acid (Edgrem, A., 1999).

Through the consistent use of starvation as a weight management technique, the onset of puberty is often delayed for those females suffering from AN. As a consequence of this delay, the onset of menses does not occur until these individuals reach their thirties. In male patients, testosterone levels may fluctuate resulting in irreversible damage to sperm production and potency (Giannini, Newman, & Gold,

1990). Due to diminished gastrointestinal activity, people with AN and BN experience constipation and obstipation; some bulimics also experience tearing, fissuring, and scarring of the anus resulting from having repeatedly induced bowel movements. Finally, these individuals frequently are extremely intolerant of cold temperatures, are particularly susceptible to contracting viral and bacterial infections, may suffer from continual eruptions of herpes simplex blisters, and are prone to experiencing prolonged dull headaches (Giannini, Newman, & Gold, 1990).

AN possesses a mortality rate of five percent within the first two years of the affliction and among untreated individuals it increases to twenty percent. Death associated with BN is rare but not unheard of; when people do die from BN it is usually due to having choked on their vomit (Giannini, Newman, & Gold, 1990). While these numbers appear to be low, eating disorders should still be regarded as life threatening since the possibility of an individual dying from AN or BN is a reality.

#### *Eating Disorders within the Female Population*

Within Western society thinness has come to represent beauty, acceptance, and competence. Because of societal standards, girls and women alike are often forced to believe that the only way they will be accepted as beautiful and competent individuals is for them to alter their bodies to fit into the prescribed stereotypical representation of female beauty. Thus, females tend to begin dieting because they perceive themselves as being overweight by societal standards. (Mortenson, Hoerr, & Garner, 1993).

Puberty is a complicated and often challenging period for young women to endure. During this time, females are vulnerable to feelings of low self-esteem and are likely to be dissatisfied with their body weight and size due to the massive physiological changes they experience. This dissatisfaction is typically a result of the increase in body fat that occurs during puberty and has been found to be related to the development of disordered eating (O'Dea & Abraham, 1999).

Current research (Cooley & Toray, 2001; Wertheim, Koerner, & Paxton, 2001) has verified the existence of a high occurrence of body concerns, restrictive eating, and disordered eating behaviors within the population of adolescent females. Often times, these behaviors lead to eating disorders. Because of the detrimental nature of these behaviors, concern among the medical and psychological professions has increased (Wertheim et al., 2001).

Wertheim, Koerner, and Paxton (2001) found that the eating patterns within a population of seventh ( $N = 130$ ), eighth ( $N = 174$ ), and tenth ( $N = 131$ ) grade girls (total  $N = 435$ ) was highly stable over an eight-month period. Participants were female adolescents who were recruited from six state secondary high schools located in Melbourne, Australia. Each group was tested twice with an eight-month period between assessments by answering the Eating Disorder Inventory (Gardner, 1991), the Rosenberg Self-Esteem Scale (Rosenberg, 1965), the Beck Depression Inventory (Beck & Beck, 1972), the Weight Teasing frequency subscale of the Perception of Teasing Scale (Thompson, Cattarin, Fowler, & Fisher, 1995), the Restrictive Eating subscale of the Dutch Eating Behaviour Questionnaire (Van Strien, Frijters, Bergers, & Defares, 1986),

and by having their body mass index calculated (as calculated by weight in kilograms divided by height in inches squared; Keys et al., 1972).

Results from this study indicated a high stability in eating patterns over the eight-month period. The implications of the results indicate that rather than transient exploratory attitudes or behaviors, eating patterns and behaviors in adolescent females appear to be well rooted by the eighth grade. Additionally, Wertheim, Koerner, and Paxton (2001) found that within the group of seventh graders there were significant risk factors present. If by the seventh grade females experienced body dissatisfaction, the likelihood of increased restrictive behaviors pertaining to food intake increased. Likewise, if these same females had experienced teasing in regard to their weight, they were likely to display an increase such bulimic behaviors as binge eating (Wertheim, Koerner, & Paxton, 2001).

Consistent with previous research, factors of disordered eating were relative to age. Within the eighth and tenth grade girls, the main predictor of future disordered eating patterns was found to be levels of dietary restriction. It appears plausible then that the eighth grade is a threshold stage in which the development of binge eating is relatively stable over a period of time. Thus, if a girl begins a disordered eating pattern as a result of her dieting experiences she is likely to continue that pattern (Wertheim, Koerner, & Paxton, 2001).

Congruent with research on adolescents, women who have symptoms of disordered eating and eating disorders possess greater body dissatisfaction and perceptual body size distortion when compared to women without either affliction. In

fact, women who have been identified with disordered eating and eating disorders are overly critical of their body size, shape, and appearance (Cash & Deagle, 1997). A woman's self perception appears to be more salient than her objective weight in the process of developing disordered eating patterns (Cooley & Toray, 2001).

Cooley & Toray (2001) examined the eating behaviors and attitudes of 225 college freshman women after recruiting them from mandatory resident hall meetings at the beginning of the academic year. Of the 225 women included in the study, 86% of the participants were at least 18 years old. Participants were asked to fill out two scales to measure eating pathology. The first measure completed by the participants was the Restraint scale, which is a 10-item measure that assesses concern for dieting and weight fluctuations found on the Eating Disorders Inventory (EDI). The participants then completed the Bulimia scale from the EDI (Cooley & Toray, 2001). Additionally, Cooley and Toray (2001) examined seven variables that they had deemed predictors of eating pathology over the course of the seven month period: body mass index, figure dissatisfaction (as measured by a rating scale that depicted 11 silhouettes with each figure heavier than the previous one), ineffectiveness and public self-consciousness (as measured by the EDI), mood states (as measured by The Profile of Mood States; McNair, Lorr, & Droppleman, 1992), appetite (as measured by The Situational Appetite Measure; Stanton, Garcia, & Green, 1990), and alcohol use/abuse (as measured by the Michigan Alcoholism Screening Test; (Selzer, 1980); and a three item scale). Seven months later, the participants ( $N = 135$ ) were again asked to complete all measures that had been administered within the first session.

