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Gina Bottamini

AUTEUR DE LA THÈSE / AUTHOR OF THESIS

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TITRE DE LA THÈSE / TITLE OF THESIS

Diane Ste-Marie

DIRECTEUR (DIRECTRICE) DE LA THÈSE / THESIS SUPERVISOR

CO-DIRECTEUR (CO-DIRECTRICE) DE LA THÈSE / THESIS CO-SUPERVISOR

EXAMINATEURS (EXAMINATRICES) DE LA THÈSE / THESIS EXAMINERS

Gary Goldfield

David Smith

Raymond LeBlanc

Diane Mack

Gary W. Slater

Le Doyen de la Faculté des études supérieures et postdoctorales / Dean of the Faculty of Graduate and Postdoctoral Studies

**Male Body Image and Related Behaviors Surrounding the Ideal Mesomorphic Physique:
A Multi-Phase Mixed Method Investigation**

Gina Bottamini

**Thesis submitted to the
Faculty of Graduate and Postdoctoral Studies
In partial fulfillment of the requirements
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Abstract

The purpose of the research presented herein was to gain a better understanding of male body image-related behaviors through a multi-phase mixed method approach. With research revealing a noted increase in muscularity in media representations of the male physique in the latter part of the twentieth century, context to the present day ideal male physique was first provided via the examination of sculptures and paintings from ancient Greece to the latter part of the 19th century (phase I). The ideal male physique was further examined in the qualitative phase of the research (phase II) where semi-structured interviews with 11 males were conducted. Data obtained from the interviews also aided in the construction of the Male Body Image Behavior Questionnaire (MBIBQ). The structure and length of the MBIBQ as well as its psychometric properties were next examined with a total of 550 participants in phases III and IV respectively. The examination of art representations of the male physique revealed varied depictions of a muscular ideal with interceding portrayals of thin or nonrealistic interpretations. A number of themes emerged from the qualitative data including the ideal physique and attributes, influences, psychosocial consequences, motivations, and behaviors. An interesting finding was that a few of the males expressed a preference for a female interviewer suggesting that cross-gender interviewing should be considered when examining body image in males. The results from the exploratory principal components and confirmatory factor analyses conducted in phase III revealed that the MBIBQ is comprised of four subscales; weight gain, weight loss, avoidance, and appearance. The more extreme behaviors on the preliminary version of the MBIBQ did not meet the criteria for item inclusion and were thus deleted, suggesting that although males may

indicate knowledge of more extreme behaviors, their actual utilization may be limited.

Phase IV of the research, conducted with 253 participants, showed preliminary evidence of convergent, discriminant, and concurrent validity as well as test-retest validity for the MBIBQ. The MBIBQ is the first of its kind to address several dimensions of body image behaviors in males. The educational implications of the findings for school-based programs are discussed.

Judge not according to the appearance – JOHN 7:24

Chapter I – Introduction

In chapter I, I will present the factors that have contributed to the lack of research on male body image in the past, the objectives of this dissertation, significance of the research, and the conceptual framework that guided this inquiry.

Introduction

Body image, a multidimensional construct, is difficult to define (Pruzinsky & Cash, 2002). For simplicity sake, however, a general definition of body image is as follows: “the internal representation of your own outer appearance—your own unique perception of your body” (p. 4, Thompson, Heinburg, Altabe, & Tantleff-Dunn, 1999). Body image concerns and behaviors utilized to attain an ideal physique have historically been investigated in the female population with less consideration provided to males (Cash & Pruzinsky, 2002). Based on my own personal observations of male friends who engaged in exercise activities to build up their muscles and frequently voiced displeasure with their physiques, the lack of literature pertaining to male body image seemed unjustified. This observed contradiction motivated me to investigate the rationale behind the lack of research in this domain. From this examination, I discovered the common misperception that body image and related concerns is a sole characteristic of the female population (Pope, Phillips, & Olivardia, 2000).

Previous research findings have reported that as few as 15% of American males exhibit body dissatisfaction (Berscheid, Walster, & Bohrnstedt, 1973). Recent estimates provided by a Psychology Today survey of respondents from a number of countries (i.e., United States, Australia, So. Africa, among others), however, have placed body dissatisfaction in this population as high as 43% (Garner, 1997). What accounts for such discrepant findings? One factor may relate to the misinterpretation of earlier research. While the definition of the body image construct does not differ for males and females, the manifest behaviors that result from body dissatisfaction may. For example, females typically believe they are of a larger physique than is desired (Raudenbush & Zellner,

1997) and often engage in behaviors to attain an ideal that is thin (Middleman, Vazquez, & Durant, 1998). In contrast, research on males has shown that they desire to attain a mesomorphic physique, that is, a muscular and lean build, and therefore engage in behaviors that enable them to gain muscle size and may also engage in behaviors resulting in a loss of adiposity (Furnham & Calnan, 1998). Indeed, when males and females are compared in terms of the desire to have a thin physique, body dissatisfaction does not appear to factor into male lives. This may be a misinterpretation as it assumes that the desire of males to gain size is not associated with body image dissatisfaction, as does the desire for females to be slimmer (Abell & Richards, 1996). Furthermore, the desire of males to weigh more is joined with the desired attainment of the mesomorphic ideal (O'Dea & Abraham, 1999; Ricciardelli, McCabe, & Banfield, 2000), which is also associated with body image dissatisfaction (Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986). Certainly not all males who desire a change in body shape want one that is mesomorphic. An exception, for example, would be overweight males who solely desire a loss of adiposity or the small population of males who suffer from anorexia nervosa (see Anderson & Holman, 1997).

Findings of past studies therefore failed to examine the exact nature of change, whether it be a gain in muscle, loss in adiposity, or both. This resulted in the erroneous conclusion that men who did not desire a body that was smaller than their current physiques were void of concerns. In an earlier American study with university students, for example, 40% of the men wanted to gain size and 45% wanted to lose weight (Drewnowski & Yee, 1987). If a mean was calculated and interpreted from these findings, those who desired to gain size and those who desired to lose weight would

essentially negate each other, falsely indicating that men do not desire a change in body shape (Drewnowskit & Yee, 1987; Olivardia, Pope, Borowiecki, & Cohane, 2004).

A second factor that likely perpetuates the misperception that males are unconcerned with their bodies is their unwillingness to talk about body image concerns. This lack of conversation has been attributed to the belief that one's masculinity would be compromised should they engage in body image discussions (Pope et al., 2000) and for fear of being construed as gay (Olivardia & Pope, 1997). This lack of communication further complicates our actual knowledge of male body image and prevalence rates of associated concerns. The misinterpretation of findings coupled with a lack of dialogue may account for why some researchers who have examined male body image in the past have discounted that concerns exist or have minimized their intensity. It has become increasingly apparent, however, that more research on male body image should occur (Corson & Andersen, 2002; Ditmar et al., 2000).

Although still limited in scope (Olivardia et al., 2004), it is encouraging to note that recent research is beginning to challenge the notion that generally all males are satisfied with their bodies (e.g., McCreary & Sasse, 2002; Pope et al., 2000). With this research, however, comes the revelation that existing questionnaires are inappropriate due to their lack of relevance to the male population (Anderson, 1995; Hausenblas & Carron, 1999). More research is therefore needed to gain a better understanding of male body image and the construction of questionnaires surrounding the desire to attain a mesomorphic build are necessary in this vein (Furnham & Calnan, 1998).

Objectives

The primary objective of the research presented herein is to gain a better

understanding of body image-related behaviors in males. The full examination of this research question proceeded in a multi-layered approach that included (1) a contextualization of the ideal male physique through the study of representations of the male body from ancient Greece to 19th century art and (2) the examination of body image perceptions, motivations as well as related behaviors via semi-structured interviews with males. These two components, involving a critical examination of the relevant discourse of the topic, informed the next phase of the research which had the main goal of developing a male body image behavior questionnaire. The emphasis of the third phase was to determine the structure and length of the questionnaire and finally, the fourth phase of the research investigated the psychometric properties of the questionnaire through various validity and reliability measures. This thorough examination culminated in a better understanding of body image-related concerns and behaviors in males.

Significance of the Study

The results obtained from this multi-phase mixed method research project will contribute to our understanding of the idealized representations of the male body, body image concerns, and in particular, the body image-related behaviors males utilize and their relationship to other variables. Indeed, body image behaviors are not entirely understood (Cash & Pruzinsky, 2002).

The research presented here will also contribute on the level of empirical progress where our understanding of a phenomenon is broadened to a new domain (Schweizer, 1998). Given that body image issues have commonly been investigated and understood through the lens of the female perspective, this research will further support the notion that this realm must also encompass the male viewpoint. Continued research on male

body image and related concerns is a necessary endeavor particularly given the acknowledged criticism that existing psychoeducational programs, designed for women to provide support for and identify those who are at risk for developing eating disorders, exhibit a lack of knowledge about the male situation (McCreary & Sasse, 2000; Winzelberg, Abascal, & Taylor, 2002). The study of male body image and construction of tools in this vein could therefore broaden our understanding of the phenomenon and consequently lead to the modification of existing interventions, thus expanding their appropriateness to males.

