

1-1-2012

Psychological And Physiological Responses Of Males Viewing Same Gender Advertisements

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**PSYCHOLOGICAL AND PHYSIOLOGICAL RESPONSES OF MALES VIEWING
SAME GENDER ADVERTISEMENTS**

by

PHILLIP M. DITTMER

THESIS

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

MASTER OF EDUCATION

2012

**MAJOR: KINESIOLOGY, HEALTH, AND
SPORT SCIENCE**

Approved by:

Advisor

Date

ACKNOWLEDGEMENTS

I would first like to thank Dr. Jeffrey Martin for his guidance through this process. Without his input, this journey would have been a bumbling mess that could have resulted in failure. I would also like to thank the committee for their involvement and constructive criticism.

My father Tim Dittmer also deserves to be thanked. He provided me with inspiration during tough times of juggling the daily activities of life. I would also like to thank my mother Chris Dittmer for her endless encouragement. My dog Sophie deserves to be thanked for always knowing when I needed to take a break and go for a walk, or play with annoying toys that never seem to stop squeaking. My in-laws, Woytek and Bozena Stone, also deserved to be thanked for their supportive nature and constant generosity. Lastly, I would like to thank my wife Jennifer. She always knew when it was time to encourage me, when it was time to make me laugh, and when it was time to crack the whip. There is no other person I would want to share this journey with and I am happy regardless of the outcome to have her by my side.

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CHAPTER ONE

Introduction

Body image is an area of psychology that has been a much discussed subject matter as of late. Much of the focus early in this field was on females and their tendencies to yearn for a thin and toned physique, while research on male body image concerns were considered relatively unimportant (Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986; Ridgeway & Tylka, 2005). In fact several researchers have noted a dearth of literature on male body image (Halliwell, Dittmar, & Osborn, 2007; Leit, Pope, & Gray, 2001; Olivardia, Pope, & Hudson, 2000; Pope et al., 2000). In a review from 2007 exploring exposure to media images of ideal male physiques, only 15 studies could be found (Blond, 2008). In contrast, a meta-analysis done in 2001 on the effects of thin media images on females, data from 25 studies met the requirements of the review (Groesz, Levine, & Murnen, 2001). In addition, relative to men, far more cross-sectional and descriptive studies have been conducted with females. This comparison of the two reviews exemplifies the gender difference in body image research.

Although it was briefly explored in the late 1980's, it was not until recently that male body image issues have been addressed in the literature (Drewnowski & Yee, 1987; Mishkind et al., 1986). It is important to consider men's body image concerns as there has been an increase in male body dissatisfaction over time (Adams, Turner, & Bucks, 2005; Pope et al., 2000). It is now known that girls are not the only ones that experience societal pressure to look good. Today, men are feeling that pressure just as much. Despite the recent increase in male body image literature, there still remain many unanswered questions. Specifically, we do not know if men have a physiological stress response to having an unfavorable body image. Therefore, a major purpose of this study is to determine if men experience a physiological stress response

from having a temporarily impaired body image. A second purpose is to assess cognitive and affective responses.

With this introduction, seven major goals will be addressed. The first goal is to define body image terms. The second goal will be to discuss body image theory. Third will be a brief review of the literature on male body image including descriptive data, and research on the antecedents and outcomes of body image satisfaction. Because an experimental design was used, the fourth topic reviewed is experimental research in the male body image realm. Fifth, because the influence of ideal body images on cognitive, physiological, and affective stress reactions was investigated, a summary on research of the proper stimuli to evoke a stress response is discussed. In the current study physiological stress responses to visual images of ideal male body images was examined. Because no prior research on males has been done, the sixth goal is to summarize the literature on physiological stress responses to ideal body image in females. Research on cortisol, epinephrine, and norepinephrine stress responses is discussed in this sixth area. Lastly, a summary of findings and research hypotheses is presented.

Definition of Terms

The following terms are defined in this section: body image, body image dissatisfaction, body dysmorphic disorder (BDD), social anxiety, social physique anxiety, and muscle dysmorphia. Body image is a person's internal perception of their external body (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). This internal perception is not always accurate. Often, individuals will perceive themselves as overweight or soft in particular areas, or lacking muscularity in other areas. The classic example is the girl who thinks her buttocks looks too big whereas outside observers do not share that assessment. These negative thoughts regarding their entire body, or a specific body part, can lead to lower self esteem, depression, and social anxiety

(Frederick & Morrison, 1996; Thompson, 1992). The more distorted the person's view is, the more disturbed mood they experience. This disturbed mood would be considered body image dissatisfaction.

Body dysmorphic disorder (BDD) is defined by the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) as a preoccupation with an imagined or slight defect in appearance that causes clinically significant distress or impairment in functioning. Often, people suffering from BDD may have another disorder, such as anorexia nervosa, depression, or obsessive compulsive disorder (Phillips, McElroy, Hudson, & Pope, 1995). In these cases, the distortion of body image is so great that it causes social anxiety.

Social anxiety is the feeling of emotional discomfort when a person is in a social situation. For example, an individual may experience emotional discomfort when they are in crowded areas. In the future, they may avoid crowded places like shopping malls and restaurants. A specific type of body related social anxiety is social physique anxiety. Social physique anxiety occurs when people feel or anticipate others are devaluing their body (Martin, Kliber, Kulinna, & Fahlman, 2006). An example of this could be of an overweight individual who wears baggy clothes to hide their body. They anticipate people will devalue their body and try to cover it up with baggy clothing. Social physique anxiety can result from BDD.

BDD can take several forms. In the case of men with BDD, they often have muscle dysmorphia. Muscle dysmorphia is a pathological preoccupation with muscularity (Pope, Pope, Menard, Fay, Olivardia, & Phillips, 2005). Certain behaviors that characterize muscle dysmorphia are long hours spent in the gym lifting weights and a constant attention to diet. According to Pope, Gruber, Choi, Olivardia, and Phillips (1997), an individual must engage in two of the following four criteria to be regarded as having muscle dysmorphia. These criteria are

1) The individual frequently gives up important social, occupational, or recreational activities because of a compulsive need to maintain his or her workout and diet schedule, 2) The individual avoids situations where his or her body is exposed to others, or endures such situations only with marked distress or intense anxiety, 3) The pre-occupation about the inadequacy of body size or musculature causes clinically significant distress or impairment in social, occupational, or other important areas of functioning, and 4) The individual continues to work out, diet, or use performance-enhancing substances despite knowledge of adverse physical or psychological consequences. The above terms and definitions were presented to help the reader understand the various body image constructs discussed in the following sections.

Theory

Several prominent scientists have used theories to help explain why men may have body image concerns. One theory of note, social comparison theory, identifies the increased use of the male physique in advertising and popular culture (Lorenzen, Grieve, & Thomas, 2004). Proponents of this theory state that people inevitably compare themselves to each other in order to figure out which characteristics are of importance to society, therefore weeding out the characteristics that are considered faulty (Festinger, 1954). An example related to body image could be women seeing thin models. Because they interpret thin models as socially acceptable and highly valued, they judge their bodies according to an excessively thin social standard. In doing so, they may develop body dissatisfaction. This is also the case with men. Men are bombarded with the ideal male figure via the media. This in turn leads to the conclusion that the ideal male figure is how every man should look. In turn, they may judge themselves as less attractive than the social ideal, leading to body dissatisfaction (Lorenzen, Grieve, & Thomas, 2004). When men with a distorted body image influenced by media manipulation notice they

lack certain qualities of the ideal male, they may develop body image dissatisfaction. In turn some men may become fixated on working towards obtaining those missing qualities, whether it is broader shoulders or a trim waist.

Men have always been used in advertisements, but there has been a noted increase (Pope, Olivardia, Borowiecki, & Cohane, 2001). These male models, much like their female counterparts, are barely clothed and do not leave much for the imagination. In advertising, the phrase “sex sells” no longer equates to a thin and toned female wearing a bikini selling beer. Now, it includes a well proportioned good looking man sporting a six pack of abs and a shaved chest selling fragrances. Often, the two are paired together to form a lethal advertising combination. Pope, Olivardia, Borowiecki, and Cohane (2001) performed a study discussing the increase of men used in advertisement. During the 1950’s, only 3% of ads used undressed men. During the 1990’s, 35% of ads used undressed men. To make that data even more alarming, the 35% was taken from only one year during the 1990’s, while the 3% was over the course of a full decade.

The increase in men being used in advertising has led to an over exposure of the ideal male physique. Unlike the ideal female physique, which has changed over centuries, the ideal male physique has not changed in white European cultures since the ages of the Greek empires. A trim waist, broad shoulders, and flaring calves forming the silhouette of an X have always exemplified the look of the ideal male body, although his proportions have become larger (Leit, Pope, & Gray, 2001). Because the ideal has not changed over centuries, it can be assumed that the amount or rate of seeing the ideal male has increased in recent years. While women classically expect to be thinner (Brownell & Rodin, 1994), some men have become borderline obsessed with becoming more muscular (Pope et al., 2000).

The increase in the muscular male physique has also been seen in children's toys. In a study performed by Pope, Olivardia, Gruber, and Borowiecki (1999), the physique of the popular action figure G.I. Joe was found to have undergone tremendous reconstruction over the years. G.I. Joe has gone from your average looking soldier to a hulk looking beast, which has also seen a drastic change. The original "Hulk" from the television series in the 1970's, the giant of a man Lou Ferignou, looks small compared to the computer generated beast in the recent films. In the Pope et al. (1999) study, the researchers examined the most popular action figures of the past 30 years. These action figures included G.I. Joe from 1973, 1975, 1994, and 1998. Luke Skywalker and Hans Solo figures of Star Wars movie fame were also chosen from the years 1978 and 1998. Also chosen, but not compared to an older figure, were a Power Ranger figure, a World Wrestling Federation (now World Wrestling Entertainment) figure, an Iron Man figure, a Batman figure, and a figure of Wolverine from the comic book X-men. All of these figures were from the year 1998. Measurements of the circumference were taken from the chest, waist, and bicep areas. These results were then scaled to the height of an actual man of 1.78 meters tall using classical allometry. Pope et al. (1999) found that the figures from 1978 to 1998 have grown immensely. For example, the G.I. Joe figure's biceps increased from 2.1 inches in 1973 to 2.5 inches in 1975 to 2.7 inches in 1994. When this data was extrapolated to an average male, these measurements would read 12.2 inches, 15.2 inches, and 16.4 inches respectively. The more extreme measurements came from the more contemporary figures. The Wolverine figure sported a waist that measured 3.3 inches, a chest that was 6.2 inches, and biceps that measured 3.2 inches. Extrapolated to a height of 70 inches, these measurements would be a 33 inch waist, a 62 inch chest, and 32 inch biceps. It is amazing that Wolverine's arms are just an inch smaller than his waist! The contemporary figures have grown much farther than the measurements of

some of the largest bodybuilders. These results suggest that body image expectations streaming from popular culture may contribute to the growing body image concern in males (Pope et. al, 1999).

The male physique has not only evolved in action figures, but also in the popular magazine *Playgirl*. The models used in the centerfolds have become more lean and muscular over recent years (Leit et al., 2001). The purpose of Leit et al.'s (2001) study was to find if the ideal male body has changed over the past 25 years. They examined 115 male centerfold models in *Playgirl* magazine from the years 1973 to 1997. From the information given about the model's height and weight in the magazines, their body mass index (BMI) was determined. Along with the BMI, they estimated each model's fat free mass index (FFMI). They found that the *Playgirl* centerfold models have put on an average of 27 pounds of muscle while losing an average of 12 pounds of fat over the past 25 years. These data also show that the cultural norms of the ideal male body are becoming more muscular than in previous years (Liet et al., 2001).

Self presentation theory, a second theory of importance, is similar to social comparison theory. Self presentation theory, which is also called impression management theory, states that people tend to highlight their best characteristics and down play their negative characteristics in order to create a favorable impression in others. This theory first appeared in the 1959 book *The Presentation of Self in Everyday Life* by Goffman (1959). In this book, Goffman describes how it is important for people to manage the impression they create in others in order to define their place in the social order, for setting the tone for interaction, and for determining their efforts in role-behaviors (Goffman, 1959). Goffman, being a sociologist, looked at impression management from a sociological standpoint rather than a psychological standpoint. It was not until E.E. Jones and his contemporaries started to look at self presentation as a means to change

and control a person's character that it was accepted into the psychological community (Jones, Gergen, Gumpert, & Thibaut, 1965; Jones, 1964; Jones, Gergen, & Jones, 1963).

The main reason people hide their perceived flaws and highlight their positive traits is so their peers will view them favorably. By manipulating their own actions, words, and clothing, they are able to get people to think about them in a positive manner. Other manipulations can include diets, cosmetics, plastic surgery, and chronic exercise. This manipulation is not done in a harmful and demeaning way, but merely to enhance the evaluation of themselves from their peers (Leary, 1992). In the case of individuals with a negative body image, these individuals may hide perceived flaws in their physiques by wearing baggy clothes (i.e., a woman wearing a pair of baggy sweat pants to hide what she thinks is a large buttocks and thighs). In a worst case scenario, the person may worry about the negative evaluation of others so much that may not leave their home. This is an example of a person with a negative body image experiencing social physique anxiety. Leary (1983) states that people experience social anxiety when they think that the efforts they put forth to manipulate their image will fail.

Leary and Kowalski (1990) developed a two component model for describing self presentation theory. According to this model, there are two processes that influence a person's level of impression management. These processes are impression motivation and impression construction. Impression motivation deals with the degree with which a person is motivated to manage the impressions they create. In other words, it is the spark to ignite the fire. Impression construction is the impression one wants to make and how they will go about developing and presenting that image. With the proper motivation, construction of the impression begins and is presented. This is the fire that follows the spark.

The process of impression motivation is affected by three factors. These factors are goal relevance of impressions, value of desired goals, and discrepancy between desired and current image. The first of the three factors, goal relevance of impressions, is based on the idea that the relevance of managing their impression depends on how the management of their impression will affect their goals. These goals could be social and material, self esteem maintenance, or identity development. A person will be more motivated to impression manage when the impression they present greatly affects their social status, material goods, self esteem, or identity. Conversely, they will be less likely to impression-manage if it does not affect their social status, material goods, self esteem, or identity. For example, a young overweight boy knows that being made fun of by his class mates lowers his body image and reduces his social status. In order to reduce the risk of being made fun of, he manages his impression on others by dressing in baggy clothes, thus keeping his body esteem intact.

The second of the three factors, the value of desired goals, depends on the importance of the desired goals. As the value of the goal increases, so does the level of impression management (Beck, 1983). An example of this would be a person who puts a large value on how their hair looks. This person believes the proper hair style will portray the image that they are current, hip, and trendy, so they go to great lengths to present the perfect hair style.

The final factor is the discrepancy between the desired and current image. This simple concept concerns the difference between the desired image and the current image. If the current image does not match the desired image, then people are motivated to initiate impression management. This matching of the two images is based primarily on the perception of what the person believes about their current image. The perception can be skewed in either a positive or negative way. Using the same example of the person who puts a large value on how their hair

looks, this person may have a perfect hair style in mind. When their hair grows to a length that no longer fits the desired hair style, they will cut their hair because they are motivated to manage their image.

The process of impression construction is affected by five factors. These factors are self concept, desired and undesired identity images, role constraints, target's values, and current or potential social image. The first factor, self concept, is the primary influence on the impressions people try to project. According to Leary and Kowalski (1990), people mainly project what they believe to be their strong traits or achievements to the public. This is not done in order to manipulate the perceptions of others. It is done to ensure that others accurately perceive them. People self regulate their impression management strategies in order to keep manipulation to a minimum. For example, people would not want to exaggerate their good traits to a degree in which they cannot live up to the standards they presented. Also, it is unethical in most people's eyes to lie. Therefore, the images that people project are the images they perceive of themselves.