Results from both testing sessions showed that while this group of female college freshman was assessed to be within normal weight ranges, 94% of the women indicated a desire to weigh less than their actual weight. There was a substantial difference of 14.56 pounds found between the actual and ideal weights of the participants (Cooley & Toray, 2001). Furthermore, Cooley and Toray (2001) found that the level of eating and dieting pathologies was reasonably consistent across the seven-month period in which the participants were assessed. Those women who began the study with higher levels of eating pathology were more dissatisfied with their body shape and size, felt ineffective, were more sensitive to the opinions of others, and felt as if they were more likely to display disordered eating patterns when experiencing strong emotions. Finally, the most salient predictor of increased disordered eating over the seven-month period was body shape dissatisfaction (Cooley & Toray, 2001).

#### *Eating Disorders within the Male Population*

The onset and subsequent changes that occur during puberty for males has been identified as a positive experience. The physical changes that occur, such as gaining weight due to an increase in musculature, are often greatly anticipated and welcomed by adolescent males. However, the increased pressure to achieve the ideal male physique is liable to increase the likelihood of disordered eating within the adolescent male population (O'Dea & Abraham, 1999).

Although females have primarily been the focus of disordered eating research, the male gender should not be disregarded (Lofton & Bungum, 2001). Over one million males are affected by AN yearly (Crosscope-Happel, Hutchings, Getz, & Hayes, 2000).

Despite this statistic, male anorexia is often misdiagnosed, or even entirely overlooked, by medical and psychological professionals due to their misperception that anorexia is exclusively a female disorder (Crosscope-Happel et al., 2000).

From a very young age males are consistently bombarded with society's standards for masculinity. Images involving extreme independence, a preoccupation with career, competitiveness, physical prowess, aggressiveness and courage inundate the lives of our young males. When boys and men alike are unable to achieve this ideal sense of masculinity, they are likely to feel ineffective within their lives, as well as feeling as if they are unable to control their own emotions. These feelings frequently lead to problematic attitudes and behaviors such as dissatisfaction with one's body and disordered eating (Crosscope-Happel, Hutchings, Getz, & Hayes, 2000).

Research has shown that the characteristics of eating disorders are similar for both genders (Olivardia, Pope, Mangweth, & Hudson, 1995). However, the course for developing an eating disorder for males is significantly different from that of females. Crosscope-Happel et al. (2000) identified three dieting strategies in which males differ from females. Males tend to diet for very different reasons in contrast to females; these reasons were identified as the first difference between genders by Crosscope-Happel et al. (2000). Males in this study began dieting, not to fit a socially prescribed ideal, but rather because they were truly overweight at some point in their lives. Second, males frequently diet to achieve particular goals within the arena of sports and/or to circumvent sports-related injuries that could be caused or exacerbated by weight gain. Lastly, males tend to diet to avoid potential medical tribulations. Additionally,

Crosscope-Happel et al. (2000) indicated that males are prone to think that dieting and exercise will assist them in feeling more masculine and in control of their lives, which, in turn, will lead to increased respect from those with whom they interact.

As with their female counterparts, when males do develop disordered eating patterns it is often due to a poor body image and low self-esteem (Crosscope-Happel et al., 2000). Through participation in various athletic activities, males adopt the societal male body ideal. By engaging in athletic activities, a socialization effect occurs that provides an outside source of acceptance supported by others involved in the activity. This external source of acceptance provides the individual with positive feedback in regard to his masculinity, allowing the individual to feel good about himself (Crosscope-Happel et al., 2000). However, when additional pressures to adhere to weight regimens are imposed, whether by decreasing or increasing weight, these same males are at risk for developing disordered eating habits.

#### *Eating Disorders and Athletes*

While athletes have long represented the pinnacle of health and fitness, experimenters have begun to understand how an athletic environment can induce the development of disordered eating, leading to erratic dieting and weight practices, and distorted attitudes concerning body image (Hausenblass & Carron, 2000; Petrie, 1996). The sport environment is one that often expects athletes to carefully regiment their weight and food intake. This emphasis on achieving optimal weight for optimal performance represents a subculture that exaggerates societal pressures to be lean and/or muscular, which greatly increases the risk of developing disordered eating

patterns within its members (Hausenblass & Carron, 2000; Petrie, 1996). However, most of the information pertaining to athletes and eating disorders has been primarily based on studies that have recruited females as participants.

Individuals who participate in team sports often do not meet the criteria for eating disorders by DSM-IV-TR standards. However, these subclinical conditions may actually be more prevalent than full clinical disorders (Berry & Howe, 2000). Sports that place great emphasis on aesthetics, a lean body shape, and ones with strict weight classes have been found to possess a higher incident of athletes with eating disturbances (Berry & Howe, 2000). In fact, Hausenblass and Carron (2000) indicated that the previously mentioned factors as well as competition between teammates to control their weights reinforces and allows for the continued maintenance of the pathological eating patterns they have developed. Along these same lines, coaches are now believed to play a role in the development and maintenance of disordered eating patterns. Berry and Howe (2000) stated that most coaches of female teams were prone to view their members as needing to lose weight, where as coaches of male teams were more prone to tell their players that they needed to gain weight.

This constant pressure from society, teammates, and coaches alike are just a few of the variables involved in the development of eating disturbances with in the arena of athletics. Other contributing variables included are low self-esteem and distorted body image (Berry & Howe, 2000). Although athletes generally possess a higher body satisfaction than those people within the general public, it may be that athletes actually represent a unique population in their perceptions of an acceptable body shape. Studies

have found an inverse relationship between the percent of body fat and body image scores for athletes (Berry & Howe, 2000). Brownell, Rodin, and Wilmore (1992) stated "the greater extent to which an athlete's body deviates from the ideal for a particular sport, then the greater the risk that the athlete will develop an eating disorder" (p. 122).

### *Body Image and Eating Disorders*

Research has established that satisfaction with one's body image is related to the level of self-esteem within that individual (McKay, Parks, & Read, 1997). Two concepts in this area are analogous with body image perception. The first is body percept, which includes the accuracy of body size estimation, and the second is body concept, which is the degree of body dissatisfaction or vilification (Cash & Deagle, 1997; Miller, Houskamp, & Wolff, 2001).