Conceptual Framework

The research presented here will be guided by a postpositivist perspective. My desire is to therefore broaden the current literature on body image to include the male perspective through a paradigm that incorporates the beliefs of this position. More specifically, the ontological stance of this perspective purports that reality is incomplete due to the incomplete nature of the researcher. The epistemological stance of this position views that the findings are most likely true. In this sense, reality is not completely objective and therefore can only be approximated. Thus, research is influenced by the values of the investigators. The methodological perspective of this stance permits the researcher to utilize qualitative methods in an effort to address the critiques of the positivist perspective. Thus, the postpositivist perspective seeks to provide context, a better understanding of human behavior, voice to theory, increase applicability to individuals, and include the discovery of hypotheses (Guba & Lincoln, 1994). The research presented here proceeded in this vein.

Chapter II – Review of Literature

In this chapter, key areas related to the topic of study will be introduced. As an overview, sociocultural perspective as well as recent notions that account for the rise in male body image concerns observed in recent decades will first be presented, followed by discussion of the body image construct. A review of behaviors that are reported to be utilized by males to attain or maintain a desired body shape will next be presented. This will be followed by the rationale for the construction of the MBIBQ and the need for qualitative research when examining male body image concerns.

Sociocultural Perspective

The three main theoretical perspectives on body image are; (1) perceptual; which encompasses perceptual artifact, cortical deficits, and adaptive failure, (2) developmental; which espouses puberty and maturational timing, early sexual abuse and sexualization, and negative verbal commentary and teasing, and (3) sociocultural; the influence of values and beliefs from the greater culture and/or society at large (Heinberg, 1996). The sociocultural perspective is the most dominant of the three and its examination is particularly important given that increased attention has been given to the male physique in Western society over the past 30 years (Pope, Phillips, & Olivardia, 2000).

Many characteristics of masculinity have changed over the centuries, such as style of hair and dress. One characteristic of masculinity that has remained unchanged, however, is the ideal mesomorphic body type (Kimmel, 1986; Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986) (see a review of this ideal over time in chapter II of this dissertation). While the mesomorphic ideal has remained, emphasis on muscle size and body image awareness in the male population has increased in our society over the past three decades (Pope et al., 2000). Certainly, men of earlier eras were influenced by the masculine ideal of muscularity. Nevertheless, the apparent rise in male body image concerns begets the question; why have body image concerns increased in present day western society?

Increased interest in male body image and the noted ramifications of body dissatisfaction in this population has directed attention to a number of recent ideas that purport to provide insight into the genesis of the rise in male body image concerns. The foundation of many of these viewpoints is that of the sociocultural perspective. Perhaps

an increase in the research on male body image concerns can be related to the observation, mainly via 20th century representations of the male physique, that society values the mesomorphic physique in the male population. More specifically, similar to the observation that media portrayed images of the female physique have become increasingly thin (see Garner, Garfinkel, Schwartz, & Thompson, 1980; Wiseman, Gray, Mosimann, & Ahrens, 1992), media images of the male physique have also undergone a change in ideal. That is, the degree of muscularity and exposure of the male physique has changed. For example, representations of the male physique in *Playgirl* centerfolds have increased in size between the years of 1986 to 1997 (Spitzer, Henderson, & Zivian, 1999) with a noted increase in muscularity from the years 1973 to 1997 (Leit, Pope, & Gray, 2001). In their study, Leit and colleagues observed a 27 pound increase in muscularity and a 12 pound decrease in adiposity over the time period reviewed. The proportion of unclothed males also increased in number in female magazines from only 3% of advertisements with men in the 1950's to 35% in the 1990's (Pope, Olivardia, Borowiecki, & Cohane, 2001). Moreover, a recent examination of the ideal male physique found that magazines geared toward the male consumer (e.g., *Men's Health*) presented images that were more muscular than those presented in magazines geared toward the female consumer, such as *Cosmopolitan* (Frederick, Fessler, & Haselton, 2005). The muscular ideal has even made an appearance in popular children's toys with G.I. Joe exhibiting humanly unattainable muscular proportions (Pope, Olivardia, Gruber, & Borowiecki, 1999).

Examination of the actual impact of the media "on body image in males is still in its infancy" (p. 256, Olivardia, 2001). Recent researchers, however, have discovered that

men are adversely influenced by media portrayals of the ideal mesomorphic physique. Upon exposure to mesomorphic images, for example, an increase in exercise, food restriction, and feelings of insecurity was observed among a sample of Australian men, including gay non-exercisers and gay and heterosexual exercisers (Fawkner & McMurray, 2002). Studies have also shown that exposure to media images of the ideal muscular build is related to the drive for muscularity (Morrison, Morrison, & Hopkins, 2003), increased body dissatisfaction (Grogan, Williams, & Conner, 1996; Leit, Gray, & Pope, 2002; Lorenzen, Grieve, & Thomas, 2004), and an increase in reported eating problems in undergraduate males (Morry & Staska, 2001). Furthermore, internalization of the mesomorphic ideal via fitness magazines has been found to predict body dissatisfaction in this population (Morry & Staska, 2001).

While the sociocultural perspective accounts for the pressure that some males may feel to attain a mesomorphic body type, what accounts for the rising prevalence of the sociocultural perspective to the male population? Views such as healthy lifestyle (Mishkind et al., 1986), homophobia, gender parity (Kimmel, 1996; Mishkind et al., 1986; Pope et al., 2000), and the influence of steroids (Pope et al., 2000) have been purported. Important to note, is that none of these views have been fully tested. While more research is still needed to assist in the theoretical construction of male body image, the rationale behind an increase in male body image concerns will next be explored.

Healthy Lifestyle

The healthy lifestyle view asserts that the increased desire to attain a muscular physique among the male population and consequent rise in body image concerns is the direct result of the quest to achieve optimal health by becoming physically fit (Mishkind

et al., 1986). Certainly, the desire to achieve health is not necessarily joined with the development of body image concerns. Rather, the health benefits of becoming physically fit could also be the driving force behind the desire to engage in body changing activities. In fact, for some, a certain level of dissatisfaction may be optimal if it results in the engagement in behaviors that ultimately improve one's health (Heinberg, Thompson & Matson, 2001). For others, however, the initial engagement in activities to increase health may develop into body image concerns that become deleterious to the individual.

Homophobia

Another idea that may account for the rise of body image concerns in recent decades is what I term, the "homophobia notion". This notion involves the desire of some gay men to achieve and attain a muscular physique in an effort to combat the association between a thin physique and the presence of Acquired Immune Deficiency Syndrome (AIDS; Halkitis, 2001; Pope et al., 2000). For some gay men, however, the muscular physique is valued because it compensates for their perceived lack of masculinity (Halkitis, 2001; Pope et al., 2000). This is termed "internalized homophobia" (Plummer, 1999; Signorile, 1997) and has also been linked to body image concerns (Pope et al., 2000). Therefore, if some homosexual men desire a mesomorphic physique as a result of internalized homophobia, then perhaps the same can be stated for heterosexual men. Indeed, Plummer (1999) postulates that "many modern day men's health issues are at least in part, orchestrated by homophobia" (p. 220). In other words, the consequence of homophobia may reveal itself in one such modern health issue such as body dissatisfaction.

Steroids

Another view purported to account for an increase in male body image concerns comes from the introduction of steroids. Prior to the introduction of steroids, hyper muscular images had not been seen in modern day representations of the male form (Pope et al., 2000). When these images began to surface in the 1980's, the vast majority of the population was unaware that the massive size of the body builders was attributed to steroid use, rather than natural physical capacity. As noted earlier, just as females are adversely influenced by the ideal image they are presented with through the media (Monteath & McCabe, 1997; Posavac, Posavac, & Posavac, 1998; Stice & Shaw, 1994), so too are males (Leit et al., 2002). Thus, Pope and colleagues (2000) suggest that the desire to attain the mesomorphic ideal and rise in male body image concerns could be explained by the increase of steroid-produced hyper-muscular bodies in the media.

Recent cultural studies lend support to media representations of the muscular physique. Men from Eastern societies such as Taiwan (Yang, Gray, & Pope, 2005) and Kenya (Campbell, Pope, & Filiault, 2005), show a small discrepancy between the amount of muscle they believe women prefer and the degree of muscle average men in their culture are believed to have. In these cultures, media representations of the mesomorphic physique are not exposed to the same degree as they are in western countries, such as the United States, France and Austria where a larger discrepancy is observed (Pope, Gruber et al., 2000). Samoan men, though of a non-western culture, parallel western societies with a similar discrepancy between the amount of muscle men exhibit and the amount of muscle they believe females desire. Lipinski and Pope (2002) attribute these findings to western media exposure in the South Pacific. Though more research is needed, the

hypothesized relationship between media representations of hyper-muscularity and the consequent rise in body image concerns is salient.

Gender Parity

Finally, perhaps the most widely acclaimed notion in the literature is the gender parity view (Kimmel, 1996; Mishkind et al., 1986; Pope et al., 2000). This view suggests that the introduction of women's emerging and expanding roles in Western society has decreased the male role of the breadwinner, and as a result, male body image awareness has increased (Ehrenreich, 1983, Pope et al., 2000). This is due to the fact that the only aspect of life in which women cannot naturally achieve equality with men is with their muscle size (Pope et al., 2000). Some men have therefore turned to muscle development as a defining characteristic of their masculinity (Mishkind et al., 1986; Pope et al., 2000). Female body building has thus been met with resistance, ensuring the perpetuation of stereotypical gender rules (Choi, 2003).

In support of the gender parity view, research has shown that men from Eastern cultures, such as Taiwan where traditional male gender roles are more firm, do not view muscularity as a valued characteristic of masculinity. Muscularity may therefore have greater value in Western cultures where gender roles are not as well defined (Yang et al., 2005). Indeed, recent research has found that Western men who have traditional views about male gender roles desire more muscular bodies (McCreary, Saucier, & Courtenay, 2005).