Desired and undesired identity image is the second concept in the process of impression construction. Desired identity image is the portrait that people paint of themselves in order to present who they would like to be at their best. Generally, these traits are of a positive nature. If someone wants to be a nice person, they will start to act nice to other people. Not only do people project a desired identity image, they also avoid projecting unwanted characteristics. This is the undesired identity image. If a person does not like people who are meek, this person will do anything to not be meek. They will be aggressive, assertive, and abrasive in order to portray themselves as not meek. Desired and undesired identity image helps develop the first concept of impression construction, self concept (Leary & Kowalski, 1990).

The third concept in the process of impression construction is role constraints. The roles that people have in society contain certain expectations (Sarbin, Allen, & Rutherford, 1965). This also means that people filling these roles must possess certain characteristics to live up to the social standard. Because of these expectations, people will act accordingly. An example of this would be clergy men. In society, clergy are supposed to be of the highest moral aptitude. Due to this role, clergy will act as such. This does not necessarily mean that the role has pigeonholed a person into thinking and acting a particular way. Generally, this thinking comes naturally as a consequence of being in that profession (Leary & Kowalski, 1990).

Target value is the fourth concept in the process of impression construction. According to this concept, people will alter their public image in order to fit into the perceived values of significant others. For instance, a person may portray themselves as strong willed to a colleague in order to maintain a working relationship. This is a very strong extrinsic factor in the process of impression construction. However, people do not always present themselves to fit the target values of others. Rosenfeld (1966) noted that people may not act according to the target values in order to avoid or alienate themselves from another person. Gergen and Taylor (1969) also suggested that people may avoid the target values of others in order to keep their autonomy. For the most part, the values of others are in fact an accurate portrayal of their characteristics (Leary & Kowalski, 1990).

The final concept of impression construction is current or potential social image. The impressions that people create are based on how people think they are being viewed and how they may be viewed in the future. People who have been embarrassed often resort to strategies to save their current image. In terms of the image that may be presented in the future, people may restrict the knowledge of themselves to others in order to prevent a negative image. In order

to avoid a negative image, people will present themselves as positive and upbeat (Leary & Kowalski, 1990).

According to Leary (1992), one of the motivating influences of exercise is to enhance physical appearance. This is why men with a negative body image pursue a form of resistance training (e.g., bodybuilding) to enhance their physique. They are trying to produce a favorable impression on their peers by growing wide shoulders, massive arms, or a thick chest. The odd caveat to this is that Leary mentions that people who think they are inadequately strong may not want to undertake weight training. Because they feel weak, they are deterred from even trying to develop strength and large muscles. This does not explain why so many men who feel inadequate about their strength and physiques gravitate toward weight training.

Being involved in weight training also gives men with a distorted body image a social identity. According to Grove and Dodder (1982), individuals involved in sport and exercise continue in these expeditions to maintain a certain social identity. This plays into Leary's second motivational influence of exercise (1992). The negative consequence of this pertaining to men with a distorted body image is that they foster one another's problems. If a group of men with muscle dysmorphia are members at a particular health club, over time, they will start to feed off of each other's perceived inadequacies. In this instance, they are creating a negative spiral that might go out of control. For example, one male may believe he has small calves compared to his larger peers. This male's calves may be bigger than the average male calf, however, because he is comparing himself to his larger and more muscular peers, he feels inadequate.

A third important theory is Cash's cognitive-behavioral model of body image (Cash, 2002). According to this model, four variables influence the development of a person's body image. These variables are physical characteristics, cultural socialization, interpersonal

experiences, and personality attributes. Physical characteristics are the features of a person's body. This includes the person's somatotype, height, and weight. The physical characteristics that a person has will greatly affect how people think about them and in turn how they think about themselves. According to Lerner and Jovanovic (1990), how well a person's physical characteristics fit the social standard determines how others will treat them. As Cash states, "the body is a moving target" (Cash, 2002, pg. 41). Cultural socialization is what the culture as a whole determines as attractive and unattractive. Not only does culture determine what is attractive, it determines what is considered the proper way to obtain beauty. Along the same lines, culture also determines gender based roles. These two can work together. For example, it is generally noted that females will go on a diet in order to lose weight, while men will exercise.

Interpersonal experiences are the molding of one's body image through the expectations, opinions, and verbal and nonverbal communication of others. Generally, these opinions, expectations, and communication come from family members and peers. Usually, teasing is the route taken by children when they perceive someone as socially unacceptable. In turn, teasing leads to poor body image. Grilo, Wilfley, Brownell, and Rodin (1994) found this to be true in obese women. The researchers found that when the sample of women was teased about their weight as children, they had a negative body image as adults and low self esteem. Finally, personality attributes are the characteristics that will affect someone's body image. Self esteem is the most influential. If someone has a high self esteem, they are less likely to have a negative body image. Perfectionism is another influential trait. Perfectionists tend to set lofty goals, thus leading to a possible negative body image because these goals may never be met in the minds of the perfectionist. Another trait that is highly influential is public self-consciousness. This is the attention one pays to other's perception of them. People who are constantly aware of how their

actions and looks will affect their image tend to have a more negative body image compared to less public self-conscious people. One final personality factor is the need for social approval. This need for approval will increase the standard they set for themselves, hence affecting their body image greatly. In the case of men with muscle dysmorphia, the possibility of a negative interpersonal experience can lead to poor body image. The most important variable in respect to this study is cultural socialization. Media in the western cultures has made it quite clear what the idealized male body is through magazines, advertisements, and television shows. For the purpose of this paper, social comparison theory will guide the research questions.

Literature Review

In this section, descriptive data, and the antecedents and outcomes of body image dissatisfaction will be discussed.

Descriptive

It is clear that male body image dissatisfaction is a contemporary problem. According to data from a survey conducted by *Psychology Today* in 1985, there has been a rise in male body dissatisfaction. Respondents filled out a special version of the Multidimensional Body-Self Relations Questionnaire (MBSRQ). This survey consisted of affective and cognitive/behavioral evaluations of three areas. These areas were physical appearance, physical fitness, and physical health/illness. In the survey, 41% of respondent males said they were dissatisfied with their weight. This is an increase from 35% from a survey in 1972. Of those men, 50% of them agreed that they were unhappy with their mid torso. (Cash, Winstead, & Janda, 1986). According to a recent national survey using the same testing protocol, Garner (1997) reported that men's body dissatisfaction nearly tripled from 15% in 1972 to 43% in 1997. Other researchers have found

that 95% of college men are dissatisfied with some part of their body, while 70% are unsatisfied with their current body as a whole (Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986).

McCabe and Ricciardelli (2001) surveyed boys between the seventh and tenth grade in a recent study. Body change strategies used to increase weight and muscle tone, and the use of food supplements were measured using the Body Image and Body Change Inventory. The Sociocultural Influences on Body Image and Body Change Questionnaire were also used in this survey to get an understanding of where the pressure was coming from to convince the boys to change their body. Areas of influence included feedback from the father, mother, friends, and society. The researchers reported that approximately 21.6% of boys between seventh and tenth grade wish to lose weight, while 27.2% wish to gain weight. The desired increase in weight is specifically a desire to gain muscle in appropriate areas. Roughly 26% of respondents wish to increase their muscle tone. According to the same survey, 34.7% of boys engage in extreme weight loss strategies. These strategies include the use of diet pills and starvation. Roughly 27% of boys responded that they use a food supplement to either gain weight or lose weight (McCabe & Ricciardelli, 2001).

In general, females wish to lose an average of five to ten pounds, while men wish to gain an average of 30 pounds of muscle (Baird & Grieve, 2006). The areas in which people wish to lose or gain this weight are different as well. Women tend to want to lose weight from the hips, thighs, and buttocks, while men wish to gain muscle in the arms, chest, and shoulders (Ridgeway & Tylka, 2005).

Pope et al. (2000) conducted an experiment that involved college men in the United States, Austria, and France. Their objective was to determine if men in the USA desired a leaner and more muscular physique than Austrian or French men. They also hypothesized that women

would prefer that males had a more muscular and lean body. To test what they believed to be the ideal male physique, Pope et al. (2002) used a computerized test called the somatomorphic matrix. This computer program would present a baseline figure. The participant could change the muscularity of the figure on the screen with two on screen buttons. The program asked four questions in regards to their own physique and the ideal physique. These questions were 1) how the participant felt the onscreen figure represented their own body, 2) what was the body they ideally would like to have, 3) what the body of the average male of their age looks like, and 4) the male body that they felt was desired by females. After adjusting the baseline figure to the proper physique they felt would answer each of those questions, they would select that figure. The researchers also measured the participant's body fat percentages (BF%) and fat free mass index (FFMI). To measure BF%, they used skin fold calipers. From there, they were able to find each participant's FFMI. Results showed that men from all three countries desired a body that was 27-29 pounds more muscular than themselves. They also believed that women desired a man who was approximately 27 pounds more muscular than what they could offer. In contrast, when presenting the somatomorphic matrix to women in Paris, France, they found that women actually preferred a more average looking male. These researchers concluded that the modern college male has a desire to be more muscular (Pope et al., 2000).

Antecedents

There are two basic pathways that contribute to developing a disturbed body image. These pathways include biological and societal factors. Biologically speaking, researchers have shown that men with a low body mass index (BMI) tend to report wanting to gain muscle (McCabe & Ricciardelli, 2001). It is reasoned that men with a low BMI are generally skinnier and would develop a desire to become more muscular and larger. Researchers have found that

men with a lower BMI are more likely to use steroids, overeat, and use food supplements (Cafri et al., 2005). Another biological factor is pubertal timing in adolescent boys. When boys start puberty, they generally start to develop muscle because of the increase in testosterone production. Researchers have found that boys who are in the pubertal stage are more likely to engage in muscle building strategies than pre-pubertal boys (O'Dea & Abraham, 1999). Another biological factor linked to body image disturbance is age. Generally, the development of body dysmorphia occurs in men between the ages of 18 and 32 (McCabe & Ricardelli, 2001; McCreary & Sasse, 2000).

Of the societal factors, the media tends to be the biggest influence on male body image. Researchers have found that females who are shown pictures of thin models will develop negative thoughts about their own bodies (Ogden & Munday, 1996; Stice, Schupak-Neuberg, Shaw, & Stein, 1994). The same occurrence is seen in men. Men who are shown images of muscular men are more likely to show negative affect and thoughts about their body than men shown neutral images (Agliata & Tantleff-Dunn, 2004; Arbour & Martin Ginis, 2006; Baird & Grieve, 2006; Farquhar & Wasylikiw, 2007; Grogan, Williams, & Conner, 1996; Gulas & McKeage, 2000; Halliwell, Dittmar, & Osborn, 2007; Hobza, Walker, Yakushko, & Peugh, 2007; Humphreys & Paxton, 2004; Johnson, McCreary, & Mills, 2007; Leit, Gray, & Pope, 2002; Lorenzen, Grieve, & Thomas, 2004; Ogden & Murray, 1996). Participation in sport has also been looked at by some researchers as being a precursor to both positive and negative body image in males. Some researchers have shown that adolescent boys who participate in sports tend to have a positive body image and higher self esteem (Ferron, Narring, Cauderay, & Michaud, 1999). However, the use of steroids has also been linked to sports, especially in adolescents (Cafri et al., 2005). The type of sport is related to steroid use. Sports that require

power, such as football, wrestling, field events, weightlifting, and bodybuilding, have all seen increased levels of steroid use (Cafri et. al, 2005).

One researcher suggested that changing sex roles in the 21st century is a contributing factor to the importance of a man to be muscular. Women are no longer staying at home with the children while men work all day to provide for their families. More and more, both the husband and wife work outside the home. In some instances, females are starting to out-perform males. This has put a strain on the “manhood” of some men. In order to make up for their lack of a clear and traditional male role, they become obsessed with looking masculine. This could include hours in the gym exercising to obtain large muscles (Mosley, 2008).

Outcomes

Because the importance of being muscular has increased, the potential for body dissatisfaction has also increased. Certain outcomes or consequences come with poor body image such as an increased fixation with becoming as muscular as possible. Researchers have indicated that men with poor body image are more likely to use anabolic androgenic steroids. Approximately three to twelve percent of young men are taking anabolic androgenic steroids (Cafri et al., 2005). With the use of anabolic androgenic steroids come adverse side effects. Scientists observing the side effects of steroids noticed a lower level of high density lipoprotein (HDL cholesterol). Also, increased levels of low level lipoproteins (LDL cholesterol) and increased blood pressure have been noticed (Lenders et al., 1988). Increasing the levels of LDL cholesterol and lowering levels of HDL cholesterol, along with elevated blood pressure, have been linked to heart disease. With an increased risk of heart disease comes an increased risk for early heart attack and stroke. Other physical side effects include acne, gynecomastia (an increase in size or development of female like breasts in men), and final stature of adolescent users (Pope,

Phillips, & Olivardia, 2000). Psychologically, increased rates of depression and manic episodes occur (Pope & Katz, 1987, 1988, 1994). And finally, as with any drug comes the possibility of addiction (Brower, Blow, Young, & Hill, 1991).

Along with the use and abuse of anabolic androgenic steroids, a lot of money is spent on dietary supplements, such as prohormones and ephedrine (Cafri et. al, 2005). Estimates suggest that 1.7% of males use prohormones and 2.3% to 2.8% of males use ephedrine (Bell, Dorsch, McCreary, & Hovey, 2004). Prohormones can include dehydroepiandrosterone (DHEA) and androstenedione (andro). While prohormones are sold over the counter in any typical supplement shop, they can still have the same side effects of anabolic androgenic steroids. Ephedrine, a common “fat burner”, is another over the counter supplement that can be purchased at a local supplement store. Physical side effects can include an increase in systolic blood pressure, an increase in resting heart rate, and other common side effects found in central nervous system stimulants. There have also been cases of psychoses, seizures, strokes, heart attacks, and deaths reported. Exercise dependence has also been related to poor body image (Cafri et al., 2005).

Disordered eating is another behavior that has been linked as an outcome of poor body image. Generally, males who are dieting to gain weight have a higher drive for muscularity than males looking to lose weight, or who are not dieting at all (McCreary & Sasse, 2002). Normally, men who are looking to gain muscular weight engage in diets that restrict certain foods and will eat large quantities of allowed foods (Mosley, 2008). An example of this would be eating large amounts of protein from chicken, tuna, and lean ground beef, but restricting carbohydrates and fats to minimal and sometimes below minimal standards. Sometimes, this hinders their ability to socialize with peers. For example, they may skip social events because the food served at the

social event is one of the restricted foods on their diet. If they do decide to go out with peers, they often bring their own food. Another problem is the side effects of a low carbohydrate diet. They may become disoriented and inattentive to social situations and perhaps injury prone due to the lack of carbohydrates.

Summary

In the previous chapter, key terms such as body image, body image dissatisfaction, BDD, social anxiety, social physique anxiety, and muscle dysmorphia were defined. These terms and definitions are used throughout the text and will help the reader understand the multiple differences in relation to body image. Also discussed were theories that describe body image from a psychological view. These theories included social comparison theory (Festinger, 1954), self presentation theory (Goffman, 1959), and a cognitive-behavioral model (Cash, 2002). Social comparison will be the guiding theory throughout this research. Descriptive data was presented reporting the increase in body dissatisfaction in males. Antecedents and outcomes of poor body image were also discussed in this chapter.

CHAPTER TWO

The purpose of this chapter is to provide background information on the experimental research that has been done in the field of body image in males, and physiological stress response in females with body image impairment.