Distorted body images have been reported not only within those individuals suffering from clinically diagnosed eating disorders, but also within a nonclinical population. Body image distortions have been linked with lowered self-esteem, depression and chronic dieting (McKay, Parks, & Read, 1997). Ever changing societal standards involving the ideal physique greatly increase the pressure people feel to alter their bodies to meet such standards. The desire to achieve the ideal shape and size often influences people to participate in athletic activities, whether by joining a gym or team sport (Davis & Cowles, 1991; McKay, Parks, & Read, 1997). Those who place greater emphasis on physical appearance, especially men, are more likely to participate in a regimented exercise program with the outcome that they are more satisfied with their appearance due to feeling as if they have moved closer to achieving the ideal physique

(Davis & Cowles, 1991). Despite societal standards coupled with the demands of the sport environment, the ideal body shape and the actual body type do not always coincide, causing many individuals' self-esteem and body satisfaction to plummet (McKay, Parks, & Read, 1997). It is at this point when the individual becomes susceptible to developing disordered eating patterns and severe distortions in body image.

Davis & Scott-Robertson (2000) stated that the quests for the ideal physique in some women take a destructive and aberrant path. The extremely emaciated state that defines AN can be characterized as the pathological desire to achieve and adhere to societal standard by starving one's self. Conversely, the ideal male physique is also portrayed as lean, but additionally exceptionally muscular. Davis & Scott-Robertson (2000) indicated that men are more prone to attempt to achieve their ideal physiques through strength training, chaotic dietary regimens, food supplements, and sometimes illegal supplements to enhance their muscularity and decrease the amount of fat on their bodies. Women are not the only individuals who are likely to choose a caustic course in the attempt to achieve their prescribed ideal physiques. Many men have also taken extreme measures to achieve their hypermasculine bodies. The medical community presently does not recognize extreme muscle building as a psychiatric disorder despite the potentially harmful dietary, exercise, and drug practices utilized by some to achieve this altered state. However, some researchers, like Pope, Katz, & Hudson (1993) and Olivardia, Pope, & Hudson (2000), have begun to focus specifically on these aberrant behaviors associated with distorted body image.

*Diagnostic Statistical Manual, Fourth Edition, Text Revised Criterion for Body Dysmorphic Disorder*

Body Dysmorphic Disorder (BDD) is characterized by the pervasive preoccupation with a defect in one's appearance that is usually imagined. However, when a slight physical aberration is present, the individual's concern is clearly excessive. The individual's preoccupation with his/her physical appearance causes significant distress or impairment in social, occupational, and or academic functioning. Lastly, the presenting symptoms cannot be accounted for by another mental disorder (DSM-IV-TR, 2000).

*Muscle Dysmorphia*

Approximately 50% of the male population is unhappy with their physical appearance. In the year 2000, statistics indicated men spent over \$2 billion for gymnasium memberships and another \$2 billion for home exercise equipment (Lacago, 2000). Although working out with weights has been found to provide benefits both physically and psychologically, physicians and mental health professionals are becoming concerned with the number of men who have crossed the line of weightlifting for healthful benefits into patterns that include body obsession, eating disorders, and steroid use (Schnirring, 2000). Within the past ten years, clinicians have become increasingly aware of the role of exercise in the development of disordered eating patterns and obsessive body dissatisfaction. The newest ideal masculine physique has metamorphosed into an image of hypermasculinity that is imbued with a multitude of lean muscle mass (Hitt, 2000).

Pope and his colleagues coined the term *muscle dysmorphia* to describe those individuals who have developed a preoccupation with their body size and muscularity (Schnirring, 2000). This pathological preoccupation with one's physique as a whole is believed to fall within the same category as BDD and as also possessing some striking similarities to AN (Hitt, 2000; Pope, Gruber, Choi, Olivardia, & Phillips, 1997; Schnirring, 2000).

In their 1997 article, Pope et al. provided specific criteria for the identification of muscle dysmorphia. First, the individual must have a preoccupation with the notion that his/her body is insufficiently lean and muscular. Associated behaviors that are included are extensive hours spent at the gymnasium lifting weights and excessive attention focused on one's diet.

Secondly, the preoccupation must cause clinically significant distress or impairment to the individual's social, occupational, academic, or other important area of functioning. This distress or impairment is demonstrated by at least two out of the four following criteria: 1) the affected individual repeatedly forgoes important social, occupational, or recreational activities due to the compulsive need to maintain a strict workout and diet schedule; 2) the individual circumvents situations where his/her body may be exposed to others and only endures exposure of his/her body with distinct distress and/or anxiety; 3) the preoccupation with the inadequacy of one's body size or musculature causes clinically significant distress or impairment in important areas of functioning, such as social or occupational; and 4) the individual persists his/her workout, diet, and/or use of ergogenic substances despite having been

informed of the adverse physical and psychological ramifications. The last criterion states that the principal focus of the preoccupation and ensuing behaviors is on being too small or inadequately muscular. It is distinguishably different from the fear of being fat, as in AN, or like in other forms of BDD where the primary focus is placed on other aspects of one's appearance (Pope et al., 1997).

### *Pope*

The leading researcher and person responsible for the term muscle dysmorphia is Harrison G. Pope, Jr., M.D., M.P.H. Pope's research has alerted the medical and psychological communities to the destructive nature some individuals are prone to developing through the use of exercise and diet.

In 1993, Pope, Katz, and Hudson described a reverse form of AN in a population of young men who lifted weights. This *reverse anorexia* was characterized by a profound fear of being too small and weak even though the individual was, in reality, large and muscular. In their study, Pope, Katz, and Hudson (1993), evaluated 108 male participants who had been recruited from gymnasiums in the Boston and Los Angeles areas. Results showed that 55 (51%) of the participants admitted to having used steroids and 53 (49%) of the participants indicated that they had never used steroids. Three (2.8%) of the 108 participants reported that they had a past history of AN. Additionally, two of the three men who had formerly been diagnosed with AN, along with seven others, reported a history of reverse anorexia; these nine individuals also reported a history of steroid use.

The percentage of participants who reported a history of AN is far larger than what would be expected by chance within the male population. Furthermore, 8.3% of the participants described symptoms of reverse anorexia. The results suggest that reverse anorexia may be a related type of body image disturbance or body dysmorphic disorder that are influenced by societal standards of beauty.