Body Image

Thus far, recent notions behind an increase in male body dissatisfaction have been presented. Examination of the body image construct, psychosocial variables and

behaviors that may accompany body image concerns are also important in the justification of ongoing research in this area. At this point, it is important to note that body image is commonly examined through a negative lens (Cash, 2002). Therefore, when appropriate, body satisfaction will also be highlighted in the pages of this dissertation.

Body image can influence various aspects of one's life such as thoughts, emotions, relationships and behaviors. Some may experience no body image dissatisfaction while others may experience a high level of dissatisfaction that may be revealed in attitudinal and/or perceptual components. The perceptual component of body image is an over-estimation or under-estimation of body size (Gardner, 2002). Attitudinal body image is comprised of global dissatisfaction as well as cognitive, affective, and behavioral forms. More specifically, the affective component pertains to the adverse feelings or associated distress one has with how they look. Research on the ramifications of body image concerns in men is somewhat sparse. Recent research, however, has discovered that psychosocial variables such as depression and low self-esteem are associated with body dissatisfaction in males (Olivardia, Pope, Borowiecki, & Cohane, 2004). In addition, Davis, Karvinen and McCreary (2005) found that appearance orientation, perfectionism, neuroticism, and fitness orientation were predictors of, as well as related to, the drive for muscularity as measured by the Drive for Muscularity Scale (McCreary & Sasse, 2000).

Certainly the affective component of body image also encompasses the positive ramifications of how one looks. As Mishkind and colleagues (1986) point out, the engagement in behaviors that bring one closer to their desired body shape may increase

positive feelings about one's body. A recent experimental design showed that participants in a weight training program significantly improved their body satisfaction, self-efficacy, and lowered social physique anxiety when compared to controls (Williams & Cash, 2001).

The cognitive element of attitudinal body image pertains to unrealistic beliefs about one's appearance (Thompson & Van Den Berg, 2002). Therefore, for some, body image concerns may take more severe forms such as body dysmorphic disorder, which exists when an individual is preoccupied with a body part that is believed to be flawed. When muscle size is the source of the preoccupation, it is termed "muscle dysmorphia" (Olivardia, 2001) and is best described through its comparison to anorexia nervosa. When a person with anorexia stands before a mirror, he/she will perceive a fat image, when in fact he/she is slim, whereas a person with muscle dysmorphia will perceive a skinny body, when in fact he/she is muscular. Therefore, people with muscle dysmorphia engage in activities and behaviors to increase muscle size, evaluate their physique and show a preoccupation with their diet (Olivardia, 2001; Pope et al., 2000). People with muscle dysmorphia may also avoid, for example, going to the gym when they know men with larger muscles will be present (Pope et al., 2000). Thus, the behavioral component of body image may include the avoidance of situations where dissatisfaction with one's body could be brought forth.

Behaviors

In addition to avoidance type behaviors, the research here addresses the eating practices or habits that may be a consequence of body image dissatisfaction. The link between eating problems and body image has been supported via a number of studies that

have shown an association between the two (Thompson, 1996). Most of the research on weight loss, weight gain and muscle building strategies has been examined in adolescent male populations (e.g., McCabe & Ricciardelli, 2003; McCabe & Vincent, 2002; Ricciardelli & McCabe, 2002). Research on body image-related behaviors is therefore needed in both younger and older age groups (Cafri et al., 2005). An American study with older men showed that they exhibit an increased desire to lose weight and higher body satisfaction than younger university aged males. Lynch and Zellner (1999) found that the ideal body type of college men aged 18 to 23 years was more muscular than men aged 30 to 60 years of age. Body satisfaction of the college males was significantly different than the older men with all but one of the 43 men in the 18 to 23 age range desiring to have a more muscular physique. A variation was observed in the older men with 31 desiring a more muscular image, 20 desiring a smaller image, and 8 expressing satisfaction with their current body size. Based on the findings of the Lynch and Zellner (1999) study, it appears as if body satisfaction and the desired attainment of the mesomorphic ideal may be more pertinent for younger males.

Researchers have reported that many females resort to unhealthy eating behaviors to achieve the ideal (Taub & Blinde, 1992), or may exercise excessively to lose weight (Middleman et al., 1998). Given that the mesomorphic ideal for men, like the thin ideal for women, is often an unrealistic image to attain (Ditmar et al., 2000), it is important to examine the behaviors some males implement to attain their desired body type (Cafri & Thompson, 2004a). Examination of the behaviors in this population is particularly important given that they provide insight into how males cope with or address their level of dissatisfaction.

Recent research has revealed that some males who desire to attain the mesomorphic ideal use anabolic steroids (Blouin & Goldfield, 1995; Wroblewska, 1997), restrict food and exercise (Ricciardelli et al., 2000), lift weights (Pope, Gruber, Choi, Olivardia & Phillips, 1997), binge (Moore, 1990), consume supplements such as protein powders (Rosen & Gross, 1987) and creatine to increase size (Olivardia et al., 2004). As noted earlier, while some males may engage in muscle building activities, they may also engage in fat reducing behaviors to achieve the lean trait of the mesomorphic build (Blouin & Goldfield, 1995; Goldfield, Blouin, & Woodside, 2006; Pope et al, 1997). Recent research has also revealed that some males use clothing to either conceal or accentuate a desired feature (Frith & Gleeson, 2004).

Scale Construction

An increase in research in the male body image domain, as well as the examination of the behaviors some may employ to achieve their desired body type, has illuminated the unsuitable nature of many questionnaires, originally developed with female samples, to investigate relevant behaviors in males (Anderson, 1995; Hausenblas & Carron, 1999). For example, scales such as the Eating Disorder Inventory (EDI; Garner, Olmstead, & Polivy, 1983), the Eating Attitudes Test (EAT; Garner & Olmsted, Bohr, & Garfinkel, 1982), and the Questionnaire for Eating Disorder Diagnoses (QEDD; Mintz, O'Halloran, Mulholland, & Schneider, 1997) were developed for the purpose of identifying those who may be at risk for anorexia nervosa or bulimia nervosa. As noted earlier, while eating disorders may be prevalent for a small population of men (Anderson & Holman, 1997), measures designed to classify these body image disorders, such as the EDI and EAT, do not include items about techniques that are utilized to gain size

(McCreary, Sasse, Saucier, & Dorsch, 2004). Furthermore, given the purpose of their development, the before-mentioned measures may not be suitable for the examination of male body image concerns and related behaviors. For a questionnaire to be relevant for investigating male body image, it must possess items about behaviors and/or attitudes related to muscularity (Cafri & Thompson, 2004a).

Recently, Cafri and Thompson (2004a) noted the importance of considering “which methods are appropriate in addressing how males perceive, think, and behave with respect to their bodies” (p. 18). A reason for why male body image concerns may not have attracted more research interest is because adequate tools to measure the phenomenon do not exist (Edwards & Launder, 2000). Unsurprising, therefore, is the request for the construction of measures more specific to the male desire to gain size (Furnham & Calnan, 1998). While the construction of valid questionnaires are beneficial in that they encourage more research and allow for more accurate conclusions to be drawn, the steps taken in their construction alone provide a better understanding of what behaviors, for example, appear to be relevant for males, how these behaviors relate to each other, and how they relate to other constructs of interest.

Three questionnaires constructed in this vein include: the Swansea Muscularity Attitudes Questionnaire (SMAQ) developed by Edwards and Launder (2000), the Drive for Muscularity Scale (DMS) developed by McCreary and Sasse (2000), and the Muscle Dysmorphic Disorder Inventory (MDDI) developed by Hildebrandt, Langenbucher and Schlundt (2004). To date, these questionnaires are the only published scales that include behaviors surrounding muscularity and were factor analyzed in adult male samples. I will therefore turn my attention to the examination of these scales, as well as the examination

of the Body Image Avoidance Questionnaire (BIAQ; Rosen, Srebnik, Saltzberg, & Wendt, 1991). While the BIAQ was developed with a female sample, its examination is also useful in that the nature of the behavioral items on the questionnaire may also be relevant for males.

The SMAQ (Edwards & Launder, 2000) is a 20-item questionnaire that was designed to address behaviors and attitudes related to male muscularity in a sample of Welsh males. Although limited in number, the SMAQ includes general and somewhat repetitive statements pertaining to behaviors utilized to gain size (Morrison, Morrison, Hopkins & Rowan 2004). For example, "I often engage in activities that build up my muscles" and "I often engage in body building" (p. 123) comprise the only two behavioral type questions present on the questionnaire. Given that a purpose of the SMAQ was to examine muscularity attitudes and behaviors, more specific statements related to actual body building techniques would provide a better understanding of the body image-related behaviors that are prevalent in males. The respondent may simply lift weights or may, in actuality, engage in a more dangerous activity such as steroid use.

Problematic of the SMAQ is the method of factor determination. Factor extraction was solely determined by Kaiser's eigenvalue of one rule, that is, the number of factors equals the number of eigenvalues that are equal to or greater than one (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Although a common method of determining the number of factors to retain, Kaiser's rule is notorious for overestimating as well as occasionally underestimating the number of factors (Fabrigar et al., 1999; Zwick & Velicer, 1986). Researchers therefore suggest the examination of multiple criteria (which may include the eigenvalue rule), such as interpretability, examination of the scree test

(Tabachnick & Fidell, 2001), and parallel analysis (Thompson & Daniel, 1996).