Review of Literature: Experimental Research

As noted earlier, several researchers have shown that images portrayed in the media influence a person's body image (Agliata & Tantleff-Dunn, 2004; Arbour & Martin Ginis, 2006; Baird & Grieve, 2006; Farquhar & Wasylkiw, 2007; Grogan et al., 1996; Gulas & McKeage, 2000; Halliwell et al., 2007; Hobza et al., 2007; Humphreys & Paxton, 2004; Johnson et al., 2007; Leit et al., 2002; Lorenzen et al., 2004; Ogden & Murray, 1996). Generally, for females, these images consist of a thin model (Ogden & Munday, 1996; Stice, Schupak-Neuberg, Shaw, & Stein, 1994; Thompson & Stice, 2001). Most researchers examining male body image have sampled men in college. Other researchers have looked at body image of adolescent males. Very little research with older males has been done. Generally, the research is performed using a type of visual stimuli. One group will receive provoking body image stimuli, while the control group will receive innocuous stimuli.

In the case of males, the images of attractive muscular men have caused body dissatisfaction. For example, Lorenzen et al. (2004) developed a study that compared the body satisfaction of males after viewing photos of average looking males and muscular males. In this study, 104 male participants were randomly assigned to a group that either viewed muscular male models or average looking male models. The level of body satisfaction was the dependent factor, while the images were the independent factor. Before and after the exposure, the participant's body image was assessed using the Body Assessment scale (BA). The BA was not

designed to measure the level of satisfaction in muscularity, but overall body satisfaction. Muscular models were considered to have high levels of muscular mass. The muscular male models were shirtless with their faces exposed. Average or non-muscular models were considered to not have high levels of muscular mass. Twelve images were used, consisting of six muscular and six average models. These images were picked from a group of 40 images after female participants completed a survey in a pilot study to determine which images would produce the greatest reactions in the male participants. Results from analysis of variance (ANOVA) showed that the men who were exposed to the muscular male models experienced decreased body satisfaction from before exposure to after exposure. The control group had no change in body satisfaction. The authors suggested that visual stimuli of muscular male models produced a greater decrease in body satisfaction compared to participants viewing average looking male models. A second conclusion established was that only a brief exposure to visual stimuli was enough to decrease a male's body satisfaction (Lorenzen et al., 2004).

In support of Lorenzen et al. (2004), Baird and Grieve (2006) found similar results. In their study, Baird and Grieve recruited 173 college males to view two different types of magazine advertisements. The control group viewed eight magazine advertisements for men's products that included clothing and cologne. The experimental group viewed eight slides of male models selling the same products. Particular attention was paid to the models to ensure they were muscular, attractive, and had a visible upper body. The advertisements were taken from popular male magazines including *FHM*, *Maxim*, and *Sports Illustrated*. To measure body satisfaction, the researchers used the BA from the Lorenzen et al. (2004) study. Just as in the Lorenzen et al. (2004) study, the BA measures appearance and body performance as a whole. It

does not focus on particular areas like chest, biceps, or shoulders. The BA was administered before and after viewing the advertisements.

To keep the participants from guessing the true nature of the study, the Magazine Advertisement Questionnaire (MAQ) was developed. This questionnaire would ask the participants to rate the level of effectiveness of the advertisement. Such questions included “I currently buy products such as those featured in this ad” and “This ad accurately represents the product”. Data from the MAQ was not used in the study. The MAQ was completed after viewing the advertisements shown on a projector. Approximately 30 seconds was allotted per slide. Results from an ANOVA showed the body satisfaction of the men viewing the slides of muscular male models decreased while the body satisfaction of the control group stayed the same. While this study supported the results of the Lorenzen et al. (2004) study, it is more ecologically valid because of the use of common advertisements which are ubiquitous rather than slides of muscular males which are less prevalent. It was noted by the researchers that the effect size between the before and after scores of the experimental group was small. They speculated that there was not enough time given to each slide to generate enough of an impact on the participants (Baird & Grieve, 2006).

Grogan, Williams, and Conner (1996) hypothesized that when men viewed slides of attractive male models, men would not be affected by them in a negative way while women would be affected by viewing slides of attractive females. According to Thompson and Heinberg (1992), because the male body has less social relevance than the female body, men do not make as many or as strong upward comparisons with attractive males compared to women. Hence, they will not have a marred body image. Their hypothesis was proven false. In their study, 94 participants (49 men, 45 women) between the ages of 17 and 32 were used. Sixteen

photos of male or female models were taken from fashion magazines. The level of attractiveness of the model was measured by a group of six male and six female independent judges. On a scale of 1 to 7 with 1 being very attractive and 7 being very unattractive, the judges rated each model. Only the most attractive models were selected, with anything less than 3.5 considered attractive. Sixteen photos of landscapes were viewed by the control group. The Body Image Scale (BIS) was used to measure body esteem. This scale had two subscales including body esteem and general attractiveness. The BIS was non-gender specific. There were two test sessions separated by one week. At the first test session participants completed the BIS. After the week layoff, the participants returned to view the 16 photos of male models, female models, or the landscape control depending on gender and group. After viewing the photos, the participants completed the BIS for a second time. Results showed that both men and women's body esteem were negatively affected by the photos, while the control group's body esteem stayed the same. The researchers suggested that men and women make comparisons with same gender models that negatively affects their body esteem and supports social comparison theory (Grogan et al., 1996).

Leit, Gray, and Pope (2002) found similar results to Baird and Grieve (2006), Grogan et al. (1996), and Lorenzen et al. (2004). These researchers hypothesized that men exposed to images of hypermesomorphic males would have decreased levels of body satisfaction compared to a control group that was not exposed to these slides. Eighty two undergraduate men viewed 30 slides in one of two groups. The first group viewed 20 slides of muscular men with 10 impartial slides containing no human images or human images that did not focus on the body. The photos of the muscular men were judged on a seven point Likert scale by 10 college men on three categories. These categories were level of muscularity, level of attractiveness, and level of

sexual provocativeness. Images that were considered too provocative were omitted. Images that were high in muscularity and attractiveness were then chosen for the study. After viewing the slides, the participants used a computerized test of body image perception called the Somatomorphic Matrix. This computer program allowed the participants to adjust the level of body fat percentage and fat free mass index on a computerized male image. The participants were asked to form a figure that represented their current body shape, their ideal body shape, the average body shape of men, and the body shape of men that women prefer. Results from the t-test revealed the experimental group relative to the control group displayed a greater difference in body fat percentage and fat free mass index between current and ideal fat free mass index and between current and average man's fat free mass index. The authors concluded that images of muscular males cause body dissatisfaction in males (Leit et al., 2002).

Ogden and Munday (1996) found that when men were presented with slides showing overweight males, their body satisfaction increased. Data for this experiment was collected using a visual analogue scale, silhouettes, body size estimations, and profile questionnaires. All of these measures were used to explain the participant's level of body approval. The visual analogue scale was a series of questions asking each participant how fat, sexy, attractive, toned, and fit each participant felt at that moment. The silhouettes ranged on a 12 point scale from very obese to very thin. Each participant chose a silhouette to describe how they looked at that moment and how they wanted to look. Body size estimation was used by having the participants stand in front of a large white paper. They were asked to place dots on the paper to estimate the width of their chest, waist, and hips. The profile questionnaires included the Dutch Eating Behavior Questionnaire (DEBQ) and the Body Shape Questionnaire (BSQ). The DEBQ was used to study if restrained eating was linked to reactions to media photos. The BSQ further

described body satisfaction of the participants. This study shows that men are affected by media exposure, and that in order to elicit a negative response, the stimulus must not be of overweight men. In the study, 20 male participants reported feeling sexier, more attractive, more toned, fit, and less fat after viewing slides of overweight individuals. The study also included visual stimuli of thin males that had no effect on the male participants. Female participants were also involved in the study and when shown pictures of thin models, their body satisfaction decreased. After being shown the photos of overweight individuals, the body satisfaction of the females increased. Like the Lorenzen et al. study, this study showed that a brief exposure to stimuli is all that is needed to elicit a response. Also, that social comparison operates in both a downward and upward fashion (Ogden & Mudray, 1996).

In addition to the model in general (muscular vs. overweight), the level of muscularity of the model also has an impact on body satisfaction. Arbour and Ginis (2005) recruited males from a college in Ontario, Canada. The sample group was split into two groups consisting of 34 men and 29 men. Both groups received the same lecture entitled “Muscle Building 101” that was presented by a human nutrition and metabolism professor at the college. During the presentation, the group with 34 men viewed slides of muscular men that can be seen in such magazines as *Men’s Health*. These men were to be considered the media ideal. The second group of 29 males viewed slides of hyper-muscular bodybuilders that can be found in magazines like *Flex* and *Muscular Development*. Before and after the lecture, participants were asked to fill out a Body Areas Satisfaction subscale (BASS) from the Multidimensional Body-Self Relations Questionnaire (MBSRQ) to measure body dissatisfaction. To measure muscularity dissatisfaction, the Drive for Muscularity Subscale (DMS) was used. Results from the three exams showed that there was a greater decrease in baseline body satisfaction level with the

muscular group compared to the hyper muscular group. This means that viewing slides of hypermuscular men does not create as much of a decrease in body satisfaction in men compared to slides of athletically toned men. The reasoning behind this was that the athletic and toned males were viewed as more obtainable than the hyper-muscular bodybuilders. It was also noted that it is the media's presentation of their ideal of muscularity, not objective muscularity itself that determines body dissatisfaction (Arbour & Ginis, 2005).

One set of researchers performed a creative study involving college aged men viewing slides of what they called objectified men with unique results (Johnson, McCreary, & Mills, 2007). The researchers had two purposes. First, they wanted to examine the reactions of males viewing slides of objectified men and women. The other purpose was to investigate the psychological well being of the participants and their desire to become more muscular. The researchers proposed that men viewing slides of objectified men or women would have a higher desire to become muscular and report a higher level of psychological stress. Ninety nine male students between the ages of 17 and 28 volunteered for the experiment. The slides presented objectified men, women, and neutral ads. The slides of men were taken from magazines like *Men's Health*, *Men's Journal*, and *GQ* and the slides of women were taken from magazines like *Vogue*, *Harper's Bazaar*, and *Shape*. The neutral ads were of either household products or automobiles and did not include humans.

The photos of the objectified men and women were chosen by researchers who informally judged the images to fit the male and female stereotype. Hence, they chose the photos that best depicted the description of "thin" and "sexy" for the females and "strong" and "muscular" for the males. The researchers measured the state self esteem of the participants using the State Self-Esteem Scale. The participants answered 20 questions that assessed their

feelings regarding their appearance, social, and performance self esteem at that moment using a five point Likert scale with 1 being not at all and 5 being extremely. An overall self esteem score can be gathered from this information. The participants were also given the Drive for Muscularity Scale (DMS) to measure their desire to be muscular. The DMS is a 15 item questionnaire that assesses the attitudes toward muscularity (“I wish I were more muscular”) and behaviors about muscularity (“I lift weights to build up muscle”). Only the Muscularity Oriented Body Image (MBI) subscale of the DMS was used in this study. The psychological well being of the participants was measured using the Affect Rating Scale (ARS). This is a 66 item questionnaire with a four point Likert scale that has subscales for depression, general anxiety, and hostility. Participants were randomly assigned to one of three groups that viewed seven slides each. The first group observed five ads depicting objectified males and two neutral slides. The second group saw five ads of objectified females and two neutral ads. The third group received seven neutral ads. After viewing the slides for seven minutes, the participants were given the self report surveys with no time limit for completion.

Results showed that the men who were exposed to the objectified female images had a higher level of anxiety and hostility compared to the other men, and the slides of the objectified males did not increase participants desire to be muscular as the researchers had hypothesized. The researchers concluded that viewing advertisements or magazines of objectified women would increase a man’s antagonist tendencies toward women. This coincides with literature exploring pornography exposure and males. Some researchers found that males respond aggressively towards females and not males who anger them after viewing pornography (Donnerstein & Berkowitz, 1981). Other researchers found that men are sexually aroused by violent pornography while women are not (Glascock, 2005). Basically, men will increase their

level of masculine tendencies after viewing not only pornography, but photos of sparsely clothed females. The researchers also concluded the reason they did not find the results they hypothesized was because there were not enough visual stimuli, the stimuli was not intense enough, and that men are more resilient compared to women when exposed to objectified images of the same sex (Johnson et al., 2007). The researchers also did not take into account the type of ad being used. For example, an advertisement for a nutritional supplement with an objectified male would probably be more likely to elicit a desire to be more muscular compared to an advertisement depicting objectified males selling cologne.

The type of model is very important, but how the model is portrayed in advertisements is also critical. Farqhar and Wasylkiw (2007) set out to find two things with their study. First, they wanted to establish that not only has the male model become more muscular and lean, but how they are portrayed has changed. They theorized that over time, the focus on the model has changed from what they called a “body as process” to a “body as object”. In other words, the shift has gone from what the male model can do to a strict aesthetic look. For example, body as process ads show the model doing something, like climbing a mountain, riding a bike, or running. Body as object ads presents the model in a posed position standing still. To prove this hypothesis, the researchers used advertisements from *Sports Illustrated* that featured men from the years 1975 to 2005. *Sports Illustrated* was used because of the high subscription rate of predominant male readers. After obtaining estimated demographics of the models from a group of judges, they set out to find how the body of the model was conceptualized in the advertisements. They measured the level of activity (the amount of activity the model exhibit), the level of pose (how natural the model appears), the use of the advertised item (whether or not the model is using the product), nudity (with or without clothing), fragmentation (if certain parts

of the body are highlighted like the abs, chest, and biceps with the head excluded), eye gaze (direction of the model's line of sight), and object representation (whether or not the model's body is used as an object) of the models to establish conceptualization of the model. These measurements were taken over four time periods worth of advertisements. These time periods were the 1970's (1975-1979), the 1980's (1984-1989), the 1990's (1992-1996), and the 2000's (2000-2005).

The results showed the level of activity and the percentage of nudity reached a peak in the 1990's, while dipping slightly in the 2000's. The level of item use decreased from each time period. Fragmentation hit an extreme high in the 1990's before dropping dramatically in the 2000's. Finally, eye gaze was sporadic throughout each time period. The researchers concluded that the role of the male model has made a shift into the "body as object" realm. This means that the focus on the male body has changed from functionality to appearance. Now that the researchers understood how the male model role has changed, they decided to explore how this affects male adolescents. They theorized that being exposed to advertisements featuring the idealized male in a body as object role would have a negative impact on body image. Using a sample of 107 male students between the grades of six and nine, they randomly assigned each student to one of three groups. The first group was presented with advertisements featuring the male model in a body as object role. The second group was exposed to advertisements featuring the male model in a body as process role. The third group received images of electronics and was dubbed the control. The models of each group were different people.

After viewing the assigned slides, the participants had their state self esteem measured using the Current Thought Scale. This scale was divided into three subscales that included social self esteem, performance self esteem, and appearance self esteem. Their level of depression was

also measured using the depression dejection questionnaire from the Profile of Mood States – Revised. The participants were also asked about their ideal male physique self. To do this the researchers first asked an open ended question that was “If you could change one thing about yourself, what would that be?”. The answer given was either labeled as body as process or body as object response. Second, they asked the participants what 10 attributes they would like to have. Again, these responses were labeled as body as object or body as process. After viewing the slides, the body as object group had low performance and appearance self esteem ratings. Interestingly, the social and appearance self esteem of the body as process group was high. They also had lower levels of depression than the other two groups. The researchers suggested that the activity of the model acts as a buffer. In other words, the activity distracts the viewer from the ideal male image. When there is no activity, there is nothing to distract the viewer, so they focus solely on the model.

Also of note were the results of the open ended question in regards to the ideal male physique. Results show that 71.43% of responses in the body as object group gave an answer that was considered a body as object answer. This is compared to 51.43% in the body as process group and 34.48% in the control group. Despite well muscled and lean men used in both types of advertisements, the body as process group still had higher levels of self esteem and lower levels of depression. This study did have limitations. In the first half, the sample of advertisements was only from one source. It would be interesting to see how television ads, or even different magazine ads for that matter, have changed. In the second half of the study, it was hypothesized that the changes in mood and self esteem might only be short lived. Also, the models needed to be controlled such as using the same model in both types of advertisements with the same level of nudity (Farqhar & Wasylikiw, 2007).