In 1997, Pope and his colleagues (Pope, Gruber, Choi, Olivardia, & Phillips, 1997) changed the name of their proposed disorder from reverse anorexia to muscle dysmorphia. The rationale for this change was due to the distinctive features found within muscle dysmorphia that appeared to be closely affiliated with body dysmorphia. While restrictive eating patterns, bingeing, and compensatory behaviors are still often involved within muscle dysmorphia, the predominant feature of the disorder appears to be centralized around dissatisfaction with physical appearance, specifically the overall physique. This dissatisfaction with one's physique causes the afflicted individual to focus primarily on exercise, not diet.

Pope et al. (1997) also provided a more in-depth account of the consequences individuals suffering from muscle dysmorphia must face. For example, their chronic preoccupation with being insufficiently muscular cause these individuals to frequently experience extreme distress and/or anxiety related to having to expose their bodies in public. Due to their distress, these individuals tend to wear baggy clothing, avoid beaches, swimming pools, and even locker rooms. They repeatedly suffer from impaired social and occupational functioning due to their avoidance as well as consistently neglecting their responsibilities. Additionally, these individuals will

frequently abuse anabolic steroids and other drugs to compensate for their feelings of being insufficiently muscular. Finally, in the search to achieve their ideal physiques, these individuals often adopt an all-consuming lifestyle that is centered on a strict workout and painstaking diet (Pope et al., 1997).

In 2000, Olivardia, Pope, and Hudson, conducted a study with 24 male participants from the Boston area who had been identified with muscle dysmorphia and 30 male participants who served as a normal comparison group. Of the 24 participants with muscle dysmorphia, one (4%) reported a past history of muscle dysmorphic symptoms and 23 (96%) of the participants from the same group admitted to possessing traits of muscle dysmorphia during the time of the study. Physiological and psychological aspects were assessed throughout the course of the study. To assess physiological status, the examiners measured the participants' height, weight, and body fat (body fat was calculated by the use of caliper measurements). Following the collection of this data, the participants' fat-free mass index was calculated by using the following formula  $\{Wt \times (100 - \%BF) / Ht^2 \times 100\} + 6.1(8.1 - Ht)$ .

Psychological aspects such as previous psychopathology [as assessed by the Structured Clinical Interview for DSM-IV-Patient Version (SCID-P; First, Spitzer, Gibbon, & Williams, 2001)), symptoms of muscle dysmorphia (as assessed by the body dysmorphic disorder diagnostic module of the SCID-P, the body dysmorphic disorder modification of the Yale-Brown Obsessive Compulsive Scale (Phillips, Hollander, Rasmussen, Aronowitz, DeCaria, & Goodman, 1997), and a Muscle Dysmorphia Symptom Questionnaire developed by the researchers] were evaluated. Additionally,

each participant was administered the EDI and a brief questionnaire developed to evaluate exercising behavior (Olivardia, Pope, & Hudson, 2000).

Of all the participants involved, 10 men (42%) were found to possess excellent or good insight into their preoccupation that they were able to recognize that their body image was distorted. Additionally, 12 (50%) of the 24 men in the muscle dysmorphia group indicated that they spent in excess of three hours per day obsessing about their physiques. Furthermore, 14 (58%) of the participants with muscle dysmorphia scaled their avoidance of activities, places, and people due to their perceived inadequacy at moderate to severe level, and 13 (54%) men from the muscle dysmorphia group stated that they felt little or no control over their workout and dietary regimens (Olivardia, Pope, & Hudson, 2000).

Olivardia, Pope, and Hudson's (2000) results further indicated that the individuals with muscle dysmorphia reported significantly higher rates of mood disorders, anxiety disorders, and eating disorders than the normal comparison group. Of the 24 men with muscle dysmorphia, 14 (58%) reported a lifetime prevalence of major depressive disorder and/or bipolar disorder in comparison to only 6 (20%) of the normal group. Furthermore, seven (29%) of the men with muscle dysmorphia indicated a pervasive history of Axis I anxiety disorders where as one (3%) person from the normal group reported having suffered from anxiety. Finally, seven (29%) of the muscle dysmorphia group and none of the comparison group reported a history of AN, BN, or binge-eating disorders (Olivardia, Pope, & Hudson, 2000).

Prominent differences were evident between the 24 men with muscle dysmorphia and the 30 normal comparison weightlifters specifically in the areas of body dissatisfaction, eating attitudes, and the lifetime incidence of DSM-IV mood, anxiety, and eating disorders. Olivardia, Pope, and Hudson (2000) hypothesized that people who suffer from muscle dysmorphia may possess a predisposition to both disorders that evolves from a common fundamental environmental or genetic factor. Additionally, the results of this study indicated that the pursuit for bigness is extremely similar to the pursuit for thinness. Olivardia, Pope, and Hudson (2000) stated, "like eating disorders, muscle dysmorphia may be stimulated by sociocultural influences" (p. 1295).

#### *Limitations of Existing Research*

Research in the areas of muscle dysmorphia and disordered eating patterns has primarily been limited to their focus on comparisons between male bodybuilders and females who have been diagnosed with eating disorders who are in clinical settings. Furthermore, experimenters have chosen participants dependent upon their affiliation with athletic performance and team participation such as martial artists, track and field runners, and football players, and have neglected to utilize normal populations within their studies. Finally, existing studies sample sizes have been relatively limited with only a few including over 100 participants.

#### *Present Research*

The purpose of this study is to investigate the relationship between muscle dysmorphia and disordered eating patterns within the male population. Although

participant selection was partially based upon affiliation with team sports, it was decided to include individuals from two community-based gymnasiums as well as the general population from a university environment as part of the sample.

### *Hypothesis*

This study will examine muscle dysmorphia within the male population and its relatedness to eating habits. The first hypothesis under examination is as symptoms of muscle dysmorphia increased, symptoms of body dissatisfaction will also increase. The second hypothesis under examination is as symptoms of muscle dysmorphia, patterns of binge eating increase will congruently increase. The third hypothesis under examination is as symptoms of muscle dysmorphia increase, patterns of restrictive eating and purging behaviors will also increase. The final hypothesis under investigation was as symptoms of muscle dysmorphia increase, thoughts related to musculature and exercise would also increase.

## CHAPTER II

### METHODS

#### *Participants and Design*

Males were asked to participate within this study. Participants were recruited by three methods. First, male athletes from various Austin Peay State University teams, that included football, baseball, and tennis, were asked to participate. Secondly, advertisements were placed within two local gymnasiums to recruit males who were not associated with any particular athletic team but worked out at least three days per week. Lastly, an advertisement was posted within the Austin Peay State University Psychology Building requesting the participation of male volunteers. Participation was voluntary and anonymous.