The scree test is a widely used procedure where the eigenvalues are plotted in descending order. A visual examination of the eigenvalues that precede the “elbow”, or the last considerable drop in the slope, is used to determine the number of factors. The scree test is a good indicator of the number of relevant factors when a clear drop is visible. A less than clear drop in the slope, however, may make the number of factors difficult to ascertain (Fabrigar et al., 1999). As well, reliability of this subjective procedure is less than satisfactory (Streiner, 1998).

Although not without its criticisms, parallel analysis has been acknowledged as the most accurate method for the assessment of how many factors to retain (Thompson & Daniel, 1996). Parallel analysis is decidedly a more objective procedure than the scree test and less arbitrary than Kaiser’s rule. In a parallel analysis, the raw data eigenvalues are compared to the random data eigenvalues. All raw data eigenvalues that are greater than the random data eigenvalues equal the number of factors (Fabrigar et al., 1999).

Given the appropriateness of the before mentioned methods, one could question Edwards and Launder’s (2000) decision to solely rely on Kaiser’s rule for factor interpretation. Further examination of the analysis of the SMAQ suggests that a different number of factors may have been relevant. More specifically, Edwards and Launder extracted a total of seven factors with eigenvalues greater than one. Items that loaded onto factor one related to behaviors to build muscle and the second and third factors contained items that were described as the “perceived positive attributes of muscularity” (p. 122). The authors stated that factors four through seven could not be interpreted. As a result, ten items that loaded onto factor one were retained as well as ten of the eleven

items that loaded onto factors two and three. These items were further factor analyzed and all other items were discarded.

If, in fact, two or three factors were determined to be optimal through interpretation, the authors should have rerun the analysis with the original 32 items and specified that two or three items be extracted (Tabachnik & Fidell, 2001). In doing so, the content of the first, second and third factors, if requested, may have differed from the factors that were extracted with Kaiser's criteria. Items that did not initially load onto the first three factors would, most likely, load upon the specified number of factors. Furthermore, as noted by Morrison and colleagues (2004), complex loadings, that is, items that load onto more than one factor, were retained on the higher of the two factors on the SMAQ. Items that appear to be complex, should be excluded as they do not clearly indicate either factor (Stevens, 1992). By these criteria, at least two items should have been deleted on the SMAQ.

Finally, with respect to the SMAQ, the type of factor analysis was not specified, confirmatory factor analysis was not performed, nor has the validity or test-retest reliability of the SMAQ been assessed. In consideration of these points, future use of the SMAQ is not recommended.

Acknowledged as the only existing scale recommended for the examination of male body image (Cafri & Thompson, 2004a), the DMS (McCreary & Sasse, 2000) is a 15-item questionnaire that was designed to assess behaviors and attitudes related to muscularity. As with all questionnaires, and in particular, those that are behavioral in nature, the DMS also has limitations worth mention. Examination of the behavioral items, for example, raises the question of whether the specified behavior actually reflects

the drive for muscularity or whether it can be explained by other factors. More specifically, the utilization of the behaviors indicated in items 3; “I use protein or energy supplements” and 4; “I drink weight gain or protein shakes” (p. 50, McCreary et al., 2004), may be due to a protein deficiency in, for example, a vegetarian or vegan diet. Protein supplementation may therefore be necessary to make up for the lack of protein obtained from the foods permitted by these types of diets. The specific reason for why the behavior is employed would thus provide more accurate information on its actual relevance to muscularity.

Although the DMS does include techniques that males may use to gain size, no behaviors pertaining to weight loss were incorporated; a noted limitation by others (Cafri & Thompson, 2004b). A recent study on *Men's Health* and *Men's Fitness* magazines revealed many advertisements for weight loss products and articles on how to lose fat (Magdala, 2005). Given that generation of items on the DMS occurred through interviews with weight lifters and through the examination of weight lifting magazines, the inclusion of weight loss related behaviors may have also been an appropriate component to include. Someone who has a drive for muscularity may also exhibit behaviors to achieve the lean characteristic of a muscular build. Indeed, Blouin and Goldfield (1995) noted that the body builders in their Canadian study had a significantly higher drive for thinness than runners or taekwondo participants. McCreary and Sasse (2000) suggested, however, that the DMS should not be related to the EAT. The reader will recall that the EAT includes behaviors and attitudes related to weight loss. This hypothesis was not supported ($r = .37$, $p < .001$). Although moderate, this correlation suggests that a relationship exists between muscularity attitudes and behaviors and behaviors and attitudes related to weight loss.

Attainment of a muscular body type does not exclude the desire to lose fat. It therefore becomes important to examine all of the behaviors used in the male population to broaden our understanding of their experiences.

Along this line, Hildebrandt and colleagues (2004) recently developed the Muscle Dysmorphic Disorder Inventory (MDDI). The MDDI contains 13 items that were constructed to assess three characteristics of muscle dysmorphia including the Drive for Size (DFS), Appearance Intolerance (AI), and Functional Impairment (FI). The three behavioral items on the MDDI are presented in the AI and FI subscales and pertain to forgoing social activities and opportunities to meet people due to one's workout schedule, as well as wearing loose clothing so others are unable to view the body. Similar to the SMAQ and DMS, the limited number of behavioral items on the MDDI does not provide insight into all of the behaviors that are relevant in males. Finally, given that the population was comprised of weightlifters recruited from both supplement stores and gyms, the generalizability of the factor structure beyond this subgroup is not known.

The Body Image Avoidance Questionnaire (BIAQ; Rosen, Srebnik, Saltzberg, & Wendt, 1991), developed in a sample of American female university students, contains behaviors that are somewhat similar in nature to those on the MDDI. Although to my knowledge the psychometric properties of the BIAQ have not been examined in a male sample, examination of a questionnaire of this nature is particularly relevant given that Frith and Gleeson (2004) identified an avoidance type of behavior; wearing clothing, as a means of concealing the body in their British sample with males. Thus, in addition to weight loss and weight gain related behaviors, avoidance type behaviors in this population also warrant consideration.

The BIAQ is a 19-item questionnaire comprised of four factors including clothing, social activities, eating restraint, and grooming and weighing. Similar to the SMAQ, use of the eigenvalue rule as the sole decision of the number of factors and the inclusion of complex variables may be problematic. More specifically, item 3, "I wear darker color clothing" and item 15, "I avoid physical intimacy" load at .46 on factor 1 and .33 on factor 2, and .42 on factor 1 and .33 on factor 4 respectively. Item 7, "I fast for a day or longer" (p. 37), loaded at .37 on factor 3 and at .35 on factor 4. Given that item 7 does not appear to be a clear indicator of factor 3 or factor 4, its deletion was warranted. The deletion of item 7 would have resulted in a two item subscale. Factors comprised of only two items should not be interpreted. Rather, they should be eliminated and considered on a conceptual level for future research directions (Tabachnick & Fidell, 2001).

Examination of some of the items on the BIAQ raises the question of whether they actually reflect avoidant behaviors or if they could be explained by other plausible reasons. For example, item 14, "I look at myself in the mirror," is a common behavior exhibited by most individuals on a daily basis and would not necessarily signify problematic behavior. Similarly, item 3, "I wear darker color clothing" (p. 37), for example, may be due to a fashion preference rather than for the purpose of hiding one's appearance.

Noteworthy is that the SMAQ, DMS and MDDI integrate items pertaining to behaviors and attitudes within the same measure. Given that behaviors and attitudes represent different constructs, their combination may be problematic (Comrey, 1988; Morrison et al., 2004). This concern may not pose a problem for the DMS, however, as a

recent principal components analysis of the scale parceled out behaviors and attitudes into two separate components (see McCreary et al., 2004). Cafri and colleagues (2005) suggest, however, that the behavioral and attitudinal items may confound each other. Thus, separate scores should be calculated for each subscale of the DMS.

Related to the structure of the questionnaires mentioned here is the type of rotation utilized to determine the number of factors or components, an issue that was raised by Morrison and colleagues (2004) in their study. While the type of rotation was not specified for the MDDI, potentially problematic for the DMS, SMAQ and BIAQ is the use of varimax rotation over an oblique form of rotation (Morrison et al., 2004). Varimax rotation is orthogonal and does not permit factors to correlate. It is possible, however, that factors on the DMS and SMAQ were not related and the use of orthogonal rotation was warranted. Examination of the factor correlation matrix upon running an oblique rotation would signal to the researcher which method of rotation is preferred. Correlations in excess of .32 suggest that oblique rotation is optimal (Tabachnick & Fidell, 2001).

Another potential limitation of the questionnaires examined here is the possibility of non-normality. The authors of the SMAQ, DMS, MDDI nor BIAQ indicate whether items fall on a normal distribution. Although normality is an assumption for multivariate statistics, few score distributions, if any, exhibit true normality (Micceri, 1989), and factor analysis has shown to be robust against such a violation (Gorsuch, 1983). It is important, however, to assess the degree of non-normality present, as it may have implications for future use and instigate further consideration of factor analytic work (Field, 2001). The examination of non-normality is also beneficial in that it provides

insight into the relevance of specific body image-related behaviors; the main goal of this research. For this reason, normality will be examined and reported in the current research.

Finally, a limitation of virtually all questionnaires is the subjectivity of various Likert response formats. For example, a frequency format of always, usually, often, sometimes, rarely and never could be construed in many different ways. A response of always could mean daily to one respondent, every few days to another, and weekly to another. The degree of interpretation could taint the actual frequency in which behaviors are employed. Therefore, operational definitions for the response format will be provided on the Male Body Image Behavior Questionnaire.