According to Humphreys and Paxton (2004), the level of prior body dissatisfaction and internalization of the muscular male physique determines if adolescent males are susceptible to media portrayal of the idealized male body. To establish this, the researchers used 106 males in the ninth and tenth grades from four private secondary schools in Melbourne, Australia. Participants were split into two groups; experimental and control. The experimental group viewed ten slides of full or three quarter length images of rugged, athletic, lean, and muscular late adolescent males. These images were chosen with the help of a 16 year old male and were taken from newspapers, magazines, and sporting websites. The control group watched ten slides of products that contained no figures. These slides contained advertisements of popular products like sport shoes, sunglasses, phones, watches, and cars. In these images, there was no sexual component. To measure the potential impact of the images, participants completed the Body Image and Body Change Inventory Body dissatisfaction subscale (BIBCI-Body Dissatisfaction), a boys' version of the Sociocultural Attitudes Towards Appearances Questionnaire-Internalization Subscale (SATAQ-I), the Body Comparison Scale (BCS), the Rosenberg Self Esteem Inventory (RSE), the Beck Depression Inventory-II (BDI-II), the Self Concept Clarity Scale, and the Image Appeal scale.

The BIBCI-Body Dissatisfaction was used to measure body dissatisfaction in the participants. The SATAQ-I calculated each participants level of which they adopted the stereotype of a muscular male ideal. The RSE scored self esteem in the participants. The participant's level of depression was measured using the BDI-II. Measuring the self beliefs and consistency of these beliefs was done using the Self Concept Clarity Scale. Finally, the Image Appeal scale measured the appeal of each image to the participants and also helped predict the response to each image. To measure the impact of the exposure to the images, the researchers

administered the Visual Analogue Scale (VAS). The VAS had three subscales that measured body image (Body Image VAS). These were Like Body Shape, Want Toned Body, and Want to Change Body Shape. The VAS had two subscale that measured anxiety and depression (Anxiety VAS and Depression VAS). Each of these measured the current thoughts of the participants on how much they liked their body (Like Body Shape), how badly they wanted a toned body (Want Toned Body), whether or not they wanted to change their body (Want Change Body Shape), level of depression (Depression), and level of anxiety (Anxiety). This was given pre and post exposure to the images.

In general, the researchers found that the images did not have a deleterious effect on the participants. However, they did find that the greater the internalization of the muscular male physique, the greater the negative response from the images in the experimental group. The researchers suggested the reason the majority of participants did not respond negatively to the images was because adolescent boys believe they will grow into a muscular body. Young adults may not think the same way as their bodies have already fully developed. Another reason may have been out of fear of being labeled homosexual by their peers. Despite the privacy and confidentiality of the experiment, there is still the paranoia of potential backlash from peers. This study shows that young adult males with an internalization of the ideal muscular male should be used for future research regarding males and negative body image (Humphreys & Paxton, 2004).

Gulas and McKeage (2000) had results that were similar to Humphreys and Paxton (2004). Gulas and McKeage (2000) hypothesized that exposing males to advertising of attractive males and females would reduce their satisfaction with their physical attraction and self esteem. They also hypothesized the same results when viewing advertisements of financially successful

males and females. A final hypothesis was that men high in Attention to Social Comparison Information (ATSCI) would be affected more negatively than men who are low in ATSCI. According to the researchers, ATSCI is how much a person cares about what others think of them. In order to test their hypotheses, the experimenters exposed 143 male college students to full page print ads featuring either attractive men or women, financially successful men or women, or the product alone. Products in the advertisements were of clothing, electronics, colognes, and financial services. The participants were then randomly assigned to one of five groups. These groups included images of attractive males, attractive females, financially successful males, financially successful females, and images of the product alone (control). Each experimental group saw five advertisements with five filler advertisements taken from the control group, making ten total advertisements in each group. The control group received ten product only advertisements. After viewing the advertisements, the participants completed a two item scale to measure thoughts on their physical attractiveness, a 20 item scale to measure self esteem, and a 13 item ATSCI scale. Results from the experiment did not support the researcher's hypothesis that advertisements of attractive males or females would have a negative effect on the participant's satisfaction of physical attraction and self esteem. The hypothesis that advertisements of financially successful men and women would negatively affect the participant's satisfaction of physical attraction and self esteem was supported. Finally, the hypothesis that men with high ATSCI would be more affected by advertisements featuring either attractive or financially successful men or women was supported. This shows that the initial level of body satisfaction and how much people value what others think of them plays a role in the impact of the advertisements (Gulas & McKeage, 2000).

Halliwell, Dittmar, and Orsborn (2007) hypothesized that viewing print advertisements featuring a muscular male would create greater dissatisfaction in men who are not regular exercisers. They believed regular exercising males (especially males who exercise for muscular size and strength) had a different motivation compared to non exercisers; therefore, they would use the advertisements as a point of reference and motivation rather than an insult to their ego. In other words, the gym users would look at the advertisements in a positive manner while the non gym users would look at the advertisements in a negative manner. To test this theory, the researchers recruited 106 men from a local gym and train station. Regular exercise was described as exercising more than once per week, while anything less was considered non regular exercise. Evenly split, 58 men were labeled non exercisers and 58 men were labeled regular exercisers. Two advertisements featuring two different muscular males for a bogus after shave were used in the experimental group. The control group received advertisements for the same bogus aftershave, but they did not have the muscular male models and were on a landscape backdrop. A slogan was added to the advertisements that were simple and discrete. The regular exercisers group completed the strength and endurance sub scale of the Exercise Motivations Inventory 2 to measure their motivations for exercise. This was given before viewing the advertisements. Both groups completed the Physical Appearance State and Trait Anxiety Scale (PASTAS). This scale measures anxiety in regards to localized body areas. The PASTAS was given only post exposure to reduce influencing the participant's answers.

Results from the self report surveys concluded that non exercising men are negatively affected more from images of idealized males than regular exercisers. Also of note was the men exercising to increase muscular strength and size had lower levels of negative body affect compared to the controls. A limitation of this study was it did not present the PASTAS before

exposure to the advertisements. There is the possibility that the exercising men did experience negative body affect when viewing the slides between pre and post exposure. Also, it was noted that the negative body image feelings in the non exercising group may be short lived. Perhaps once the non exercising men walked out of the study, they felt good again. However, because men are exposed to advertisements of the idealized male on a daily basis this very well could influence them every day of their lives (Halliwell et al., 2007).

Agliata and Tantleff-Dunn (2004) exposed a group of 158 undergraduate males between the ages of 17 and 27 to either an advertisement featuring the ideal male or an advertisement that did not feature an ideal male. The ideal male was considered to be muscular, lean, and youthful. These ideal male models were featured wearing athletic attire and sometimes in very little clothing. The non ideal male was older and was fully clothed. Each group of advertisements was shown during an episode of a game show to provide a realistic television watching experience. In total, there was 30 minutes of advertisement shown in each group. Four subscales of the MBSRQ were used. These subscales measured appearance satisfaction, importance of outward appearance, feelings of being physically fit, and lastly overall investment in appearance and fitness. To assess the awareness and acceptance of cultural ideals of attractiveness of the participants, the Sociocultural Attitudes Toward Appearance Questionnaire – Male Version (SATAQ-M) was used. The Physical Appearance Subscale of the Bulimia Cognitive Distortions Scale (BCDS-PA) was used to measure distorted ideas and thoughts about physical appearance. To assess immediate changes in mood and body dissatisfaction after viewing the commercials, the VAS was used. Results showed that regardless of initial level of body dissatisfaction, viewing television commercials of the ideal male has harmful effects. Most

of this comes in the form of muscle dissatisfaction and depression (Agliata & Tantleff-Dunn, 2004).

In an attempt to distinguish between body esteem and state self esteem, Hobza, Walker, Yakushko, and Peugh (2007) hypothesized that men exposed to images of the ideal male would experience lower levels of body esteem and state self esteem. They also hypothesized that men exposed to images of wealthy males would experience a decrease in self esteem. The experimenters described body esteem as a sub unit of general self esteem. Body esteem encompasses thoughts and feelings about the body and how it looks and performs, while self esteem is a more general evaluation of the whole self. Body esteem influences self esteem, but usually not the other way around. State self esteem is the self esteem of an individual at that exact moment and is only momentary. The researchers used data of 46 undergraduate college males from a larger group of 94 participants. Female participants were also used in this study to help conceal the study purpose. Participants were randomly assigned to one of three groups; an image neutral group, a physical image group, and a resource image group. The image control group viewed advertisements of household products. The physical image group viewed advertisements that featured the physically ideal male. The resource image group viewed advertisements that featured men portraying the image of wealth. Five slides from the image control group were also shown to the physical image group and resource image group. Each group viewed 25 total slides. Slides were viewed using PowerPoint software on a projector screen. To measure each participant's level of body self esteem, the Body Esteem Scale (BES) was administered. The BES has three subscales that measure perceptions about physical attractiveness, upper body strength, and physical condition. State self esteem was measured

using the State Self Esteem Scale (SSES; Heatherton & Polivy, 1991). The SSES has three subscales that include perceptions about appearance, performance, and social skills.

Results from the BES and SSES partially supported the first hypothesis. After viewing the slides of the physically ideal males, body esteem levels were lower in the experimental group, but there was no difference in the level of state self esteem compared to controls. The researchers suggested that media images of physically ideal males only negatively affect feelings about physical characteristics that are unchangeable. The second hypothesis was not supported. This contradicts the findings of Gulas and McKeage (2000). The researchers suggested that wealth is no longer an emphasis of modern males because women no longer place emphasis on finding a mate who is wealthy. Older women are currently more financially sound than in years past, so they place less emphasis on finding a man who is wealthy to support them. Instead, they look for a man who they are physically attracted to. Men now adjust to this accordingly by exercising and paying attention to how they look.

One limitation of this study was it did not have a broad ethnicity of participants. Another limitation was that the participants could have experienced fatigue after completing the BES and therefore scores of the SSES were hurried and falsified. Another limitation reported was some women shouted and made cat calls when viewing some of the slides. This could have embarrassed, or exacerbated, the negative affect felt by the male participants. This does not produce a valid measurement. One final limitation reported of note was self report exams were only given after viewing the slides. Therefore pre to post direct changes in the groups could not be assessed. There is the chance that one of the groups had some people who initially had low self esteem. Regardless of the type of image, they always have a low self esteem (Hobza, Walker, Yakushko, & Peugh, 2007).

In summary, images of physically fit men in the media can have a detrimental effect on male body image (Agliata & Tantleff-Dunn, 2004; Arbour & Ginis, 2006; Baird & Grieve, 2006; Farquhar & Wasylikiw, 2007; Grogan et al., 1996; Gulas & McKeage, 2000; Halliwell et al., 2007; Hobza et al., 2007; Humphreys & Paxton, 2004; Johnson et al., 2007; Leit et al., 2002; Lorenzen et al., 2004; Ogden & Munday, 1996). The images that create the greatest decrease will generally have the male model in a posed posture (Farquhar & Wasylikiw, 2007) and be of a physically fit male and not of an overly muscular bodybuilder (Arbour & Ginis, 2006). Also of note is that when men are presented with slides of overweight models, their body satisfaction increases (Ogden & Munday, 1996). Men who have a desire to be muscular are at a higher risk of decreased body satisfaction when viewing slides of muscular male models (Gulas & McKeage, 2000; Humphreys & Paxton, 2004), although it is not entirely important (Agliata & Tantleff-Dunn, 2004). Finally, it was found that regular exercisers use images of physically fit men as motivation. Unlike non exercisers, they do not see a decrease in body satisfaction when viewing photos of physically fit men (Halliwell et al., 2007). Based on a review by Cafri and Thompson (2004), the DMS (Arbour & Ginnis, 2005; Johnson et al., 2007; McCreary & Sasse, 2000) and the somatomorphic matrix (Leit et al., 2002) are the most effective avenues for measuring male body dissatisfaction.

Physiological Stress Response in Females

Because physiological and psychological stress responses were observed, it is important to understand the physiological responses of the body to stress. However, because cortisol has not been studied in male body image research, research with women was reviewed. Cortisol is a hormone that is produced and released by the adrenal gland (Rhoades & Pflanzner, 2003). Cortisol secretion is cyclical with levels of the hormone at their highest in the early morning and

dwindling as the day progresses (Chernow et al., 1987). Regardless of the time of day, levels of cortisol will increase during times of stress (Rhoades & Pflanzner, 2003). Stresses can be physical, like running a 100 meter sprint, or mental stress, such as the mental pressure before a big test. The role of cortisol in the body is to break down tissue and help transport amino acids to be burned for energy. Generally, the amino acids will first come from the blood stream in the form of branched chain amino acids. Once those are used up, or there is an insufficient supply of them, cortisol will start to break down muscle fibers in order to gain amino acids. This will normally only happen if the person has been starving or the stress response lasts for an extended period of time. This occurs because muscle takes a long time to atrophy. Because cortisol works relatively quick, this is why it is released by the body during times of stress. In evolutionary terms, this release of cortisol and subsequent substrate break down allows for a quick energy burst, allowing people to run from danger. Cortisol, along with epinephrine and norepinephrine, help produce the fight or flight response (Rhoades & Pflanzner, 2003). Cortisol is also involved in the regulation of calcium absorption, blood pressure maintenance, anti-inflammatory function, gastric acid and pepsin secretion, and immune function (Migeon & Lanes, 1990; Drucker, 1987; Fischbach, 1992).

Stress can be a trigger to the symptoms of bingeing and purging in bulimics (Cattanach, Malley, & Rodin, 1988). It can also trigger binge episodes in people diagnosed with binge eating disorder (Lingswiler, Crowther, & Stephens, 1987; Telch & Agras, 1996). Because cortisol is released during times of mental stress, it is assumed that individuals (especially ones who have body dysmorphia) who are exposed to a stimulus that will make them think negatively about their body will experience increased cortisol levels. Some researchers have tested this hypothesis. In a study performed by Vocks, Legenbauer, Wachter, Wucherer, and Kosfelder

(2007), physiological and psychological reactions to mirror exposure were measured in females with eating disorders and normal female controls. The mirror exposure consisted of the participant standing in front of a mirror for 40 minutes. Measurements of physiological reactions to the mirror exposure consisted of saliva cortisol every ten minutes, and heart rate and skin conductance continuously. To measure psychological responses, the researchers used an emotions rating scale every ten minutes. In the study, the participants were asked about the level of sadness, tension, fear, insecurity, disgust, stress, and anger on a five point scale. One was equal to not at all and five was equal to extremely. Negative cognitions were monitored using the Thoughts Checklist. This checklist consisted of 17 items where the participants used a six point scale to answer each question. One equated to the thought did not occur and six equated to thought was there all the time. These researchers found that the eating disorder patients had a higher resting cortisol level than a control group; however, there was no difference between the two groups after the exposure. Both groups' physiological responses went up. Psychologically, the eating disorder group showed a higher level of negative emotional (emotions rating) and cognitive responses (Thoughts Checklist) compared to the normal control (Vocks et al., 2007).

The finding of higher resting levels of cortisol in females with an eating disorder has been shown by other researchers. Monteleone et al. (1999) found that 21 participants with bulimia nervosa and 21 participants with anorexia nervosa had higher levels of resting plasma cortisol than 21 healthy female participants. In a study involving bulimic females, Pirke, Platte, Laessle, Seidl, and Fichter (1992) reported that bulimic girls had a significantly elevated level of cortisol. Koo-Loeb, Pederson, and Girdler (1998) also reported that bulimics have higher resting levels of plasma cortisol than healthy controls. Gluck, Geliebter, Hung, and Yahav (2004) reported that obese women with binge eating disorder have higher basal levels of cortisol

compared to obese women who do not have binge eating disorder. They also concluded that obese women with binge eating disorder react with more cortisol after a cold pressor test. This test involved the participants placing their hand in an ice bath solution for two minutes, which significantly increases the level of stress in the participant (Gluck et al., 2004).