The design of this study is quasi-experimental, specifically correlational. The dependent variables are disordered eating patterns and body image perception and the independent variable is muscle dysmorphia.

#### *Measures*

Demographics. Each participant received a demographics survey (see Appendix A). Within the demographics survey, each participant was asked to answer questions regarding their age, ethnicity, and athletic team participation (both past and present), and work out habits (both past and present).

Muscle Dysmorphia. In order to assess symptoms of muscle dysmorphia, participants completed the Dysmorphia Inventory (DI; Suarez, Crowe, & Crowe, 2001). In addition to an assessment of weight and height, the DI consists of 30 questions that

are answered on a 5 point Likert scale, 1 = *Never*, 2 = *Sometimes*, 3 = *Often*, 4 = *Very Often*, and 5 = *Always* (see Appendix B). The DI possesses good internal consistency with a Cronbach's alpha of .88. Items on the DI loaded onto five factors when a principal components factor analysis performed by Suarez, Crowe, and Crowe (2001). The five factors are appearance discomfort (23.8% communality), worrying and checking (17.6% communality), somatic/concentration (15.7 % communality), perception by others (12.3% communality), and escape/avoidance (8.5% communality). The DI's test retest reliability (with an interval of four weeks between testing sessions) was also found to be significant ( $r = .84$ ) and was found to correlate modestly with body shape as measured by the Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987),  $r = .033$ . Furthermore, The DI correlated slightly with social avoidance as measured by the Social Avoidance and Distress Scale (SADS; Watson & Friend, 1969),  $r = 0.34$ , and on recurrent, irrational thoughts and actions as measured by the Padua Inventory (PI; Sanavio, 1988)  $r = 0.40$ . Finally, the DI and the Body Mass Index (BMI; as calculated by weight in kilograms divided by height in inches squared) were significantly correlated on depression ( $r = .571$ ).

Disordered Eating. In order to assess symptoms of disordered eating, all participants completed the Eating Disorder Diagnostic Scale (EDDS; Stice, Telch, & Rizvi, 2000). The EDDS is a self-report questionnaire that assesses symptoms of anorexia nervosa, bulimia nervosa, and binge-eating disorder. It consists of 22 items that are answered in Likert yes-no frequency and write-in response formats (see Appendix C). The EDDS possesses an overall test retest reliability (with a one week

interval between testing sessions) of  $r = .87$ . The Kappa coefficient for anorexia nervosa diagnoses was .95, .71 for bulimia nervosa diagnoses, and .75 for binge-eating diagnoses. Good internal consistency for the EDDS symptom composite was found by calculating Cronbach's alpha ( $\alpha = .91$ ). Criterion validity was assessed by determining whether the EDDS accurately distinguished between interview-identified participants with an eating disorder from those without an eating disorder. A kappa coefficient of .93 was found to reflect the agreement between the diagnoses from the EDDS and the structured interview for anorexia nervosa, .81 for bulimia nervosa, and .74 for binge-eating, which indicates that there is sufficient criterion validity within the EDDS. In assessing convergent validity, Stice, Telch, and Rizvi (2000), found significant positive correlations with validated measures of eating disturbances in such areas including dietary restraint ( $r = .36, p < .001$ ), eating concerns ( $r = .54, p < .001$ ), weight concerns ( $r = .57, p < .001$ ) and shape concerns ( $r = .66, p < .001$ ), eating and weight preoccupations ( $r = .47, p < .001$ ), eating and weight ritual ( $r = .36, p < .001$ ), hunger ( $r = .53, p < .001$ ), and disinhibition ( $r = .63, p < .001$ ).

### *Procedure*

Once permission to conduct the study from the Institutional Review Board was obtained, coaches from the APSU athletic teams were contacted in person to schedule appointments for the administration of the DI and EDDS to those athletes who choose to participate. Secondly, permission to recruit respondents from two local gymnasiums was obtained through the management affiliated with said gymnasiums. After obtaining permission from the gymnasiums, advertisements were posted informing

potential participants as to the purpose of the study. Lastly, individuals who were not affiliated with collegiate teams or recruited from the local gymnasiums were recruited by posted advertisements on the research board within the psychology department at Austin Peay State University.

Prior to participating, participants completed the informed consent document (see Appendix D). Next each participant completed the demographics survey, the DI, and the EDDS, which took approximately 20 minutes. Following the completion of all measures, participants received a debriefing statement (see Appendix E). Participants who were recruited from Austin Peay State University athletic teams and those recruited from the advertisements within the psychology department received extra credit slips upon completion.

## CHAPTER III

### RESULTS

A correlational analysis of the data collected from both the DI and EDDS was performed to detect whether or not a relationship existed between muscle dysmorphia and disordered eating. As there was a significant relationship between the variables further analysis was warranted. A median split was performed on scores from the DI allowing participants to be categorized into two groups. The two groups were comprised of those individuals who scored high on the DI and those individuals who scored low on the DI. Finally, a t-test was performed to examine the differences between the scores of the EDDS for each of the two groups.

#### Correlation between DI scores and disordered eating symptoms

The EDDS was broken down into four categories in order to assess whether eating disorder symptoms were related to symptoms of body dysmorphia. EDDS1 was comprised of those questions that targeted body image. EDDS2 included those questions targeting binge eating. EDDS3 contained those questions that targeted restrictive eating and purging patterns and EDDS4 included questions specifically pertaining to muscle dysmorphia.

EDDS1. The relationship found between the DI and EDDS1 was moderate and statistically significant,  $r(10) = .597, p = < .05$ .

EDDS2. The relationship found between the DI and EDDS2 was moderate and statistically significant,  $r(10) = .508, p = < .05$ .

EDDS3. The relationship found between the DI and EDDS3 was minimal but statistically significant,  $r(10) = .334, p = < .05$ .

EDDS4. The relationship found between the DE and EDDS4 was minimal but statistically significant,  $r(10) = .121, p = < .05$ .