In consideration of all these points, it is argued that there is a need for a questionnaire that specifically addresses the body image-related behaviors that males may utilize for the insight it can provide in this vein. Given that body image is multidimensional (Cash & Pruzinsky, 2002), a battery of questionnaires that incorporates all aspects of body image should be used when examining male body image. The DMS may be one of the questionnaires included within this battery, however, a questionnaire that encompasses all of the relevant behaviors, such as weight gain and weight loss behaviors, is a necessary component. The construction of a scale that addresses the modification of shape, muscle gain, weight loss and weight gain has been suggested by others (e.g., Ricciardelli et al., 2000) and the need to construct appropriate tools to measure the behaviors males may employ has become apparent. Given that our understanding of male body image may be complicated by the disinclination of males to discuss their experiences, the technique utilized to broach this sensitive topic will be discussed next.

The Need for Qualitative Research

While female body image has received great attention in the research domain and consequent dissemination of findings have provided awareness of this phenomenon and its potential ramifications to the greater female population, the same cannot be said for male body image. By virtue of its novelty, the domain of male body image is not a widely discussed or even an acknowledged topic of conversation among males (Pope et al., 2000). Thus, the use of a qualitative methodology is believed to be particularly useful for the examination of male body image-related behaviors and for the generation of items that would comprise the preliminary version of the questionnaire.

Indeed, an important method to questionnaire development, particularly in a domain that is relatively under-researched, is qualitative inquiry. Therefore, the qualitative component to the research presented here will inform the quantitative phases of this research by providing information that will aid in the construction of the MBIBQ. The employment of qualitative methods is particularly beneficial when developing an instrument of measure. As Sieber (1973) has indicated, the more the researcher knows about the population of interest, the stronger the questionnaire will be. Moreover, qualitative methods are particularly beneficial in determining the appropriateness of quantitative measures (Halliwell & Dittmar, 2003).

A review of literature that investigated research conducted on boy's body image located seventeen studies (see Cohane & Pope, 2001) and only one utilized qualitative methodology through a structured interview approach (see Blyth et al., 1981). Other studies have used open-ended comments when investigating male body image (e.g., Morrison et al., 2003; Ridgeway & Tylka, 2005), but few have utilized a semi-structured

interview approach. Unlike open-ended questions and structured interviews, participants are permitted to address questions in greater detail and share additional information they feel is important in a semi-structured interview format. The use of semi-structured interviews is therefore deemed optimal to address male body image and related concerns.

It is important to note that some males who have been interviewed by women have voiced their concern about the ability of a female researcher to understand their experiences (Arendell, 1997). This challenge has been deemed useful, however, as the interviewee may feel the need to become more descriptive in an effort to clearly define his position to the female researcher. An element of elaboration may be lost with a male researcher, as the interviewee may assume that his position is already understood (Rubin & Rubin, 1995). It is also possible that both a female and male interviewer would be at an equal disadvantage, as the male interviewees may be reluctant to reveal any sensitive information that would threaten their masculinity (Schwalbe & Wolkomir, 2002). Therefore, participants were provided with the option of being interviewed by a male researcher if they felt uncomfortable with a female for this phase of the study.

In summary, based on the review of literature and noted areas that deem further exploration, the purpose of the first phase of the research was to first provide context to the ideal male physique by examining representations of the male body in earlier time periods. The purpose of the second phase of the study was to further examine the ideal body type as well as body image-related behaviors, and the motivation for the engagement in the said behaviors through a qualitative approach. The information obtained from the interviews aided in the next phases of the research: the construction of a male body image behavior assessment tool (i.e., the MBIBQ). More specifically, the

purpose of the third phase of this research was to examine the structure and length of the MBIBQ and the purpose of the fourth phase was to examine the validity and reliability of the questionnaire. In its totality, this mixed method multi-phase research project coalesced to inform the primary objective of this research: to gain a better understanding of body image-related behaviors in males.

Dissertation Format

Given the scope of this dissertation, its various components, and mixed method approach, the phases of this research are presented in separate chapters and presented in the order of their investigation. Prior to the presentation of the qualitative and quantitative phases of the research within their respective chapters, a review of art for the purpose of gaining a better understanding of an ideal male physique is presented (phase I). The art review was deemed beneficial as it would provide context to the mesomorphic ideal that has generated research interest in male body image with an increase in the number of studies conducted on this topic in recent years.

With respect to the justification of the format for the remainder of this dissertation, qualitative inquiry is particularly beneficial in the construction of quantitative measures. Thus, the qualitative component of this research (phase II) was conducted first and is followed by the quantitative phases (phase III and phase IV). Although a portion of the data from phase III and phase IV were collected at the same time, they are presented within separate chapters. The separate presentation of the validation measures (phase IV presented in article 3), permitted a more detailed discussion of the measures utilized, their predicted relationships with the MBIBQ, and thus the psychometric examination of the MBIBQ. The final chapter of this dissertation culminates with an elaborated discussion of the findings which also permitted me to discuss additional findings not presented elsewhere in the dissertation. The elaborated discussion also provides links to each chapter and connects the findings to the recent notions that purport to provide insight into the rising relevance of the sociocultural perspective to the male population (presented in chapter I).

Beyond the more detailed examination that the separation of each phase within their respective chapters allowed, it would also ease the readability of the dissertation and consequently facilitate the dissemination of the research findings. To this end, “A Qualitative Investigation of Body Image in Young Males” has been submitted to the *International Journal of Men’s Health* and the articles entitled “Examining Body Image-Related Behaviors Employed by Males: The Construction and Structural Validity of the Male Body Image Behavior” and “The Psychometric Properties of the Male Body Image Behavior Questionnaire” will be submitted to the *Psychology of Men and Masculinity*.

Prior to the presentation of each chapter, an overview of its content will be provided. Each overview will serve to situate the components of the research within the broader context of the dissertation. Finally, educational implications of the findings will be discussed at the end of each phase within their respective chapters.

Chapter III – Review of Art

With research revealing a noted increase in muscularity in media representations of the male physique in the latter part of the twentieth century, a review of art through earlier time periods is an important component to this dissertation as it provides some context to the mesomorphic ideal that has instigated an increase in research on male body image in recent years. Is the mesomorphic body type a relatively new ideal depicted in the media, or can this ideal be observed in past time periods? Specifically, representations of muscularity from ancient Greece to nineteenth century art will be examined in this chapter.

The artist is essentially a window into time, documenting events and details through various forms of art. Art is therefore an important window into history, depicting political strife, the human plight, style of dress and social customs and interests of the time (Guilmain, 1965). Through this window we develop a better understanding of how ideals of various facets change, or remain unchanged, over time. In the past, and perhaps more recent times, the stories that works of art conveyed were also didactic. Illiterate citizens learned about various events and religious teachings through depictions of art, making it a useful teaching instrument (Hollingsworth, 2003). Take, for instance, the stories from the Bible depicted in the Sistine chapel.

Regardless of the initial political, social or religious significance that may have influenced the creation of any given work of art, perhaps the greatest endeavor of an artist is to replicate that which is seen in life, with the utmost creative inspiration being the human form (Copplesstone, 2002). From a biological perspective, mankind is innately attracted to characteristics of the human form that are associated with one's ability to reproduce (Wade, 2000). Perhaps, as a consequence, representations of the human physique reflect the drive for these characteristics or the desired emulation there of, such as virile qualities for males and childbearing traits for females (Kilmartin, 1994). Thus, ideal representations of the human physique can be observed through the examination of sculptures, paintings, and through more recent forms of representation, such as photography and the print media.

Noteworthy is the effect of the mass dissemination of these idealized images on the greater population. Indeed, a rise in body dissatisfaction in both males and females has been observed after exposure to media representations of the ideal body type (Ogden

& Munday, 1996). For example, the ideal female physique has been examined through art and more recent vehicles of expression, such as the print media, with a noted change in the ideal. The once voluptuous and plump body type was replaced by the current ideal, that is unrealistically thin (Banner, 1983; Brownmiller, 1984; Mazur, 1986).

Similar to the changing female conception of beauty, the male physique has seen a marked change in the depiction of that which has become central to ideal masculinity; muscularity (Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986). Certainly, the mesomorphic body type has become an increasingly pronounced ideal in the late 20th century and into the 21st century. Further, a rise in unhealthy behaviors to achieve this ideal has, as a consequence, been observed (Pope, Phillips, & Olivardia, 2000). Several notions to account for the pronounced depiction of this ideal have been voiced such as, the introduction of steroids (see Pope, et al., 2000), gender parity (see Kimmel, 1996; Mishkind et al., 1986; Pope et al., 2000) and the association with a healthy lifestyle (see Mishkind et al., 1986). Moreover, similar to the observed depictions of the female ideal in Playboy magazines, the ascent to the present ideal male body type, with a noted increase in muscularity, has been documented through the content analysis of Playgirl magazines from the years 1973 to 1997 (Leit, Pope, & Gray, 2001).

The examination of the change of the male physique in body image research in the latter part of the twentieth century piques interest in previous ideals through earlier forms of expression. To my knowledge, the study of an ideal male form throughout earlier time periods has been limited to art history and the study of the nude (e.g., Clark, 1956) and to human social anatomy (see Dutton, 1995). Given that the study of the ideal male physique in body image research has, for the most part, occurred in the 20th century,

consideration of the ideal male physique through the examination of works of art throughout various time periods in Western Europe is the focus of this chapter. More specifically, sculptures and paintings from ancient Greece to the latter part of the 19th century were examined. Information gleaned from this review serves to provide context to the ideal male body type throughout the specified time periods and to provide insight into current representations of the ideal mesomorphic build.