Having high levels of resting cortisol can result in long term health problems. One such problem is hypercortisolemia (unusually high levels of basal cortisol) and depressed sensitivity to hypothalamic pituitary adrenal (HPA) axis negative feedback. Basically, this would be like a house having a malfunctioning thermostat. The thermostat may be set at 68 degrees Fahrenheit, but the furnace may keep running because the thermostat is broken and reads 48 degrees Fahrenheit. In people with normal HPA negative feedback (a working thermostat), they will experience a suppression of cortisol in the morning after administration of a dexamethasone suppression test (DST). DST mimics cortisol in the body, hence leading to cortisol suppression the morning after administration (Levine & Marcus, 1997). Individuals with anorexia nervosa or bulimia nervosa have shown insensitivity to DST (Brambilla et al., 1993; Walsh et al., 1987; Monteleone et al., 1999). Therefore, individuals with anorexia nervosa or bulimia nervosa, who have high basal levels of cortisol, have an ineffective HPA negative feedback system. Other health problems with chronic cortisol elevation include insulin resistance and abdominal obesity (Jayo, Shively, Kaplan, & Manuck, 1993; Bjorntorp & Rosmond, 2000). Abdominal obesity is associated with increased risk of cardiovascular disease and stroke (Bjorntorp, 1985).

This prior research done with females does not necessarily mean that males will experience the same results. In one study, a group of healthy males had a greater cortisol response to mental stress stimuli compared to a group of healthy women (Kirschbaum, Wust, & Hellhammer, 1992). The increase was between 1.5 and two times greater than the female

response. The mental stress stimuli used in this experiment was a public speaking and mental arithmetic task. When comparing the two genders in response to an exercise stimulus such as a cycle ergometry until failure, the two were relatively similar. This shows that men have a greater response to mental stimulus compared to females (Kirschbaum et al., 1992), but respond the same as females to physical stress. Rohleder, Schommer, Hellhammer, Engel, and Kirschbaum (2001) found no differences between males and females using the same stress inducing protocol. However, they did find that men had an increase in glucocorticoid sensitivity one hour after the exposure, while women experienced a decrease in glucocorticoid sensitivity after the same time frame. The other difference of note was a decrease in lipopolysaccharide-induced cytokine production in men with an increase in women. This finding is important because these two proteins play a large role in the immune function of the human body (Rohleder et al., 2001).

On the other end of the spectrum is the effect relaxation has on cortisol levels. After a session with a massage therapist, levels of cortisol can decrease by 31% (Field, Hernandez-Reif, Diego, Schanberg, & Kuhn, 2005). Massage therapy along with standard treatment can also decrease the level of cortisol, stress, and anxiety in women who are diagnosed with anorexia nervosa (Hart, Field, Hernandez-Reif, Nearing, Shaw, Schanberg, & Kuhn, 2001).

Summary

Cortisol is a hormone released by the adrenal gland during times of stress (Rhoades & Pflanzner, 2003). Individuals diagnosed with anorexia nervosa, bulimia nervosa, and binge eating disorder have elevated basal levels of cortisol (Vocks et al., 2007; Monteleone et al., 1999; Pirke et al., 1992; Koo-Loeb, Pederson, & Girdler, 1998; Gluck et al., 2004). Having chronically elevated levels of cortisol can result in health problems including inadequate HPA axis negative feedback function (Brambilla et al., 1993; Walsh et al., 1987; Monteleone et al., 1999), increased

levels of abdominal obesity, and insulin insensitivity (Jayo, Shively, Kaplan, & Manuck, 1993; Bjorntorp & Rosmond, 2000). Men may experience a greater response in cortisol release compared to females in response to a mental stimulus (Kirschbaum et al., 1992). They also experience an increase in glucocorticoid sensitivity and decrease in lipopolysaccharide-induced cytokine production compared to women when induced with stress (Rohleder et al., 2001). Reducing stress via massage therapy is one modality to reduce cortisol levels (Field et al., 2005; Hart et al., 2001), and can also be more effective in treating anorexia nervosa along with standard treatment than standard treatment alone (Hart et al., 2001).

Hypotheses

In accordance with previous research, it was predicted within group change for four of the six dependent measures with increases (i.e., greater negative affect and higher cortisol) from pre to post for the experimental group. Body comparison and sociocultural attitude should not change because these cognitions are relatively stable and not body specific judgments that are likely to be influenced by the stimulus slides. All six dependent measures will stay the same pre to post for the control group. Between groups, there will be no difference between experimental and control at pre-test. However, at post-test, there will be greater negative affect and cortisol for the experimental group compared to the control group.

Summary

Much of the research performed suggests that the body image perceptions of both men and women can be changed to a negative state via visual stimuli. It has been hypothesized that the negative emotional state aroused by the visual stimuli will evoke both psychological and physiological responses. Although many researchers have examined psychological responses to ideal body images in females, few researchers have examined males. Furthermore, while a few

studies on physiologic stress responses (i.e., cortisol) have been conducted with females in response to ideal body images, no research has been done with males. Thus far, the current study is the first. Based on previous research, the hypothesis of this study is that a group of males viewing slides of attractive male models paired with male centric products will see an increase in cortisol release and negative body affect compared to a group that will see a non-threatening set of slides. Knowledge gained through this study will give more perspective to researchers in the field of body image on how a negative body image can affect not only thought processes, but biological processes as well.

CHAPTER THREE

In this section, first described are the participants that were used in the study. Also discussed is the type of visual stimulus and the self report questionnaires used in this experiment. Also described is the method for measuring cortisol levels in the body. Reliability and validity of for all measures will also be reported. Finally, an explanation of the experimental procedure is reported.

Participants

A power analysis is a statistical test that can be used to determine a minimum sample size needed to acquire a level of power to accept the hypothesis with confidence. Using the G*Power 3.1.2 program, it was determined that 40 participants should be recruited for this study with an A priori: compute required sample size analysis. Because this study is explorative, the alpha error probability was adjusted from 0.05 to 0.10. This was done in an effort to allow for significant power when a post-hoc analysis is performed (actual power of 0.81). However, due to economical restraints, only 30 participants were recruited.

The participants encompassed a wide range of demographics. They were recruited from health classes of all levels at the university. They were not regular exercisers (Halliwell et al., 2007). Participants were screened with a questionnaire to determine their activity level. If potential participants exercised more than once a week they were excluded from the study. Exercise encompassed “formal exercise”, meaning actively going to a gym with the intent to exercise. Bike riding and walking for transportation was not considered exercise. Participant BMI ranged from 19.7 to 39.3 with a mean BMI of 28.6 (± 5.44). Considering that two thirds of the United States of America is considered overweight or obese, participants were considered average. BMI was initially measured with a self-report height and weight. Because this was a

potential weakness, height and weight was measured two more times via self-report pre and post scales that include height in weight. Height and weight was also measured objectively with a scale and tape measure once the participants finished the post exposure exams. The age range of the participants was between 17 and 52.

Procedure

The 30 participants were randomly assigned to a control (n=15) and an intervention group (n=15). To ensure random assignment, participants were placed in a group via a random number generator. This ensured participants did not know that a control or experimental group exists, hence not causing an unwanted spike in cortisol. Each participant viewed a set of 20 slides on a laptop in PowerPoint format individually. The slides were of mock advertisements for male products like aftershave, razors, and electronics. The control group viewed identical slides of the product alone. The intervention group viewed slides of the same products being used by muscular and attractive shirtless males. Keeping in mind the findings of Arbour and Ginnis (2005), the male models were not overly muscular. They were also not thin or overweight (Ogden & Munday, 1996), and were set in a posed position (Farqhar & Wasylikiw, 2007). Each participant viewed a slide for 90 seconds. According to Lorenzen et al. (2004) and Ogden and Munday (1996), a short period of time, such as 90 seconds, can be enough time to produce body anxiety in males viewing slides of muscular male models. The images of the male models were taken from magazines like *Men's Health*, *Muscle and Fitness*, *GQ*, and *Maxim*, and from current advertisements already highlighting an attractive male model. The images were chosen by an independent judging panel of 22 (9 male, 13 female) students not in the study. These students were from a health class at the university and represented a portion of the target demographic used in the actual study. Females were used in an attempt to gather more

information. The judging panel was shown 44 slides of male models. A four question five point questionnaire was given to the students. A measure of five was “strongly agree” and a measure of one was “strongly disagree”. The questions asked were “Women like this type of body on men”, “He is muscular”, “He is athletic”, and “He is not too muscular”. The 20 images that score the highest on average were chosen for this study.

Measurements

Five psychosocial scales were used in this study. These scales were the PASTAS state version, the DMS, the Male Body Dissatisfaction Scale (MBDS), the BCS, and the SATAQ-M. Each scale provides unique body image information about the participants. Also used in this study was a bogus scale to ensure the true purpose of the study was held secret (SARQ). Finally, salivary cortisol was measured to evaluate physiologic changes.

Physical Appearance State and Trait Anxiety Scale (PASTAS)

The first self report survey intended for use was the eight item PASTAS state version (Reed, Thompson, Brannick, & Sacco, 1991; See appendix A). The PASTAS was administered to measure the level of state anxiety in the participants before and after viewing the slides. Only the body size sub scale was used in this study. There were eight questions that measured the level of anxiety a participant felt at the exact moment about their thighs, buttocks, hips, stomach, legs, waist, overall muscle tone, and the extent to which they looked overweight. Participants rated each question on a five point scale with zero being “not at all” and four being “exceptionally so”. Halliwell, Dittmar, and Orsborn (2007) stated that this measure was particularly sensitive to media exposure in men and women. The PASTAS state scale had alpha coefficients ranging from 0.82 to 0.86 for internal consistency. When tested for convergent validity against the Body Self Relations Questionnaire, the Eating Disorders Inventory – Drive

For Thinness Scale, Eating Disorders Inventory – Body Dissatisfaction Scale, Eating Disorder Inventory – Bulimia Scale, and Spielberger Trait Anxiety Inventory, correlations were found at -0.40 (lower scores designate more disorder), 0.62, 0.74, 0.36, and 0.37 respectively. The test-retest correlation was 0.87 (Reed, Thompson, Brannick, & Sacco, 1991).

Drive for Muscularity Scale

The second self report survey used was the DMS (McCreary & Sasse, 2000; See appendix B). According to a review of current measuring methodologies in male body image, the DMS was deemed to be the best and only measure that should be used specifically to measure muscularity related cognitions of males (Cafri & Thompson, 2004). The DMS measures the level of importance it is to be muscular for the participant. The DMS includes 15 questions that ask “I wish I were more muscular”, “I lift weights to build more muscle”, and “I think that my arms are not muscular enough”. Participants answered each question on a six point Likert scale with the scores ranging from always to never. The DMS was found to have good internal consistency with alpha reliability coefficients ranging from 0.84 (McCreary & Sasse, 2000) to 0.87 (McCreary, Sasse, Saucher, & Dorsch, 2004) for boys and 0.78 (McCreary & Sasse, 2000) to 0.82 (McCreary, Sasse, Saucher, & Dorsch, 2004) for girls. Convergent validity evidence revealed that men trying to gain weight, men that weight trained frequently, men that had lower self esteem, and men that had higher depressive symptoms had higher scores on the DMS (McCreary & Sasse, 2000). The DMS was also found have good test-retest reliability ($r = 0.93$; Cafri, Thompson, & Roehrig, 2002).

Male Body Dissatisfaction Scale

The MBDS is a recently developed scale (Ochner, Gray, & Brickner, 2009; See appendix C). This scale measures the level of body dissatisfaction in males. It consists of 25 items that

are scored on a five point Likert scale with answers ranging from “Always” to “Never” or “Strongly Agree” to “Strongly Disagree”. Questions include “I am happy with how much muscle I have compared to how much fat I have”, “I am more muscular than the average male my age”, and “I wish I could build a better body for myself”. What separates this scale from the others is that it was developed strictly for use on males. When compared with other scales, the MBDS demonstrated convergent validity with correlates between measures of -0.29 with the Body Esteem Scale, -0.33 with the Rosenberg Self Esteem Scale, 0.53 with the Shape and Weight Based Self-Esteem Inventory, and -0.14 and -0.11 with the Positive and Negative Affect Schedule positive and negative scale respectively. All of these were significant at $p < 0.05$ or $p < 0.01$. The MBDS has a high test-retest reliability with a correlation coefficient of 0.95 (Ochner, Gray, & Brickner, 2009).

Body Comparison Scale

The fourth self report survey used was a modified version of the Body Comparison Scale (BCS) used in Humphreys and Paxton’s work (2004; See appendix D). The original BCS is a 25 item questionnaire that assesses the tendency for people to compare their body to others. Items one through 19 were not used because they assess non muscular body cognitions such as size of the ears, nose, etc. The 16 ideas that reflect perceptions of specific muscles and large muscle groups were used. Participants used a five point Likert scale to answer each question, with one being “never” and five being “always”. According to Humphreys and Paxton (2004), the BCS has an alpha of 0.92 for internal consistency. “I often compare my body with other guys” and “I always notice guys who are more muscular than me” are samples of questions used on the BCS. The BCS was originally developed for adolescent girls (Schultz, Paxton, & Wertheim, 2002). For this study, the modified version for boys used in the Humphreys and Paxton (2004) study

was used. This scale was used in the current experiment because it measures the level of which a person compares themselves to other people. Knowing how much a person compares themselves to other people will help explain why they might experience a drastic change in physiological change (i.e., increase in cortisol) after viewing slides of physically attractive models.

Sociocultural Attitudes Toward Appearance Questionnaire – Male Version

The final self report survey used was the Sociocultural Attitudes Toward Appearance Questionnaire – Male Version (SATAQ-M; See appendix E). This survey is a 21 item questionnaire aimed at assessing the level of which each participant is aware of and accepting of the social ideal of attractiveness (Heinberg, Thompson, & Stormer, 1995). The internal consistency for the total SATAQ-M is 0.87 based from Cronbach's alpha. When tested for convergent validity against the Body Esteem Scale (BES), the SATAQ-M was found to be adequate with a correlation of -0.24 (Smolak, Levine, & Thompson, 2001). This exam was used because it evaluates the level of awareness a person has of the current trend in attractiveness. If participants are highly aware of the current trend in attractiveness and they are shown photos of people who are considered attractive by current standards, they should feel negative affect. This is important to understand why a person may feel negative affect after viewing photos of attractive same sex models.

Sugob Advertising Relevance Questionnaire

In order to conceal the nature of this study, participants were told the purpose of this study was to determine the effectiveness of advertising. A five item questionnaire was developed for this study called the Sugob (bogus backwards) Advertising Relevance Questionnaire (SARQ; See appendix F). Each question was open ended for the participants to

write a response. The questions included were “Which advertisements stood out in your mind?” and “Would you buy these products because of their advertisements, or the product itself?”.

Salivary Cortisol Measurement

Salivary cortisol was the physiologic measurement used for this experiment. The reason a salivary method was used compared to a blood draw method is it was non-invasive. Also, the same method for measuring salivary cortisol has been used satisfactorily by Vocks et al. (2006) and Kirschbaum et al. (1992). Participants held a cotton roll in their mouth under their tongue for 60 seconds to obtain a sample of their saliva. Samples were placed in specified tubes for holding. Immediately after collection, tubes were kept cool in a cooler at 20 degrees C until they could be frozen at -20 degrees C (normal freezer temperature). They were kept in the cooler for no longer than one hour. Each sample was labeled with a number (1 through 30 respectively) to match the sample with the self report surveys. Samples and surveys with red tape were the controls, while samples and surveys labeled with blue tape were the experimental group. After complete collection, labeling, and freezing, they were sent to an independent laboratory (Salimetrics) for analysis. Samples were shipped on dry ice to remain frozen in an approved shipping container by Salimetrics via overnight shipping. Once the samples arrived, they were centrifuged at 2000g for 10 minutes at room temperature. This resulted in a clear liquid of low viscosity. Analyses of the samples were done on-one time resolved fluorescence immunoassay with biotin-conjugated cortisol used as a tracer, and europium-streptavidin was used as a label. The coefficient of variation was less than 7% and 9% (Vocks et al., 2006). Once analysis was completed by Salimetrics, an Excel spreadsheet containing data analysis of the samples was emailed to the author.