#### Examining the differences between EDDS scores

A median split was performed to separate the high and low scores for the DI. Scores equaling less than a total of 55 on the DI were assigned to the high DI group ( $N = 50$ ) and those scores equaling 55 or more were assigned to the low DI group ( $N = 57$ ).

Results of a t-test examining questions related to body image indicated that participants in the high DI group reported significantly higher levels of body image disturbance than participants in the low DI group;  $t(1, 105) = -5.298, p = .000$  (See table 1 for means and standard deviations for both the high and low DI groups). Results from a second t-test examining questions related to binge eating indicated that participants in the high DI group reported significantly higher levels of binge eating patterns than participants in the low DI group;  $t(1, 105) = -3.839, p = .001$ . Results from the third t-test examining questions related to restrictive eating and purging patterns indicated that participants in the high DI group reported significantly higher levels of both restrictive eating and purging behaviors than participants in the low DI group;  $t(1, 105) = -2.636, p = .039$ . Finally, results from the fourth t-test examining question related specifically to muscle dysmorphia did not indicate a significant difference between the high and low DI groups;  $t(1, 105) = -.851, p = 1.000$ .

Table 1. Means and Standard Deviations for High and Low DI Groups

	Group	M	SD
T-test 1	0	3.520	3.340
	1	8.982	6.583
T-test 2	0	1.320	1.332
	1	2.684	2.181
T-test 3	0	1.020	2.290
	1	3.281	5.669
T-test 4	0	2.120	1.380
	1	2.333	1.215

Note. 0 represents the low scoring DI group and 1 represents the high scoring DI group. T-test 1 represents the comparison between the DI and EDDS1. T-test 2 represents the comparison between the DI and EDDS2. T-test 3 represents the comparison between the DI and EDDS3. T-test 4 represents the comparison between the DI and EDDS4.

## CHAPTER IV

### DISCUSSION

This study examined muscle dysmorphia within the male population and its relatedness to eating habits. The first hypothesis under examination was as symptoms of muscle dysmorphia increased, symptoms of body dissatisfaction would also increase. The second hypothesis under investigation was, as symptoms of muscle dysmorphia, patterns of binge eating increase would congruently increase. The third hypothesis under examination was as symptoms of muscle dysmorphia increase, patterns of restrictive eating and purging behaviors would also increase. The final hypothesis under investigation was, as thoughts related to musculature and exercise increase symptoms of muscle dysmorphia would also increase.

The results from this study supported the first hypothesis; as the symptoms of muscle dysmorphia increased the symptoms of body dissatisfaction also increased. Muscle dysmorphia possesses distinctive features that are closely related to body dysmorphia. The predominant feature of the disorder appears to be centralized around the dissatisfaction with one's physique (Pope, Gruber, Choi, Olivardia, & Phillips, 1997). This perceived dissatisfaction with the physique causes the afflicted individuals to exercise excessively with weights with the hopes to compensate for their distorted body image. Additionally, these individuals tend to experience extreme distress and/or anxiety related to having to expose their bodies in public areas such as swimming pools and locker rooms. They often will attempt to conceal their perceived inadequate bodies by wearing baggy clothing. Pope et al. (1997) found that these particular individuals

consistently suffer from impaired social and occupational functioning due to their constant avoidance of social interactions with others. Finally, individuals afflicted with muscle dysmorphia also tend to repeatedly neglect their responsibilities to others due to the obsessive need to lift weights.

Commensurate with the results of this study, Olivardia, Pope and Hudson (2000) found that the male population they had examined appeared to be dissatisfied with their bodies. Their results indicated that 58% of their participants reported having avoided activities, places and people due to their perceived inadequacy. Olivardia, Pope, and Hudson's (2000) results, lend credibility to the results of this study.

Results from this study also supported the second and third hypotheses; as symptoms of muscle dysmorphia increased the patterns of binge eating congruently increased and as the symptoms of muscle dysmorphia increased the patterns of restrictive eating and purging behaviors increased. While Pope and his colleagues (1997) have found that muscle dysmorphia is closely related to body dysmorphic disorder, they still hold that disordered eating patterns, such as restrictive eating, purging, and binge eating, are still an important component found within the disorder.

Pope, Katz, and Hudson's (1993) research revealed that 2.8% of their participants reported having struggled with AN in the past. In fact, two of the three men in this study admitted to having been formerly diagnosed with AN. While this percentage appears to be insignificant, in reality is far larger than what would be expected by chance within the male population (Pope, Katz, & Hudson, 1993). The DSM-IV indicates that the prevalence rate of AN in males is 0.05%. Furthermore, two of the three men

who had formerly been diagnosed with AN, along with seven others, reported a history of muscle dysmorphia, which was then called reverse anorexia.

Commensurate with past research, results from this study appear to indicate that those participants who scored high on the DI also tended to display restrictive, binge, and compensatory behaviors related to their eating patterns. In 2000, Olivardia, Pope, and Hudson found that out of a population of 24 men who had been identified with muscle dysmorphia, 29% reported a history of AN, BN, or binge-eating disorders. Their results indicated that the pursuit for bigness is particularly similar to the pursuit for thinness. Olivardia, Pope, and Hudson (2000) stated that sociocultural influences may also stimulate people in their development of muscle dysmorphia, just as they may tend to stimulate people in the development of eating disorders. This is yet another aspect that should be examined in this complex disorder.

While the first three hypotheses were supported by the results, the last hypothesis under investigation was not supported. Within this study as the symptoms of muscle dysmorphia increased, thoughts related to musculature and actual level of exercise did not increase. Olivardia, Pope, and Hudson (2000) found that 50% of their subjects identified with muscle dysmorphia admitted spending in excess of three hours per day obsessing about their physiques and exercise regimens. Due to limited research findings and the findings of this study, additional studies should be performed to examine this phenomenon.

One reason for this discrepancy may be attributed to the population that was utilized within this study. It is possible that while some of these individuals displayed

sub-clinical levels of muscle dysmorphia, the severity to which the disorder has manifested in these individuals may not be congruent with others who had participated in past research.

### *Limitations of the Present Study*

Conclusions drawn from this study are limited to the institution and region in which participants were recruited. While individuals from different universities and regions may differ from those within this study, it is possible that some inferences could be made to populations from similar institutions and regions. Additionally, because females were not utilized as participants within this study, comparisons between genders cannot be made at this time. It should be noted that females were not included within this study because muscle dysmorphia occurs disproportionately in males.