Ancient Greece and Roman Art

Interpretations of the conception of the ideal male physique can be observed through the earliest expressions of the human form. In fact, this ideal can be discerned in sculptures dating back to archaic Greece. While sculptures of the time were mostly intended for religious reasons (Hollingsworth, 2003), the physical characteristics that reflected the appreciation for athleticism, an ideal of the time, is particularly apparent in Greek sculpture (Osborne, 1997). For example, the athleticism and accompanying muscularity apparent in the sculpture referred to as “Kouros” (520 B.C.) signifies the desired attainment of the mesomorphic body type (Figure 1).

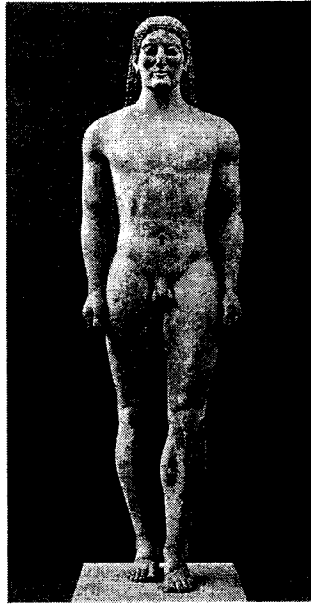


Figure 1. Kouros. Note. From Original work: L'arte nella storia dell'uomo. By Mary Hollingsworth, 2003, Giunti Editore Milan-Firenze, Italia, pg. 55. English edition: Art in world history. By Mary Hollingsworth, 2003, Milan-Florence, Italy: Giunti, pg. 55.

As stated by Stewart (1997), in reference to ancient Greek sculpture, “The sculptor’s aim is to create a perfect object of male desire: what we ourselves would ideally want to be” (p. 67). Authors have also pointed to the suggestion of homosexuality in Greek representations of males (e.g., Dutton, 1995; McDonnell, 1997) as well as the symbolism of Greece’s physical power as a form of political propaganda. In other words, the creation of sculptures depicting the athletic ideal was a warning to those who would try to conquer them (Hollingsworth, 2003).

Nearing the end of 5th century B.C., the struggle for power between the two Greek city-states, Athens and Sparta, resulted in the defeat of Athens with the ultimate seizure of power by the Macedonians. As a result, a softer and more natural degree of masculinity was incorporated into sculptures as a display of strength was no longer

warranted (Hollingsworth, 2003). The marble sculpture referred to as “Hermes with the infant Dionysus at Olympia,” dating back to 340 B.C., is one such example. Although a depiction of a God, this sculpture is a gentler version to previous sculptures with a softer portrayal of muscular definition along the abdominal, chest and thigh regions (Figure 2).

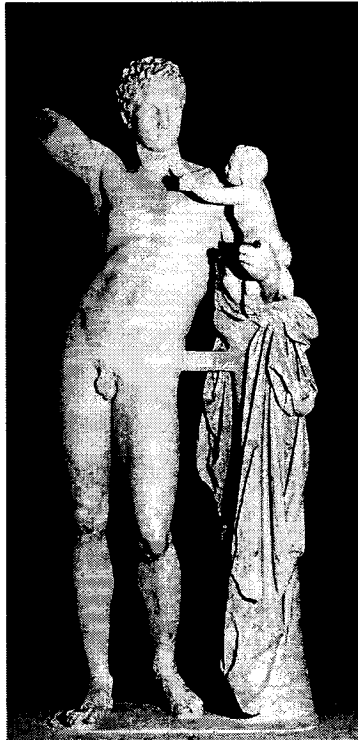


Figure 2. Hermes with the infant dionysos at Olympia. Note. From Original work: *L'arte nella storia dell'uomo*. By Mary Hollingsworth, 2003, Giunti Editore Milan-Firenze, Italy, p. 63. English edition: *Art in world history*. By Mary Hollingsworth, 2003, Giunti Editore Milan-Firenze, Italy, p. 63.

Similar representations of the male physique are also found in other sculptures of this time (Wilkins, Schultz, & Linduff, 1994). Though Greek power eventually fell to the Romans, the athletic ideal evident in ancient Greek sculpture would later influence future depictions of the male physique and become a manifestation of strength and power that would be a valued characteristic for centuries to come (Hollingsworth, 2003).

The artistic influence of the Greeks is readily observed in depictions of the human form during the Roman reign (approximately 509 B.C. – 393 A.D.). During this time, representations of the human physique were split between realism and abstraction. Art that was produced during the early part of the Roman republic (circa 509 A.D. – 27 B.C.) was realistic and ideal, and art created during the Roman Empire (circa 27 B.C. – 393 A.D.) was abstract in appearance. The idealized images characteristic of the Roman republic were integral in their portrayal of Roman strength and power (Ramage & Ramage, 1991). Consider, for example, the marble sculpture titled “Laocoön and his sons” completed sometime in early B.C (Figure 3).

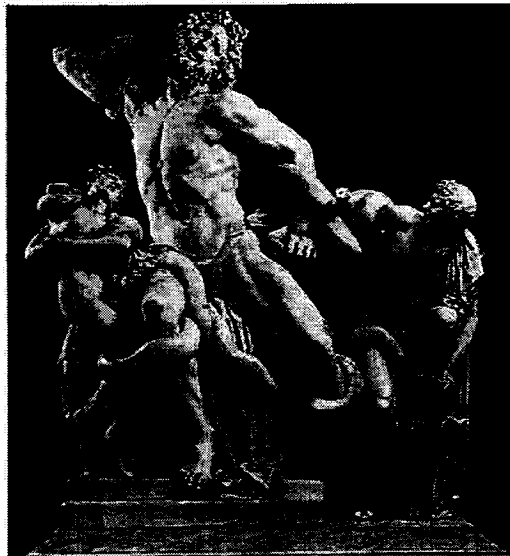


Figure 3. Laocoön and his sons. Note. From Original work: L'arte nella storia dell'uomo. By Mary Hollingsworth, 2003, Giunti Editore Milan-Firenze, Italy, p. 71. English edition: Art in world history. By Mary Hollingsworth, 2003, Milan-Florence, Italy: Giunti, p. 71.

This sculpture depicts Laocoön and his struggle with a serpent. The display of rippling muscle and obvious strength are brilliant in their construction. The athletic build of

Laocoön, characteristic of Greek sculpture, is aptly displayed. The added component of realism and the detail of flesh and underlying structures, however, surpass the depiction of the human form typical of ancient Greece and, in so doing, bring this sculpture to life.

The apparent abstraction of the human form during the Roman Empire consequently masked the ability to decipher any ideal in particular. Individual characteristics that were reflected in sculpture before this time noticeably diminished when the Tetrarchs began their reign. The Tetrarchs, four rulers who came to rule Rome in 284 A.D., advanced their collective power through the construction of new buildings and the creation of abstract sculpture. This abstraction served to diminish individuality and convey an overall message of power to the people. A porphyry stone sculpture of the Tetrarchs illustrates the achievement of this uniformity. Each ruler is similar in height, build, dress, and facial characteristics making it difficult, if at all possible, to differentiate one leader from the other (Figure 4, Ramage & Ramage, 1991).



Figure 4. The Tetrarchs. Note. From Roman art: Romulus to Constantine. By N.H.

Ramage and A. Ramage, 1991, p. 263.

The mesomorphic ideal evident in Ancient Greece and the Roman republic would not reemerge until approximately one thousand years later.

Early Christian and Medieval Art

The eventual fall of Rome once again brought new leadership and continued instability to Europe for hundreds of years. The rise in Christianity at this time coalesced with a form of mysticism that did not necessarily translate to figures that realistically resembled the human form (Dutton, 1995). A similar parallel to the Tetrarchs and the impression of power existed between art and the Christian message. The influence of Christianity served to deflect attention away from the shape of the body to the religious message it conveyed (Hollingsworth, 2003). Religious artists therefore shifted the previous ideals of the flesh into ideals of spiritual significance with art from 150 A.D. to the late 14th century serving as a vehicle for Christian ideals which resulted in a human form that was essentially unremarkable (Mâle, 1958). Numerous examples of these supernatural images are available and are in stark contrast to the nude sculptures of ancient Greece. For example, “the transformation of Christ”, completed A.D. 560, presents figures that are fully adorned with robes and lack the resemblance of any particular body shape (see Figure 5).



Figure 5. The transformation of Christ. Note. From Art past, art present. By D.G. Wilkins, Schultz, B., and K.M. Linduff, 1994, p. 166.

Art in the latter part of the medieval period was also didactic, serving the main purpose of educating the masses about Christianity (Mâle, 1958). Attention to the human form was not necessarily a priority; rather, the depiction of events and respective behavior that was observed in life was of particular value. Thus, the semblance of any ideal body type was not a pronounced feature of art representations of the time. For example, the tempera and gold leaf on parchment, leaf from a missal, that was completed sometime between the years of 1270 and 1290 depicts Christ on the crucifix, slender, weak and void of muscular definition. The painting is indicative of virtually all depictions of the male physique during the Medieval period and illustrates the portrayal of a slight physique that is without muscular definition and somewhat abstract in form.

The artist Giotto was best known for his contribution to the changing interpretation of the human form from a stiff representation to one with depth, presenting figures in more dimensional positions rather than flat views from the front (Tomei, 1998).

Giotto's novel approach to the depiction of human scenes is evident in the fresco titled "crucifix", created around 1300 (see Figure 6).