Procedure

Once consent from the Wayne State University International Review Board was provided, data collection started. Participants gave consent from a consent form. Upon arrival on test day, participants were read a script thanking them and to help keep them calm in order to obtain a true basal cortisol measurement. The script read as such: "Thank you for volunteering to take part in this interesting study about advertisement. We intend to find what kind of advertising works best with males. For this study, you will see a set of slides on a projector, fill out some surveys relating to the slides, and chew on some cotton balls. The cotton balls are for a saliva sample for a separate study. If you have any questions, I will be happy to field them". Once the script was read, initial cortisol levels were obtained. Afterwards, the participants were administered the self-report surveys. The intention of obtaining the cortisol level before the scales was to ensure that the scales did not cause a spike in cortisol levels. Collection of basal cortisol levels and completion of pre intervention surveys took approximately 30 minutes. Measurements were taken in the morning at 10:00 AM because cortisol levels are near their highest in the morning (Chernow et al., 1987). Once the initial measurements were completed, the participants viewed the slides. This took 30 minutes because in order for cortisol levels to register, they must be elevated for at least 30 minutes. Thus, each slide was viewed for 90 seconds. Immediately after the participants were administered the entire proper stimulus, cortisol was measured a second time, followed by the surveys. This was done to ensure that the scales did not cause a rise in cortisol. The scales were given in a counter balanced fashion so as not to give preference to one scale over another. Completing the post scale took 30 minutes. The total time of measurements took up to 90 minutes.

Once the participants were finished, they were debriefed of the true purpose of the study. The debriefing script read as such: "Thank you all for participating in this study. Some

deception was used in order to not influence your answers on the questionnaires. The true purpose of this study is find a link between advertisements using attractive male models and the physical response of males. We intend for this research to open several doors in the area of biopsychosocial research. Again, thank you for your time and participation”.

CHAPTER FOUR

The results are presented in two sections. In the preliminary results intended, reliability, convergent and divergent validity, kurtosis, and skewness of the scales is reported. Then in the main results the means, standard deviations, data analysis, and trends of the means is discussed. Last in the discussion the reasons for the results, and suggestions for future research are presented.

Preliminary Results

Table 1 contains the alphas for all scales at both pre and post test times. These results indicate that all scales were internally consistent because they fell within the range of acceptable to excellent ($>.07$) according to Cronbach's alpha-internal consistency table (Cronbach, 1951). This can be observed by alpha levels which ranged from 0.79 to 0.90. The test-retest correlations were also all significant ($p<.05$) and ranged from 0.73 to 0.91 from pre to post intervention of same variables for each scale. The test-retest correlation between pre and post for the same variables also indicates that each scale was reliable. Convergent validity was established as the various constructs that should be theoretically or logically related were in fact significantly correlated. For example, the Body Comparison Scale (BCS) and Sociocultural Attitudes Towards Attractiveness Questionnaire (SATAQ) were significantly correlated. This makes sense because an individual who is aware of the social norm for attractiveness is also logically more inclined to make upward comparisons with the bodies of their peers. The Male Body Dissatisfaction Scale (MBDS) and Drive For Muscularity (DMS) scales also demonstrated convergent validity. Again, this holds true because a male who has an impulse to be muscular is more likely to be unhappy with their body. Divergent validity was established as scales not expected to be correlated were in fact not significantly correlated. For example, the Physical

Appearance State and Trait Anxiety Scales (PASTAS) were not significantly correlated with the Sociocultural Attitudes Towards Attractiveness Questionnaire (SATAQ). This is valid because a person who is anxious about their body will not necessarily understand the social norm for attractiveness. Also demonstrating divergent validity was the Drive For Muscularity Scale (DMS) and Sociocultural Attitudes Towards Attractiveness Questionnaire (SATAQ). A man who has an impulse to be muscular will not necessarily know what the societal norm is for male attractiveness.

One pre-test measurement for cortisol was considered an outlier because its score of 3.469 was 3.101 standard deviations greater than the mean of 0.368 in relation to the other participants. This score was corrected by using the mean of the other 14 participants cortisol score. Some data was missing from the surveys due to a failure to follow directions by some participants and some participants not completing some exams. Hence the sample size for each mean score of the various scales (see Table 2) and analysis based on these mean scores varies from 11 to 15. The scale that was the most problematic was the Male Body Dissatisfaction Scale (MBDS). Kurtosis on each scale ranged from -1.2 to 21.4. This demonstrates there was a wide range of variability for each scale. Skewness for each scale ranged from -0.98 to 4.44. On average, this demonstrated that each scale tended to skew toward the middle (average of 0.19) and was neither positively nor negatively skewed.

Main Results

The means and standard deviations for each construct were examined at pre and post intervention via intervention and control group. This data can be found in Table 2. A Multivariate Analysis of Variance (MANOVA) examining the post test scores on the four dependent variables expected to be influenced by the intervention was then conducted. Pre-test

scores for each dependent variable were controlled for (i.e., covariates), as well as both attitude and sensitivity as measured by the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ) and Body Comparison Scale (BCS) respectively. These two constructs were controlled (i.e., covariates) because these traits are stable attitudes and were not hypothesized to be influenced by the intervention, however, they still provide insight on each participant.

This MANOVA was not significant ($f(4,7)=1.4$, $p<0.326$ from Pillai's Trace) indicating any further analysis of the univariate results would be inappropriate. Despite the non-significant MANOVA, the pattern of means pre to post for each group is discussed to illustrate an understanding of the descriptive scores across time and group. In both groups, the means for the Drive for Muscularity Scale (DMS), Body Comparison Scale (BCS), Physical Appearance State and Trait Anxiety Scale (PASTAS), and Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ) essentially stayed the same from pre to post. For example, DMS was 4.31 in the control group and 4.25 in the intervention group at pre-intervention and 4.12 in the control group and 4.31 in the intervention group at post-intervention. The Male Body Dissatisfaction Scale (MBDS) scores demonstrated a slight decrease in both groups. As for cortisol, there was a slight decrease from pre to post in the control group. However, the intervention group demonstrated a sharp decrease from pre to post. While the decrease was not statistically significant, the trend can still be observed.

Discussion

It was expected that the intervention of muscular male models in posed positions paired with male centric products in advertisements would have a negative effect on body image in male viewers, thus leading to an increase in physiologic stress response as measured by salivary cortisol. The rationale for this hypothesis was that if these advertisements have an effect strong

enough to create a negative psychological body image affect, which is stressful, then it is possible that these advertisements are strong enough to create a physical stress response as well. The means for each group (see Table 2) and the MANOVA indicate that this hypothesis was not supported.

A number of potential reasons exist for this. First, the unexpected outcome may indicate that the intervention was not strong enough for the participants. Reasons for the intervention not being strong enough include a stable body image in the participants and the types of models used in the advertisements. The participants of this study exhibited a resiliency towards advertisements portraying attractive male models as demonstrated by their relatively low scores in the Body Comparison Scale and Sociocultural Attitudes Towards Appearance Questionnaire. The low scores on the Body Comparison Scale indicate that the participants did not engage in a lot of social comparison of their bodies to their peers in general which suggests that viewing slides of ideal body images would have little impact on their body image feelings. Second, the low scores on the Sociocultural Attitudes Towards Appearance Questionnaire indicate that they were somewhat oblivious to what society depicts as attractive body images. The lack of social comparison and obliviousness towards societal attitudes toward attractiveness created a resilient and positive body image. Due to this resiliency they were likely relatively immune to the slides ability to create anxiety. They would need a stronger intervention to create a negative effect. Essentially, a ceiling effect was demonstrated with the participant's favorable body image being so positive at pre-test. This same effect has been demonstrated in previous research (Humphreys & Paxton, 2004; Gulas & McKeage, 2000).

A possible explanation for this resiliency is an over saturation of attractive fit males used in advertising. It is possible through the years that the average male has become immune to the

fact they are not as attractive as the models. This idea of over saturation debunks social comparison theory and its main tenet that people use upward comparisons to weed out unwanted characteristics (Festinger, 1954).

Self presentation theory (Goffman, 1959; Leary & Kowalski, 1990) also does not explain this resiliency. The scores of the MBDS were relatively average, indicating the participants were neither satisfied nor dissatisfied with their bodies. This average score of the MBDS demonstrates that those participants did not feel an obligation to highlight another aspect of their body to hide any perceived imperfections. Essentially, this indifference towards their body would cause them to need a stronger intervention to elicit a negative effect.

Cash's cognitive-behavioral model of body image (2002) does help to explain the resiliency of the participants. Due to the low scores of the Sociocultural Attitudes Towards Appearance Questionnaire, it can be concluded that the participants lacked awareness of what the social norm is for attractiveness. Therefore, their lack of cultural socialization is shielding them from a poor body image. Also, the participants did not have some of the key personality attributes that most likely lead to a negative body image. As indicated by the low Body Comparison Scale scores, their public self consciousness and need for social approval are on the low end. This means that they do not engage in lots of comparisons of their body with their peers' body. Likewise, the moderate scores on the Male Body Dissatisfaction Scale also indicate they did not have low body esteem. Again, these variables help the participants to shield themselves from having a poor body image. In a sense, their lack of awareness is helping them to be healthier individuals.

Also contributing to the intervention not being strong enough for the participants were the models used in the mock advertisements. This conclusion was reached despite the care taken

to make sure the selected male models were not overly muscular (Arbour & Ginis, 2006), were in posed positions highlighting their body (Farquhar & Wasylikiw, 2007), and were extremely fit (Agliata & Tantleff-Dunn, 2004; Arbour & Ginis, 2006; Baird & Grieve, 2006; Farquhar & Wasylikiw, 2007; Grogan et al., 1996; Gulas & McKeage, 2000; Halliwell et al., 2007; Hobza et al., 2007; Humphreys & Paxton, 2004; Johnson et al., 2007; Leit et al., 2002; Lorenzen et al., 2004; Ogden & Munday, 1996). For the most part, the models used were well known physically fit athletes, models, and celebrities. It is possible that because the participants knew the models were well known for their bodies, this may have had less of an impact on their own body image. An analogy to help describe this is a child and a math problem. When a child first learns math, the idea of $2+2=4$ is novel and leads to an excitement. As that child ages, $2+2=4$ becomes remedial and they accept that $2+2=4$ as old news, thus leading to less excitement and influence on their attitude. This analogy could apply to the participants, only because the intervention models became the old news math problem.

Another factor that influenced the unexpected outcome was the small sample size. Having a small sample size limited the study's power and the range of scores and variance on each scale by the participants. The sample size was small due to practical constraints (e.g., the cost of cortisol analyses), a power analysis and previous research involving cortisol measurement (Gluck et al., 2004; Koo-Loeb, Pederson, & Girdler, 1998; Monteleone et al., 1999; Pirke et al., 1992; Vocks et al., 2007) that all suggested the current sample size was established as adequate. However, in retrospect, a larger sample may have still helped detect small differences that might be meaningful. Also aiding the unexpected outcome was some participants not completing the surveys. The missing data caused a small sample size to be even less impactful and revealing. This proved to be a costly learning experience.

Future researchers can apply the shortcomings of this study to their studies in order to examine similar research questions and increase the odds of supporting this study's hypotheses. The first resolution to improve this study would be more slides featuring muscular male models. In this study, only 20 slides were used, which fell in line with previous research as enough exposure time (30 minutes total) to affect the body image of the participants (Lorenzen et al., 2004; Ogden & Mudray, 1996). If the participants of this study are an indication of males worldwide becoming resilient to muscular male models in advertising, a longer exposure time will be needed. The simple solution would be to add more slides leading to a longer total exposure time of the intervention, thus more of an impact on their body image and possibly cortisol levels. This same conclusion has been reached by other researchers (Baird & Grieve, 2006)

Another recommendation for future research is to use unknown models. As stated earlier, the models used in this study were well known celebrities, models, and athletes, leading to less of a novelty for the participants. This lack of novelty may lead to a lower reaction from the participants. In order for future research to be successful when looking at the impact of muscular male models in advertising on physiological stress response, models who are less known may need to be used. Maybe other college students who represent a more common peer group should be selected as models.

Future researchers should also screen for participants who are more socially aware of what attractiveness is and who make more upward comparisons than these participants. Because these men were average and exhibited obliviousness towards social acceptance for attractiveness and did not make comparisons with their peers, we do not know what kind of physiological responses would occur in men who are socially aware, make comparisons, or who have a body

image disorder or at least have a poor body image. As a stepping stone, previous research involving individuals diagnosed with anorexia nervosa, bulimia nervosa, and binge eating disorder have elevated basal levels of cortisol compared to normal controls (Gluck et al., 2004; Koo-Loeb, Pederson, & Girdler, 1998; Monteleone et al., 1999; Pirke et al., 1992; Vocks et al., 2007). Perhaps the same case can be made for men who exhibit signs of muscle dysmorphia.

In summary, the major study hypotheses were not supported. However, valuable information about males, their body image, and the research process were learned. Advertisements featuring muscular male models did not create a strong enough stress response to elicit an increase in cortisol in average men based on these means. This is possibly due to the resiliency of average men toward these advertisements. If anything, this failure demonstrates that men are becoming immune to muscular male models. This immunity is thus creating healthier men in society who do not have body image issues. Future research can learn from this study by increasing the number of participants, using unknown models, using more slides, and screening for participants who exhibit signs of body image concerns.

Table 1

Means, Standard Deviations, Ranges, Skewness, Kurtosis, Alpha's and Pearson Product-moment
Correlations of Measurements.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Cortisol Pre	-											
2. Cortisol Post	0.73*	-										
3. DMS Pre	0.14	0.1	-									
4. DMS Post	0.04	-0.06	0.88*	-								
5. BCS Pre	0.14	-0.05	-0.24	-0.25	-							
6. BCS Post	0.27	0.09	-0.21	-0.2	0.89*	-						
7. PASTAS Pre	0.14	0.21	-0.12	-0.15	0.48*	0.43*	-					
8. PASTAS Post	0.3	0.26	-0.11	-0.16	0.47*	0.45*	0.82*	-				
9. SATAQ Pre	0.11	-0.24	0.03	0.12	0.44*	0.47*	-0.03	0.05	-			
10. SATAQ Post	-0.19	-0.35	-0.11	-0.06	0.43*	0.55*	-0.06	-0.01	0.91*	-		
11. MBDS Pre	0.06	0.08	-0.35†	-0.47*	0.01	-0.22	0.01	0.08	-0.05	-0.16	-	
12. MBDS Post	0.16	0.22	-0.54*	-0.55*	0.14	0	0.16	0.23	0.06	-0.04	0.82*	-
Mean	0.45	0.23	4.28	4.21	2.52	2.61	1.02	1.05	3.43	3.48	1.79	1.81
SD	0.64	0.12	0.72	0.86	0.58	0.61	0.67	0.62	0.54	0.5	0.47	0.41
Skewness	4.44	1.31	-0.71	-0.98	-0.64	-1.1	0.21	-0.09	-0.06	0.01	-0.06	-0.07
Kurtosis	21.4	1.27	0.01	0.57	0.6	0.82	-0.82	-1.23	0.45	0.25	-1.11	-0.88
α	-	-	0.86	0.89	0.87	0.9	0.83	0.82	0.85	0.85	0.79	0.84

*=Significant at 0.05

†=Significant at 0.10

Table 2

Groups, Variables, Means, and Standard Deviations

Variable	Control				Intervention			
	Pre		Post		Pre		Post	
	N	M(SD)	N	M(SD)	N	M(SD)	N	M(SD)
Cortisol	14	.368(.192)	14	.234(.088)	13	.531(.907)	14	.231(.147)
DMS	15	4.31(.703)	15	4.12(1.02)	15	4.25(.763)	15	4.31(.686)
BCS	14	2.59(.695)	14	2.60(.649)	14	2.46(.458)	13	2.63(.584)
PASTAS	15	1.23(.775)	15	1.19(.696)	15	.817(.472)	15	.917(.508)
SATAQ	14	3.34(.654)	14	3.43(.595)	15	3.50(.413)	14	3.54(.406)
MBDS	12	45.3(12.6)	12	46.6(12.0)	11	44.0(11.2)	11	43.8(8.48)

APPENDIX A

Physical Appearance State and Trait Anxiety Scale

The statements listed below are used to describe how anxious, tense, or nervous you feel *Right*

Now about your body. Use the following scale:

Not at All	Slightly	Moderately	Very Much So	Exceptionally So
0	1	2	3	4

Right now, I feel anxious, tense, or nervous about:

1.	The extent to which I look overweight.	0	1	2	3	4
2.	My thighs.	0	1	2	3	4
3.	My buttocks.	0	1	2	3	4
4.	My hips.	0	1	2	3	4
5.	My stomach (abdomen).	0	1	2	3	4
6.	My legs.	0	1	2	3	4
7.	My waist.	0	1	2	3	4
8.	My muscle tone.	0	1	2	3	4

APPENDIX B**The Drive for Muscularity Scale**

Please read each item carefully then, for each one, circle the number that best applies to you.