In conclusion, this study examined body dissatisfaction and disordered eating patterns as they are related to muscle dysmorphia. Three of the four proposed hypotheses were supported. Results indicated that as the symptoms of muscle dysmorphia increase, body dissatisfaction and disordered eating patterns increase congruently. In contrast, the results did not show a relationship between the symptoms of muscle dysmorphia and thoughts related to musculature and exercise. Though these results are comparable to existing research in most areas, Pope and his colleagues (2000) found that as the symptoms of muscle dysmorphia increase, thoughts about one's musculature/physique and exercise habits also increase. A possible explanation for this incongruity may be attributed to the severity that the symptoms of muscle dysmorphia have manifested within the tested population. Additional research within this area is

crucial to better the chances of the medical and psychological communities' identification this disorder. Once a good understanding of muscle dysmorphia is acquired, medical and psychological personnel will be able to provide their clients with the much-needed assistance they require.

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## APPENDICES

APPENDIX A  
DEMOGRAPHIC SURVEY

APPENDIX A

Demographic Survey

1. Age: \_\_\_\_\_
2. Race/Ethnicity: \_\_\_\_\_
3. Education (high school graduate, freshman, sophomore, junior, senior, college graduate, or grad. school): \_\_\_\_\_
4. What athletic team(s) are you a member of currently:  
\_\_\_\_\_
5. What athletic team(s) have you previously been a member:  
\_\_\_\_\_
6. Please indicate which days you are currently working out by **FILLING IN THE AMOUNT OF TIME** in the space provided immediately next to the day.  
Monday\_\_\_\_\_ Tuesday\_\_\_\_\_ Wednesday\_\_\_\_\_   
Thursday\_\_\_\_\_ Friday\_\_\_\_\_ Saturday\_\_\_\_\_ Sunday\_\_\_\_\_
7. Please indicate how often you have worked out in the past by **FILLING IN THE AMOUNT OF TIME** spent each day in the space provided.  
Monday\_\_\_\_\_ Tuesday\_\_\_\_\_ Wednesday\_\_\_\_\_   
Thursday\_\_\_\_\_ Friday\_\_\_\_\_ Saturday\_\_\_\_\_ Sunday\_\_\_\_\_

APPENDIX B  
DYSMORPHIA INVENTORY

## APPENDIX B

### Dysmorphia Inventory

Please complete the following information. Weight: \_\_\_\_\_ Height: \_\_\_\_\_  
 Please read each of the following statements and indicate how strongly you feel about your looks within the last month. To answer each question, place a circle around the number that best describes your feelings and beliefs about your appearance.

	Never	Some- times	Often	Very Often	Always
1. I place a great deal of importance on my looks.	1	2	3	4	5
2. I am self-conscious about my appearance.	1	2	3	4	5
3. It is unreasonable to think badly about my looks, but I cannot stop it.	1	2	3	4	5
4. I have been told I am good looking.	1	2	3	4	5
5. I am timid.	1	2	3	4	5
6. I feel depressed about how I look.	1	2	3	4	5
7. I wear clothes or anything that can hide what I do not like of my appearance.	1	2	3	4	5
8. I worry about how I look to others.	1	2	3	4	5
9. If a part of my body does not look right, I try to hide it.	1	2	3	4	5
10. I think that I am ugly.	1	2	3	4	5
11. I have felt that it is not fair that I do not look as good as others.	1	2	3	4	5
12. I am healthy, but I feel unattractive.	1	2	3	4	5
13. I am good-looking.	1	2	3	4	5
14. I spend much time grooming myself to change the way I look.	1	2	3	4	5
15. I have avoided going to parties because of the way I felt I looked.	1	2	3	4	5
16. I feel ashamed of my appearance.	1	2	3	4	5
17. I have been admired by others about my looks.	1	2	3	4	5
18. I can succeed in hiding or concealing the defects I think I have.	1	2	3	4	5
19. I buy products that promise to give me a better look or appearance.	1	2	3	4	5
20. I spend much time looking at myself in the mirror.	1	2	3	4	5
21. I am too critical of myself.	1	2	3	4	5
22. I cannot handle the way I feel about my appearance.	1	2	3	4	5
23. Some people have criticized my looks.	1	2	3	4	5
24. I have gone to a dermatologist for skin problems.	1	2	3	4	5
25. I am popular.	1	2	3	4	5
26. I worry and lose sleep about the impression I will make when people see me.	1	2	3	4	5
27. I check constantly about my looks.	1	2	3	4	5
28. Thinking about my appearance makes me anxious.	1	2	3	4	5
29. Thinking about my looks interferes with my ability to concentrate.	1	2	3	4	5
30. An unattractive appearance causes unhappiness and social failure.	1	2	3	4	5

APPENDIX C

EATING DISORDER DIAGNOSTIC SCALE (EATING SCREEN)

## APPENDIX C

### Eating Screen

Please carefully complete all questions.

Over the past 3 months ...	Not at all		Slightly		Moderately		Extremely								
1. Have you felt fat?	0	1	2	3	4	5	6								
2. Have you had a definite fear that you might gain weight or become fat?	0	1	2	3	4	5	6								
3. Has your weight influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6								
4. Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6								
5. During the past 6 months have there been times when you felt you have eaten what other people would regard as an unusually large amount of food (e.g., a quart of ice cream) given the circumstances?															
	YES				NO										
6. During the times when you ate an unusually large amount of food, did you experience a loss of control (feel you couldn't stop eating or control what or how much you were eating)?	YES				NO										
7. How many DAYS per week on average over the past 6 MONTHS have you eaten an unusually large amount of food and experienced a loss of control?	0	1	2	3	4	5	6	7							
8. How many TIMES per week on average over the past 3 MONTHS have you eaten an unusually large amount of food and experienced a loss of control?	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

During these episodes of overeating and loss of control did you ...