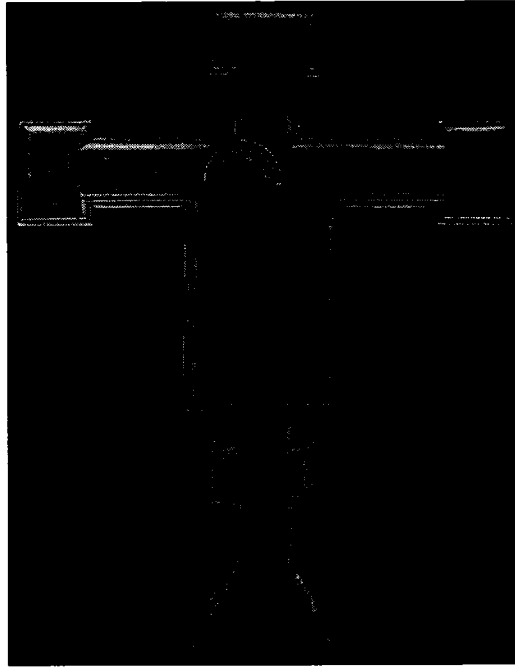


Figure 6. Crucifix. Note. From the Web Gallery of Art. [Http://www.wga.hu](http://www.wga.hu). Located in the Santa Maria Novella, Florence, Italy.

Unmistakable is the element of realism in comparison to previous depictions of the human physique in Medieval and early Christian art. Though muscular definition is present, Giotto portrays Christ as a thin and somewhat skeletal form, slight and weak in appearance with some adiposity visible in the lower abdomen. While it is not entirely clear why a shift in the representation of the physique commenced at this time, the impact of Giotto's work on future artists would soon allow for the interpretation of an ideal body type.

The shift to naturalism is also seen in the "crocifisso legno dipinto" by Giovanni di Balduccio created between 1320 to 1330. This wooden carving portrays the image of

Christ upon the cross and although some definition is present around the knee and abdominal areas, this representation of Christ can best be described as frail and skeletal in appearance. The skin of Christ appears to stretch across almost nonexistent and somewhat stringy muscles (see Figure 7).

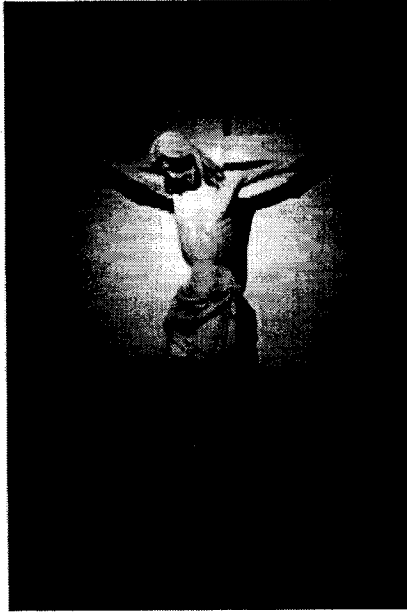


Figure 7. Crocifisso legno Dipinto. Note. Photograph by Gina Bottamini, Museo dell'Opera del Duomo, Florence, Italy.

If one were to extract an ideal image from the depictions of Christ through the before mentioned examples, an impression of a thin, ectomorphic ideal would remain.

Representations of Christ, however, would soon alter from the thin depiction common to works of this time to representations characteristic of ancient times, that is, mesomorphic. Thus, the period known as the Renaissance would soon emerge as a significant period for the depiction of the human body.

Italian Renaissance and Mannerism

The Renaissance, otherwise known as the rebirth of art, was a key time in the

depiction of the male physique from a thin form devoid of musculature to the mesomorphic physique depicted in media representations of present day. From the early 1400's to approximately the late 1500's, the desire of the Florentine artists to learn more about the human body translated into a more realistic depiction of the physique, and in particular, the male nude (Copplesstone, 2002).

Perhaps one of the most noted works of art of the early Renaissance is the David, of David and Goliath, by Donatello, 1430 (see Figure 8).



Figure 8. David. Note. From the Web Gallery of Art: <http://www.wga.hu>. Located in the Museo Nazionale del Bargello, Florence, Italy.

While the majority of other sculptures and paintings discussed here are of mature male figures, Donatello's David is of particular importance because it was the first sculpture since ancient times to fully portray a life size male nude (Wilkins et al., 1994). This bronze image of David appears to be youthful and prepubescent in appearance. One may note the lack of pubic hair and virtually all muscle tone with the exception of the upper

stomach region to decipher that this is a youth rather than a man. Renowned for its softness and realistic depiction of the human form (Bertela, 1999), Donatello's David would be admired for its realism of the human physique and future well-known artists of their time would begin to view the human body in a more humanistic light (Copplestone, 2002).

Changes in the depiction of the human physique were also attributed to artists such as Leonardo da Vinci (Chastel, Galluzzi, & Pedretti, 1998) and Michelangelo Buonarroti whose interest in human anatomy provided a better understanding of its technicalities, and in particular, muscular structure (Wilkins et al., 1994). The exploration of what lies beneath the skin would elicit a turning point in the world of visual art and introduce a marked change in the creation and depiction of the male form.

One need look no further than "David" by Michelangelo Buonarroti (1502-04) to observe the reward of the exploration of the human body. Indeed, "David" is admired and beheld as an exceptional work of artistry and is perhaps the most well known representation of the male physique to date (see Figure 9).

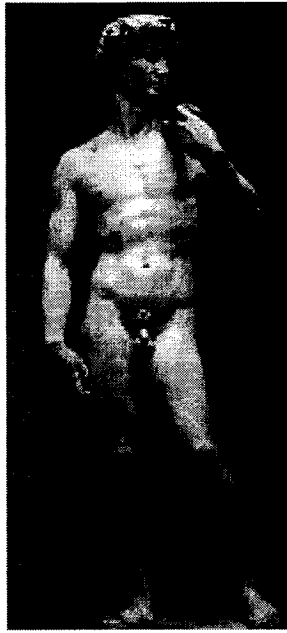


Figure 9. David. Note. From The Web Gallery of Art: <http://www.wga.hu>. Located in the Galleria dell'Accademia, Florence, Italy.

Michelangelo was a staunch supporter of portraying that which is unparalleled in beauty, the nude, and in particular the male nude (Copplesstone, 2002). Standing 16 feet in height and carved from white marble, David is depicted in a pensive position prior to his slaying of Goliath. Common biblical notions of David and accompanying depictions via sculpture imply that he was youthful (Snow-Smith, 1998), perhaps more indicative of Donatello's earlier interpretation of the figure. Michelangelo's interpretation of this biblical figure, however, depicts a phenomenally proportioned physique of well defined musculature and strength. The extraordinary representation of chest, abdominal, oblique, knee and forearm development of the sculpture introduce elements of the male physique that were less pronounced in visual representations of the male body in early Christian

and Medieval art. Indeed, Michelangelo's David is comparable to idealized images of present day.

Notable features of works created during the high Renaissance (circa 1450-1520) was the depiction of muscularity and nudity. It was also during this time that the Catholic Church received increasing disapproval from Protestants who claimed that the church allowed inappropriate images to be represented in religious art. In response to this claim, the Catholic church introduced guidelines for all religious art by banning future depictions of nudity and dealt with those already in circulation by painting robes and adorning fig leaves to existing sculptures (Hollingsworth, 2003). Though nudity was no longer permitted in art of religious nature, muscular development as observed in the works of Michelangelo was still prominent.

The depictions of Christ during the Mannerist period (1520 to the late 1500's) are foremost examples of the shifting representation of muscularity as exemplified by the oil on wood entitled "deposition", created in 1565 by Agnolo di Cosimo di Marano Bronzino (see Figure 10) and "pietà", created in 1587 by Stefano Pieri. From earlier depictions of Christ as weak and slight in form in Medieval and early Christian art, these paintings represent figures with muscular proportion. In both paintings, Christ, having been removed from the cross, lies in a rested position.



Figure 10. Deposition. Note. From the Web Gallery of Art: <http://www.wga.hu>. Located in the Galleria dell'Accademia, Florence, Italy.

Though Christ is devoid of life, the muscles appear taut with the chest, abdominal, and arm muscles, including well developed forearms, illustrating strength and tension of form. The pietà in particular, displays the arms in a pulled back position and the chest and abdominal muscles are firm with prominent trapezoid and deltoid muscles (refer to <http://cgfa.sunsite.dk/p/p-pieri1.htm>). Perhaps an exaggeration of what one would normally observe of the human form void of life, and therefore, characteristic of the ideal depiction of muscularity during this time.

Parallels between mythological Gods and leaders of the Renaissance were also prevalent, as in ancient Greece, during the Mannerist period of art. Images of Gods were modeled after idealized representations of the human form and were used as a form of political propaganda. The Medicis' of Florence, for example, displayed sculptures of power and strength to symbolize their reign. One such sculpture produced during the

Medici era is the “The Neptune Fountain,” a marble statue by Bartolomeo Ammannati, created between 1563 and 1575 presents a particular mesomorphic ideal of the male physique (see Figure 11).