1	2	3	4	5	6
Always	Very Often	Often	Sometimes	Rarely	Never

- | | | | | | | |
|---|---|---|---|---|---|---|
| 1. I wish that I were more muscular. | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. I lift weights to build up muscle. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. I use protein or energy supplements. | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. I drink weight gain or protein shakes. | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. I try to consume as many calories as I can
in a day. | 1 | 2 | 3 | 4 | 5 | 6 |
| 6. I feel guilty if I miss a weight training
session. | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. I think I would feel more confident if I
had more muscle mass. | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. Other people think I work out with
weights too often. | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. I think that I would look better if I gained
10 pounds in bulk. | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. I think about taking anabolic steroids. | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. I think that I would feel stronger if I | 1 | 2 | 3 | 4 | 5 | 6 |

gained a little more muscle mass.

12. I think that my weight training schedule
interferes with other aspects of my life.

1	2	3	4	5	6
---	---	---	---	---	---

13. I think that my arms are not muscular
enough.

1	2	3	4	5	6
---	---	---	---	---	---

14. I think that my chest is not muscular
enough.

1	2	3	4	5	6
---	---	---	---	---	---

15. I think that my legs are not muscular
enough.

1	2	3	4	5	6
---	---	---	---	---	---

APPENDIX C

The Male Body Dissatisfaction Scale

Height: _____ ft. _____ in. Weight: _____ lbs.

Body type (please check one): skinny _____ overweight _____ average _____ muscular _____

PLEASE READ: Circle one answer below each item according to how you currently feel about your body. In addition, rate how important each item is to you-place a number from 1 to 10(1=no importance to you; 10=great importance to you) on the line before each item. Read all questions carefully and answer honestly; all responses are kept confidential.

1. _____ I am happy with how much muscle I have compared to how much fat I have.

Strongly agree Agree Neutral Disagree Strongly disagree

2. _____ Other people think I have a good body.

Strongly agree Agree Neutral Disagree Strongly disagree

3. _____ I am a good weight for my height.

Strongly agree Agree Neutral Disagree Strongly disagree

4. _____ I wish I had more muscular arms.

Strongly agree Agree Neutral Disagree Strongly disagree

5. _____ I am hesitant to take my shirt off in public because people will look at my body.

Strongly agree Agree Neutral Disagree Strongly disagree

6. _____ I fantasize about having more muscle.

Always Often Sometimes Rarely Never

7. _____ I have thoughts of dissatisfaction towards my body.

Always Often Sometimes Rarely Never

8. _____ I think I have a generally attractive body.

- Strongly agree Agree Neutral Disagree Strongly disagree
9. _____ I wish I had more of a V-shaped torso(upper body).
- Strongly agree Agree Neutral Disagree Strongly disagree
10. _____ I wish I could become more toned in order to accentuate the muscle I do have
- Strongly agree Agree Neutral Disagree Strongly disagree
11. _____ I am more muscular than the average male my age.
- Strongly agree Agree Neutral Disagree Strongly disagree
12. _____ I worry about being more muscular
- Always Often Sometimes Rarely Never
13. _____ I wish I had bigger biceps.
- Strongly agree Agree Neutral Disagree Strongly disagree
14. _____ I think my pectoral (chest) muscles are well developed.
- Strongly agree Agree Neutral Disagree Strongly disagree
15. _____ I have a “six pack” or “washboard abs”.
- Strongly agree Agree Neutral Disagree Strongly disagree
16. _____ Others would find me more attractive if I had more muscle.
- Strongly agree Agree Neutral Disagree Strongly disagree
17. _____ I wish I could lose more fat.
- Strongly agree Agree Neutral Disagree Strongly disagree
18. _____ My body looks healthy.
- Strongly agree Agree Neutral Disagree Strongly disagree
19. _____ I like to show off my body
- Always Often Sometimes Rarely Never

20. _____ The shape of my body is one of my assets.

Strongly agree Agree Neutral Disagree Strongly disagree

21. _____ I look like I could lift more weight than the average male my age.

Strongly agree Agree Neutral Disagree Strongly disagree

22. _____ I wish I had better muscle definition.

Strongly agree Agree Neutral Disagree Strongly disagree

23. _____ My body is sexually appealing to others.

Strongly agree Agree Neutral Disagree Strongly disagree

24. _____ I think about how different my body looks from what my ideal body would look like.

Always Often Sometimes Rarely Never

25. _____ I wish I could build a better body for myself.

Strongly agree Agree Neutral Disagree Strongly disagree

APPENDIX D

Modified Body Comparison Scale

For the items below, use the following scale to rate how often you compare these aspects of your body to those of other individuals of the same sex. NOTE: Please be sure that you read and respond to all of the questions according to how you would compare yourself to your same sex peers.

Never 1	Rarely 2	Sometimes 3	Often 4	Always 5
1. Upper arm			1 2 3	4 5
2. Forearm			1 2 3	4 5
3. Shoulders			1 2 3	4 5
4. Chest			1 2 3	4 5
5. Back			1 2 3	4 5
6. Waist			1 2 3	4 5
7. Stomach			1 2 3	4 5
8. Buttocks			1 2 3	4 5
9. Thighs			1 2 3	4 5
10. Hips			1 2 3	4 5
11. Calves			1 2 3	4 5
12. Muscle tone of upper body			1 2 3	4 5
13. Overall shape of upper body			1 2 3	4 5
14. Muscle tone of lower body			1 2 3	4 5
15. Overall shape of lower body			1 2 3	4 5
16. Overall body			1 2 3	4 5

APPENDIX E

Sociocultural Attitudes Towards Appearance Questionnaire – Male Version

Please read each of the following items, and circle the number that best reflects your agreement with the statement.

Completely disagree 1	2	Neither agree nor disagree 3	4	Completely agree 5
--------------------------	---	---------------------------------	---	-----------------------

1. I would like my body to look like the men who appear in TV shows and movies. 1 2 3 4 5
2. I believe that clothes look better on men that are in good physical shape. 1 2 3 4 5
3. Music videos that show women who are in good physical shape make me wish that I were in better physical shape. 1 2 3 4 5
4. I do not wish to look like the male models who appear in magazines. 1 2 3 4 5
5. I tend to compare my body to TV and movie stars. 1 2 3 4 5
6. In our society, fat people are regarded as attractive. 1 2 3 4 5
7. Photographs of physically fit men make me wish that I had a better muscle tone. 1 2 3 4 5
8. Attractiveness is very important if you want to get ahead in our culture. 1 2 3 4 5
9. It's important for people to look attractive if they want to succeed in today's culture. 1 2 3 4 5
10. Most people believe that a toned and physically

fit body improves how you look.	1	2	3	4	5
11. People think that the more attractive you are, the better you look in clothes.	1	2	3	4	5
12. In today's society, it's important to always look attractive.	1	2	3	4	5
13. I wish I looked like the men pictured in magazines who model underwear.	1	2	3	4	5
14. I often read magazines and compare my appearance to the male models.	1	2	3	4	5
15. People with well-proportioned bodies look better in clothes.	1	2	3	4	5
16. A physically fit man is admired for his looks.	1	2	3	4	5
17. How I look does not affect my mood in social situations.	1	2	3	4	5
18. People find individuals who are in shape more attractive than individuals who are not in shape.	1	2	3	4	5
19. In our culture, someone with a well-built body has a better chance of obtaining success.	1	2	3	4	5
20. I often find myself comparing my physique to that of athletes pictured in magazines.	1	2	3	4	5
21. I do not compare my appearance to people I consider very attractive.	1	2	3	4	5

APPENDIX F**Sugob Advertising Relevance Questionnaire**

1. Which advertisements stood out in your mind?
2. Would you buy these products because of their advertisements, or because you like the product?
3. Does knowing who the model/endorser is effect your perception of the product?
4. Would you purchase a product because of who models/endorses it?
5. Is it easier to remember an advertisement if it focuses on the model/endorser, or if it focuses on the product?

REFERENCES

- Adams G, Turner H, Bucks R. (2005). The experience of body dissatisfaction in men. *Body Image*, 2, 271-283.
- Agliata D, Tantleff-Dunn S. (2004). The impact of media exposure on males' body image. *Journal of Social and Clinical Psychology*, 23, 7-22.
- Arbour KP, Martin Ginis KA. (2006). Effects of exposure to muscular and hypermuscular media images on young men's muscularity dissatisfaction and body dissatisfaction. *Body Image*, 3, 153-161.
- Baird A, Grieve FG. (2006). Exposure to male models in advertisements leads to a decrease in men's body satisfaction. *North American Journal of Psychology*, 8, 115-122.
- Beck RC. (1983). *Motivation: Theories and principles (2nd edition)*. Englewood Cliffs, NJ: Prentice-Hall.
- Bell A, Dorsch KD, McCreary DR, Hovey R. (2004). A look at nutritional supplement use in adolescents. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 34, 508-516.
- Bjorntorp P. (1985). Obesity and the risk of cardiovascular disease. *Annals of Clinical Research*, 17, 3-9.
- Bjorntorp P, Rosmond R. (2000). Neuroendocrine abnormalities in visceral obesity. *International Journal of Obesity and Related Metabolic Disorders*, 24(Suppl 2), S80-S85.
- Blond A. (2008). Impacts of exposure to images of ideal bodies on male body dissatisfaction: A review. *Body Image*, 5, 244-250.

- Brambilla F, Ferrari E, Panerai A, Manfredi B, Petraglia F, Catalano M, Sacerdote P. (1993). Psychoimmunoendocrine investigation in anorexia nervosa. *Neuropsychobiology*, 27, 9-16.
- Brower KJ, Blow FC, Young JP, Hill EM. (1991). Symptoms and correlates of anabolic-androgenic steroid dependence. *British Journal of Addiction*, 86, 759-768.
- Brownell K. (1991). Dieting and the search for the perfect body: Where physiology and culture collide. *Behavior Therapy* 22, 1-12.
- Brownell KD, & Rodin J. (1994). The dieting maelstrom. Is it possible and advisable to lose weight? *The American Psychologist*, 49, 781-791.
- Cafri G, Thompson JK. (2004). Measuring male body image: A review of the current methodology. *Psychology of Men and Masculinity*, 5, 18-29.
- Cafri G, Thompson JK, Ricciardelli L, McCabe M, Smolak L, Yesalis C. (2005). Pursuit of the muscular ideal: Physical and psychological consequences and putative risk factors. *Clinical Psychology Review*, 25, 215-239.
- Cafri G, Thompson JK, Roehrig M. (2002, November). *Reliability assessment of muscle based attitudinal measures of body image*. Poster presented at the Association for Advancement of Behavior Therapy conference, Reno, NV.
- Cafri G, van den Berg P, Thompson JK. (2006). Pursuit of muscularity in adolescent boys: relations among biopsychosocial variables and clinical outcomes. *Journal of Clinical Child and Adolescent Psychology*, 35, 283-291.
- Cohane GH, Pope HG. (2001). Body image in boys: A review of the literature. *International Journal of Eating Disorders*, 29, 373-379.

- Cash TF, Fleming EC, Alindogan J, Steadman L, Whitehead A. (2002). Beyond body image as a trait: the development and validation of the Body Image States Scale. *Eating Disorders, 10*, 103-113.
- Cash TF. (2002). Cognitive-behavioral perspectives on body image. *Body Image: A Handbook of Theory, Research, and Clinical Practice*. 38-45.
- Cash TF, Winstead BA, Janda LH. (1986). The great American shape up, *Psychology Today, 1*, 30-37.
- Cattanach L, Malley R, Rodin J. (1988). Psychologic and physiologic reactivity to stressors in eating disordered individuals. *Psychosomatic Medicine, 50*, 591-599.
- Chernow B, Alexander R, Smallridge RC, Thompson WR, Cook D, Beardsley D, Fink MP, Lake CR, Fletcher R. (1987). Hormonal responses to graded surgical stress. *Archives of Internal Medicine, 147*, 1273-1278.
- Cronbach LJ. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-334.
- Donnerstein E, Berkowitz L. (1981). Victim reactions in aggressive erotic films as a factor in violence against women. *Journal of Personality and Social Psychology, 41*, 710-724.
- Drewnowski A, Yee DK. (1987). Men and body image: Are males satisfied with their body weight? *Psychosomatic Medicine, 49*, 626-643.
- Drucker S. (1987). New M1: Disorders of adrenal steroidogenesis. *Pediatrics Clinics of North America, 34*, 1055-1066.
- Farquhar JC, Wasylikiw L. (2007). Media images of men: Trends and consequences of body conceptualization. *Psychology of Men and Masculinity, 8*, 145-160.

- Ferron C, Narring F, Caudey M, Michaud PA. (1999). Sport activity in adolescence: associations with health perceptions and experimental behaviours. *Health Education Research, 14*, 225-233.
- Festinger L. (1954). A Theory of Social Comparison Processes. *Human Relations, 7*, 117-140.
- Field T, Hernandez-Reif M, Diego M, Schanberg S, Kuhn C. (2005). Cortisol decreases and serotonin and dopamine increase following massage therapy. *The International Journal of Neuroscience, 115*, 1397-1413.
- Fischbach FT. (1992). *The manual of laboratory and diagnostic tests, 4*.
- Frederick CM, Morrison CS. (1996). Social physique anxiety: personality constructs, motivations, exercise attitudes, and behaviors. *Perceptual and Motor Skills, 82*, 963-972.
- Garner DM. (1997). The 1997 body image survey results. *Psychology Today, 30*, 30-44, 75-80, 84.
- Gergen KJ, Taylor MG. (1969). Social expectancy and self-presentation in a status hierarchy. *Journal of Experimental Social Psychology, 5*, 79-92.
- Glascock J. (2005). Degrading content and character sex: Accounting for men's and women's differential reactions to pornography. *Communication Reports, 18*, 43-53.
- Gluck ME, Geliebter A, Hung J, Yahav E. (2004). Cortisol, hunger, and desire to binge eat following a cold stress test in obese women with binge eating disorder. *Psychosomatic Medicine, 66*, 876-881.
- Goffman E. (1959). *The presentation of self in everyday life*. New York: Doubleday.
- Grilo CM, Wilfley DE, Brownell KD, Rodin J. (1994). Teasing, body image, and self esteem in a clinical sample of obese women. *Addictive Behaviors, 19*, 443-450.