9. Eat much more rapidly than normal?	YES	NO													
10. Eat until you felt uncomfortably full?	YES	NO													
11. Eat large amounts of food when you didn't feel physically hungry?	YES	NO													
12. Eat alone because you were embarrassed by how much you were eating?	YES	NO													
13. Feel disgusted with yourself, depressed, or very guilty after overeating?	YES	NO													
14. Feel very upset about your uncontrollable overeating or resulting weight gain?	YES	NO													
15. How many times per week on average over the past 3 months have you made yourself vomit to prevent weight gain or counteract the effects of eating?															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

16. How many times per week on average over the past 3 months have you used laxatives or diuretics to prevent weight gain or counteract the effects of eating?  
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
17. How many times per week on average over the past 3 months have you fasted (skipped at least 2 meals in a row) to prevent weight gain or counteract the effects of eating?  
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
18. How many times per week on average over the past 3 months have you engaged in excessive exercise specifically to counteract the effects of overeating episodes?  
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
19. How much do you weigh? If uncertain, please give your best estimate. \_\_\_\_\_ lbs.
20. How much would you like to weigh? \_\_\_\_\_ lbs.
21. How tall are you? \_\_\_\_\_ ft. \_\_\_\_\_ in.

Please circle the appropriate answer.

22. Do you lift weights to enhance your appearance? YES NO
23. Have you given up other activities to spend more time lifting weights? YES NO
24. Do you think of yourself as being small? YES NO
25. Do you spend 30 minutes or more per day thinking about lifting weights? YES NO
26. Do you avoid social situations because of these thoughts? YES NO
27. Do you use nutritional supplements or drugs to enhance you appearance? YES NO

APPENDIX D  
INFORMED CONSENT

## Informed Consent Document

You are being asked to participate in a research study. This form is designed to provide you with information about this study. You may ask the researcher listed below about this study or you may call the Office of Grants and Sponsored Research, Box 4517, Austin Peay State University, Clarksville, TN 37044, (931) 221-7881 with questions about the rights of research participants.

### 1. TITLE OF RESEARCH STUDY

Body Image, Eating and Lifting Weights

### 2. PRINCIPAL INVESTIGATOR

Kristen V. Daza-Taylor, Graduate Student, Austin Peay State University, Psychology Department, Clarksville, TN.

### 3. THE PURPOSE OF THE RESEARCH

This study will seek to determine if a relationship exists between lifting weights and eating patterns. There are no right or wrong answers. You should answer each question according to your own beliefs and feelings.

### 4. PROCEDURES FOR THIS RESEARCH

You will be asked to participate in filling out two questionnaires. The first asks questions about how you view your body shape and size and the second asks questions about your eating habits. In most cases, you will be given a range of answers to choose from and will be asked to pick which answer best describes how you feel. We expect that it will take about 20-25 minutes to finish these questionnaires.

### 5. POTENTIAL RISKS TO YOU

There are minimal risks associated with participation in this study. One risk may be feeling discomfort due to some of the items on the questionnaires. If this happens, please let the examiner know.

Your name will only appear on this informed consent and will not be associated with any of the surveys. All data will be kept under lock and key in a secure office. Finally, the data will only be made available through averages and will in no way identify any individual who has chosen to participate.

## 6. POTENTIAL BENEFITS TO YOU OR OTHERS

As a participant in the study, you will be contributing to science and helping researchers gain insight into the perceived body image and eating habit of males. You may also receive extra credit for participation if you are enrolled in a psychology class at Austin Peay State University

**Please read the statements below. They describe your rights and responsibilities as a participant in this research project.**

1. I agree to participate in the present study being conducted by Kristen Daza-Taylor, a graduate student in the Department of Psychology at Austin Peay State University, and supervised by Dr. Rick Grieve, a faculty member in the Department of Psychology at Austin Peay State University. I have been asked to complete two questionnaires.
2. I have been informed in writing of the procedures to be followed and about any risks that may be involved. I have also been told of any benefits that may result from my participation. Ms. Daza-Taylor and Dr. Grieve have offered to answer any questions I may have regarding the procedures. Ms. Daza-Taylor can be contacted at (931) 221-7233 between 10 A.M. and 3 P.M. M-Th. Dr. Grieve can be contacted at (931) 221-7235 between 9 A.M. and 4 P.M. M-F. In addition, I have been informed that I can contact the Office of Grants and Sponsored Research, Box 4517, Austin Peay State University, Clarksville, TN 37044, (931) 221-7881 with questions about the rights of research participants if I so choose.
3. I am aware that I am free to quit at any time during the experiment without penalty or prejudice. Additionally, I understand I do not have to answer any question I don't want to. I am also aware that I may have all information obtained from me withdrawn from the study and destroyed within 24 hours after my participation; after the 24 hour time period, all information will be separated and unidentifiable.
4. I realize that by signing this form, I willingly consent to participate in the current study. I also acknowledge that I have been given a copy of this form to keep for my records.

---

NAME (please print)

---

DATE

---

SIGNATURE

APPENDIX E  
DEBRIEFING STATEMENT

## APPENDIX E

### Debriefing Statement

As previously stated, there are no right or wrong answers affiliated with the items you have just answered. We were interested in the honest self-evaluation pertaining to your body image and eating habits. No deception was used at any time during the study.

As previously stated, your answers are entirely confidential and your name will not be attached to or recorded with any of the data. Your name will only appear on the informed consent document and will not be associated with any of the surveys. All data will be kept under lock and key in a secure office. Finally, the data will only be made available through averages and will in no way identify any individual who has chosen to participate.

Furthermore, the informed consent documents will be stored separately from the data collected. Thank you again for your participation. If you have any questions please feel free to ask now or call at a later time. Once again, I can be reached at (931) 221-7233 between 10 A.M. and 3 P.M. M-Th. You can also contact Dr. Grieve at (931) 221-7235 between 9 A.M and 4 P.M. M-F.

## VITA

Kristen Virginia Daza-Taylor was born in Cali, Colombia, South America on September 18, 1973. She moved to the United States at the age of two years and attended elementary school in the Chautauqua and Onondaga County School Districts and graduated from Jamestown Highschool in June of 1991. The following August, she enrolled in the Jamestown Community College, and in May of 1993, graduated with her Associate's Degree. In January of 1997, Kristen enrolled in the University of New Mexico and earned her BS in Psychology in May of 1999. Within a year of moving to Tennessee, she enrolled in Austin Peay State University. She is scheduled to earn a MA degree in Clinical Psychology in August of 2002.

She is presently employed at the Project for Area Concentration Achievement Testing. Kristen is additionally working as a psychological intern at an out patient clinic as part of her internship fulfillment.