- Groesz LM, Levine MP, Murnen SK. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders*, 31, 1-16.
- Grogan S, Williams Z, Conner M. (1996). The effects of viewing same-gender photographic models on body-esteem. *Psychology of Women Quarterly*, 20, 569-575.
- Grove SJ, Dodder RA. (1982). Constructing measures to assess perceptions of sport functions: An exploratory investigation. *International Journal of Sport Psychology*, 13, 96-106.
- Gulas CS, McKeage K. (2000). Extending Social Comparison: An examination of the unintended consequences of idealized advertising imagery. *Journal of Advertising*, 29, 17-28.
- Halliwel E, Dittmar H, Orsborn A. (2007). The effects of exposure to muscular male models among men: Exploring the moderating role of gym use and exercise motivation. *Body Image*, 4, 278-287.
- Hart S, Field T, Hernandez-Reif M, Nearing G, Shaw S, Schanberg S, Kuhn C. (2001). Anorexia nervosa symptoms are reduced by massage therapy. *Eating Disorders*, 9, 289-299.
- Heatherton T, Polivy J. (1991). Development and validation of a scale for measuring state self-esteem. *Journal of Personality and Social Psychology*, 27, 895-910.
- Heinberg LJ, Thompson JK, Stormer S. (1995). Developing and validation of the sociocultural attitudes toward appearance questionnaire. *The International Journal of Eating Disorders*, 17, 81-89.

- Hobza CL, Walker KE, Yakushko O, Peugh JL. (2007). What about men? Social comparison and the effects of media images on body and self-esteem. *Psychology of Men and Masculinity*, 8, 161-172.
- Humphreys P, Paxton SJ. (2004). Impact of exposure to idealized male images on adolescent boys' body image. *Body Image*, 1, 253-266.
- Jayo JM, Shively CA, Kaplan JR, Manuck SB. (1993). Effects of exercise and stress on body fat distribution in male cynomolgus monkeys. *International journal of obesity and related metabolic disorders*, 17, 597-604.
- Johnson PJ, McCreary DR, Mills JS. (2007). Effects of exposure to objectified male and female media images on men's psychological well-being. *Psychology of Men and Masculinity*, 8, 95-102.
- Jones EE. (1964). *Ingratiation*. New York: Appleton-Century Crofts.
- Jones EE, Gergen KJ, Gumpert P, Thibaut JW. (1965). Some conditions affecting the use of ingratiation to influence performance evaluation. *Journal of Personality and Social Psychology*, 36, 613-625.
- Jones EE, Gergen KJ, Jones RG. (1963). Tactics of ingratiation among leaders and subordinates in a status hierarchy. *Psychological Monographs*, 77 (3, Whole No. 566).
- Kaminsky LA, Bonzheim KA, Garber CE, Glass SC, Hamm LF, Kohl HW, Mikesky A. (2006). *ACSM's Resource Manual for Guidelines for Exercise Testing and Prescription: Fifth Edition*. Baltimore, MD: Lippincott Williams & Wilkins.
- Karazsia BT, Crowther JH. (2008). Social body comparison and internalization: Mediators of social influences on men's muscularity-oriented body dissatisfaction. *Body Image*, 6, 105-112.

- Kirschbaum C, Wüst S, Hellhammer D. (1992). Consistent sex differences in cortisol responses to psychological stress. *Psychosomatic Medicine*, 54, 648-657.
- Koo-Loeb JH, Pedersen C, Girdler SS. (1998). Blunted cardiovascular and catecholamine stress reactivity in women with bulimia nervosa. *Psychiatry Research*, 80, 13-27.
- Leary MR. (1983). *Understanding social anxiety*. Beverly Hills, CA: Sage.
- Leary MR. (1992). Self presentation processes in exercise and sport. *Journal of Sport and Exercise Psychology*, 14, 339-351.
- Leary MR, Kowalski RM. (1990). Impression management: A literature review and two-component model. *Psychological Bulletin*, 107, 34-47.
- Leit RA, Pope HG, Gray JJ. (2001). Cultural expectations of muscularity in men: The evolution of playgirl centerfolds. *International Journal of Eating Disorders*, 29, 90-93.
- Leit RA, Gray JJ, Pope HG. (2002). The media's representation of the ideal male body: A cause for muscle dysmorphia? *International Journal of Eating Disorders*, 31,334-338.
- Lenders JW, Demacker PN, Vos JA, Jansen PL, Hoitsma AJ, van 't Laar A, Thien T. (1988). Deleterious effects of anabolic steroids on serum lipoproteins, blood pressure, and liver function in amateur body builders. *International Journal of Sports Medicine*, 9, 19-23.
- Lerner RM, Jovanovic J (1990). The role of body image in psychosocial development across the lifespan: A developmental contextual perspective. In TF Cash & T Pruzinsky (Eds.), *Body images: Development, deviance, and change*. New York: Guilford Press.
- Levine M, Marcus M. (1997). Eating behavior following stress in women with and without bulimic symptoms. *Annals of Behavioral Medicine*, 19, 132-138.
- Lingswiler VM, Crowther JH, Stephens MA. (1987). Emotional reactivity and eating in binge eating and obesity. *Journal of Behavioral Medicine*, 10, 287-299.

- Lorenzen LA, Grieve FG, Thomas A. (2004). Exposure to muscular male models decreases men's body satisfaction. *Sex Roles, 51*, 743-748.
- Martin JJ, Kliber A, Kulinna PH, Fahlman M. (2006). Social physique anxiety and muscularity and appearance cognitions in college men. *Sex Roles, 55*, 151-158.
- McCabe MP, Ricciardelli LA. (2001). Parent, peer, and media influences on body image and strategies to both increase and decrease body size among adolescent boys and girls. *Adolescence, 36*, 225-240.
- McCreary DR, Sasse DK. (2000). An exploration of the drive for muscularity in adolescent boys and girls. *Journal of American College Health, 48*, 297-304.
- McCreary DR, Sasse DK, Saucier DM, Dorsch KD. (2004). Measuring the drive for muscularity, factorial validity of the drive for muscularity scale in men and women. *Psychology of Men and Masculinity, 5*, 49-58.
- Migeon CJ, Lanes RL. (1990). Adrenal cortex: hypo- and hyperfunction. In F. Lifshitz (ed.), *Pediatric endocrinology, a clinical guide, 2*, 333-352.
- Mishkind ME, Rodin J, Silberstein LR, Striegel-Moore RH. (1986). The embodiment of masculinity: Cultural, psychological, and behavioral dimensions. *American Behavioral Scientist, 29*, 545-562.
- Monteleone P, Maes M, Fabrazzo M, Tortorella A, Lin A, Bosmas E, Kenis G, Maj M. (1999). Immunoendocrine findings in patients with eating disorders. *Neuropsychobiology, 40*, 115-120.
- Mosley PE. (2008). Bigorexia: Bodybuilding and muscle dysmorphia. *European Eating Disorders Review, 17*, 191-198.

- Ochner CN, Gray JA, Brickner K. (2009). The development and initial validation of a new measure of male body dissatisfaction. *Eating Behaviors, 10*, 197-201.
- O'Dea JA, Abraham S. (1999). Onset of disordered eating attitudes and behaviors in early adolescence: interplay of pubertal status, gender, weight, and age. *Adolescence, 34*, 671-679.
- Ogden J, Munday K. (1996). The effect of the media on body satisfaction: The role of gender and size. *European Eating Disorders Review, 4*, 171-182.
- Olivardia R, Pope HG, Borowiecki JJ, Cohane GF. (2004). Biceps and body image: The relationship between muscularity and self-esteem, depression, and eating disorder symptoms. *Psychiatry of Men and Masculinity, 5*, 112-120.
- Olivardia R, Pope HG, Hudson JI. (2000). Muscle dysmorphia in male weightlifters: A case control study. *American Journal of Psychiatry, 157*, 1291-1296.
- Pasman L, Thompson JK. (1988). Body image and eating disturbance in obligatory runners, obligatory weightlifters, and sedentary individuals. *The International Journal of Eating Disorders, 7*, 759-769.
- Phillips KA, McElroy SL, Hudson JI, Pope HG Jr. (1995). Body dysmorphic disorder: an obsessive-compulsive spectrum disorder, a form of affective spectrum disorder, or both? *The Journal of Clinical Psychiatry, 56*, 41-51; discussion 52.
- Pirke KM, Platte P, Laessle R, Seidl M, Fichter MM. (1992). The effect of a mental challenge test of plasma norepinephrine and cortisol in bulimia nervosa and in controls. *Biological Psychiatry, 32*, 202-206
- Pope HG Jr, Katz DL. (1987). Bodybuilder's psychosis. *Lancet, 1*, 863.

- Pope HG Jr, Katz DL. (1988). Affective and psychotic symptoms associated with anabolic steroid use. *The American Journal of Psychiatry*, 145, 487-490.
- Pope HG Jr, Katz DL. (1994). Psychiatric and medical effects of anabolic-androgenic steroid use. A controlled study of 160 athletes. *Archives of General Psychiatry*, 51, 375-382.
- Pope CG, Pope HG, Menard W, Fay C, Olivardia R, Phillips KA. (2005). Clinical features of muscle dysmorphia among males with body dysmorphic disorder. *Body Image*, 2, 395-400.
- Pope HG, Gruber AJ, Choi P, Olivardia R, Phillips KA. (1997). Muscle dysmorphia: An under recognized form of body dysmorphic disorder. *Psychosomatics*, 38, 548-557.
- Pope HG, Gruber AJ, Mangweth B, Bureau B, deCol C, Jouvent R, Hudson JI. (2000). Body image perception among men in three countries. *American Journal of Psychiatry*, 157, 1297-1301.
- Pope HG Jr, Olivardia R, Borowiecki JJ, Cohane GH. (2001). The growing commercial value of the male body: a longitudinal survey of advertising in women's magazines. *Psychotherapy and Psychosomatics*, 70, 189-192.
- Pope HG, Olivardia R, Gruber A, Borowiecki JJ. (1999). Evolving ideals of male body image as seen through action toys. *International Journal of Eating Disorders*, 26, 65-72.
- Reed DL, Thompson JK, Brannick MT, Sacco WP. (1991). Development and validation of the physical appearance state and trait anxiety scale (PASTAS). *Journal of Anxiety Disorders*, 5, 323-332.
- Rhoades RA, Pflanzler RG. (2003). *Human Physiology: Fourth Edition*. New York: Thompson.

- Ricciardelli LA, McCabe MP. (2003). A longitudinal analysis of the role of biopsychosocial factors in predicting body change strategies among adolescent boys. *Sex Roles, 48*, 349-359.
- Ridgeway RT, Tylka TL. (2005). College men's perceptions of ideal body composition and shape. *Psychology of Men and Masculinity, 6*, 209-220.
- Rodin J. (1993). Cultural and psychosocial determinants of weight concerns. *Annals of Internal Medicine, 119*, 643-645.
- Rohleder N, Schommer NC, Hellhammer DH, Engel R, Kirschbaum C. (2001). Sex differences in glucocorticoid sensitivity of proinflammatory cytokine production after psychosocial stress. *Psychosomatic Medicine, 63*, 966-972.
- Sarbin TR, Allen VL, Rutherford EE. (1965). Social reinforcement, socialization, and chronic delinquency. *The British Journal of Social and Clinical Psychology, 4*, 179-184.
- Rosenfeld HM. (1966). Approval-seeking and approval-inducing functions of verbal and nonverbal responses in the dyad. *Journal of Personality and Social Psychology, 4*, 597-605.
- Schutz HK, Paxton SJ, Wertheim EH. (2002). Investigation of body comparison among adolescent girls. *Journal of Applied Social Psychology, 32*, 1906-1937.
- Smolak L, Levine MP, Thompson JK. (2001). The Use of the Sociocultural Attitudes Towards Appearance Questionnaire with Middle School Boys and Girls. *International Journal of Eating Disorders, 29*, 216-223.
- Stice E, Schupak-Neuberg E, Shaw HE, Stein RI. (1994). Relation of media exposure to eating disorder symptomatology: an examination of mediating mechanisms. *Journal of Abnormal Psychology, 103*, 836-840.

- Striegel-Moore RH, Silberstein LR, Rodin J. (1986). Toward and understanding of risk factors for bulimia. *American Psychologist*, 41, 246-263.
- Telch CF, Agras WS. (1996). Do emotional states influence binge eating in the obese? *International Journal of Eating Disorders*, 20, 271-279.
- Thompson JK, Heinberg L. (1992). Social comparison: Gender, target importance ratings, and relation to body image disturbance. *Journal of Social Behaviour and Personality*, 7, 335-344.
- Tuschen-Caffier B, Vogele C. (1999). Psychological and physiological reactivity to stress: An experimental study on bulimic patients, restrained eaters and controls. *Psychotherapy and Psychosomatics*, 68, 333-340.
- Vocks S, Legenbauer T, Wachter A, Wucherer M, Kosfelder J. (2007). What happens in the course of body exposure? Emotional, cognitive, and physiological reactions to mirror confrontation in eating disorders. *Journal of Psychosomatic Research*, 6, 231-239.
- Walsh BT, Roose SP, Katz JL, Dyrenfurth I, Wright L, Vande Wiele R, Glassman AH. (1987). Hypothalamic-pituitary-adrenal-cortical activity in anorexia nervosa and bulimia. *Psychoneuroendocrinology*, 12, 131-140.

ABSTRACT**PSYCHOLOGICAL AND PHYSIOLOGICAL RESPONSES OF MALES VIEWING
SAME GENDER ADVERTISEMENTS**

by

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Body image has been a well established research topic in the field of sport and exercise psychology. However, most of the literature focuses on female body image and ignores male body image. It has been established by current literature that men react the same way as females when presented with pictures of the ideal body of the same sex; a negative body image affect. However, it is unknown in both females and males if this negative body image affect is a strong enough response to elicit a physiological stress response. This master's thesis serves as an explorative project to bridge the gap between body image and physiological stress response, and will subsequently add to the literature focusing on male body image. It was hypothesized that men viewing mock advertisements of ideal muscular male models paired with male centric products would experience a strong enough negative body image affect that it would increase their salivary cortisol levels when compared to men viewing mock advertisements of the same male centric products without an ideal muscular male model. The increase in salivary cortisol would thusly demonstrate that a strong negative body affect can elicit a physiologic stress response. Thirty male participants were randomly assigned to either a control group that viewed male centric products (gaming systems, televisions, shaving products, etc.) alone and an

intervention group that viewed the same products paired with a muscular male model. To measure changes in body image, five psychosocial scales were used, while salivary cortisol levels were measured to establish changes in physiological states. Multivariate Analysis of Variance (MANOVA) of the data exhibited men viewing advertisements of male centric products paired with ideal muscular male models does not create a negative body image affect, thus a physiologic stress response was never obtained. Reasons for this include the intervention not being strong enough for the participants, obliviousness towards social standards of attractiveness in the participants creating a stable body image, the models being well known celebrities leading to less impact, and the small sample size. In conclusion, this explorative study signifies that men are developing more stable and healthier body images than previous research illustrates.

AUTOBIOGRAPHICAL STATEMENT

After graduating from Adrian College in 2006, I worked for several gyms as a personal trainer. After becoming frustrated with the industry of health clubs, I realized I had a thirst for learning and wanted to go back to school to obtain a master's degree. I started taking classes at Wayne State University and satisfying this thirst of knowledge. After four years of balancing three jobs, school, writing, a wedding, and becoming a home owner, I am happy to be graduating with my master's of education in sport and exercise psychology. I plan to continue quenching my thirst for learning by applying to several schools and pursuing doctoral candidacy. My future research interests include head trauma in athletes and the effects on their cognitive abilities, the effects of differing motivational techniques on physiological responses in athletes, and exercise dependence and addiction.