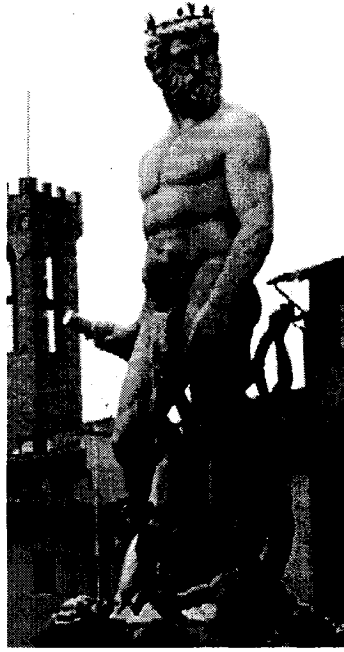


Figure 11. The Neptune fountain. Note. Photograph by Gina Bottamini, Piazza della Signoria, Florence, Italy.

The brute strength of Neptune is illustrated through the immensity of the well sculpted muscles and respective size of this mesomorphic figure. Similarly, “Hercules and Cacus” by Baccio Bandinelli, a marble sculpture of immense proportion was created between the years of 1525 to 1534 and depicts the impending slaying of Cacus by Hercules (see Figure 12).

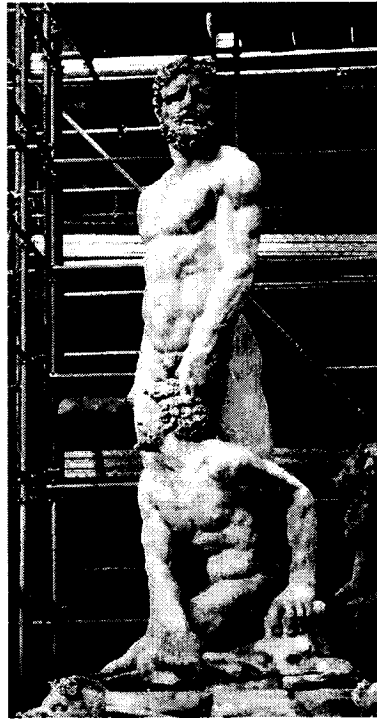


Figure 12. Hercules and Cacus. Note. Photograph by Gina Bottamini, Palazzo Vecchio, Florence, Italy.

The muscular definition and proportionality evident in both images could be attained through hard work. Images that appeared in the subsequent period, however, were less realistic depicting the results that one might obtain through the aid of artificial means.

Baroque and Rococo

Similar to the Renaissance, the Baroque period (circa the late 1500's to 1750), also saw a shift in the depiction of the ideal male physique. While still mesomorphic in build, the immensity of muscle size and proportion became even more pronounced and somewhat exaggerated. Art during this time was particularly important as it conveyed a sense of power and dramatization of life (Sewter, 1972). Interestingly, artists who did not

depict idealized images of the human form were criticized for their portrayals of “simple” people (Hollingsworth, 2003).

A contributor to the early Baroque period can be found in the artist Giambologna and in his work “rape of the Sabine woman”, completed in 1583. This sculpture is reminiscent of works created during the late Mannerist period exhibiting muscularity and a dramatic display of tension (see Figure 13).

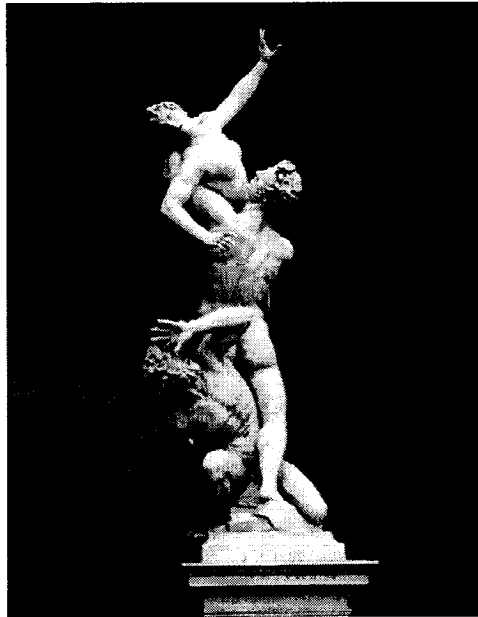


Figure 13. Rape of the Sabine woman. Note. Photograph by Gina Bottamini, Loggia dei Lanzi, Florence, Italy.

Masterfully sculpted, the depiction of musculature is wrought with strength, truly a powerful display of the mesomorphic build.

The mesomorphic build characteristic of the Baroque period portrayed men that are comparable in size to body builders of present day. An example of the enormity of his mesomorphic ideal is seen in the painting “Polyphemus hurling a rock at Acis”, created between the years 1595 and 1605 by Annibale Carracci (see Figure 14).



Figure 14. Polyphemus hurling a rock at Acis. Note. From the *Web Gallery of Art*; <http://www.wga.hu>. Located in the Palazzo Farnese, Rome, Italy.

The rippling expanse of musculature, massive in size, is a true illustration of the time. Interestingly, all of the males surrounding Polyphemus are similarly well endowed with muscular definition and mass. No figure, the young, old, or even Christ himself, was denied the muscular build so idealized during the Baroque period.

“The entombment” an oil on oak, created between 1611 and 1612 by Peter Paul Rubens is an example of a shift of the thin and nonrealistic Christ from medieval times, to a figure with some muscular definition in the Renaissance, to an idealized mesomorphic physique during the Baroque period. While images of Christ would not reach the immensity of size of Caracci’s depiction of Polyphemus, the air of the mesomorphic ideal is nonetheless apparent. Interestingly, this painting is a reproduction of an earlier painting by Caravaggio that was completed in 1603 (see Figure 15).



Figure 15. The entombment (Caravaggio and Rubens respectively). Note. From the Web Gallery of Art, <http://www.wga.hu>. Caravaggio located in the Pinacoteca, Vatican, Italy. Rubens located in the National Gallery of Canada, Ottawa, Ontario, Canada.

Caravaggio's version of Christ is noted for its fallen hero like quality with a dramatic display of power, reminiscent of images from ancient Greece and the Renaissance (Langdon, 1998). Interestingly, Rubens interpretation of the Caravaggio version included a greater depiction of muscle mass (Sewter, 1972) with particular definition of the forearm, triceps and thigh region.

An exception to the portrayal of the idealized mesomorphic physique during this time is evident in the painting entitled "Bacchus" (see Figure 16),



Figure 16. Bacchus. Note. From the Web Gallery of Art; <http://www.wga.hu>. Located in the Hermitage, St. Petersburg.

an oil on canvas completed between the years of 1638 and 1640 by Peter Paul Rubens. Referred to as Dionysus by the Greeks, Bacchus was the Roman God of wine and revelry (Guerber, 1993). The depiction of adiposity of this figure is particularly notable given the propensity for artists to depict Gods as idealizations of the human form. Ruben's representation of Bacchus is therefore curious and is one of few paintings to portray an obese body type.

In contrast to the element of dramatization apparent in Baroque works, images exuding lightness and grace emerged during the period known as Rococo (circa 1700-1760) (Held & Posner, 1972). Common of pieces during this time were variations of pleasurable moments in everyday life (Sewter, 1972). Remarkable for its representation

of one such moment is the oil on canvas “embarkation for Cythera” completed in 1717 by Jean-Antoine Watteau (see Figure 17).



Figure 17. Embarkation for Cythera. Note. From the Web Gallery of Art; <http://www.wga.hu>. Located in the Musée du Luvre, Paris, France.

The fully clothed male image that is captured in this painting is one of graceful refinement, striking in its contrast to images of the male physique created during the Baroque period. Patrons from Italy, Spain, Germany, Austria and France were particular proponents of the Rococo style as is illustrated in Watteau’s painting. Works from the Baroque and Rococo periods, however, were eventually regarded as excessive, with a new preference for subject matter that was more pure in nature.

Neoclassical and Romanticism

The Neoclassical period would emerge in the mid 1700’s and sustain itself well into the 19th century. Works of art created during this time depicted mythology, religion, everyday life and landscapes as sources of interest (Hollingsworth, 2003). An example of mythology where a somewhat slighter depiction of strength and power can be observed is

in the painting, "Mars disarmed by Venus and the graces" by Jacques-Louis David in 1824 (Figure 18).



Figure 18. Mars disarmed by Venus and the graces. Note. From the *Web Gallery of Art*, <http://www.wga.hu>. Located in the Musées Royaux des Beaux-Arts, Brussels.

While Mars exhibits muscular definition, longer lines perhaps comparable to images of classical antiquity are evident. Notable for its dissimilarity to images associated with the Baroque period, the image of the male physique in this painting is a good example of the style that emerged from the dramatic images of the male body produced in the Baroque period.

Though emphasis on muscularity would decrease in the Neoclassical and Romantic periods, the role of art in conveying an idealized sense of strength and power of the male physique to the greater population was of particular benefit to leaders who, in reality, were not so grand in stature. For example, a marble sculpture by Antonio Canova

of the French dictator Napoleon, created around 1802 to 1810, depicted Napoleon as a strong, muscled form (see Figure 19).



Figure 19. Napoleon. Note. From Original work: *L'arte nella storia dell'uomo*. By Mary Hollingsworth, 2003, Giunti Editore Milan-Firenze, Italy, p. 410. English edition: *Art in world history*. By Mary Hollingsworth, 2003, Milan-Florence, Italy: Giunti, p. 410.

Certainly, the image was not an actual replication of what the real Napoleon looked like. Other depictions of Napoleon portray a man of small stature with a minimal impression of muscularity. Napoleon's torso in the Canova sculpture was modeled from the Apollo Belvedere, a Greek statue dating back to fourth century B.C. (Hollingsworth, 2003). Idealized representations of other leaders through sculpture or painting was not uncommon. The aesthetic quality of these works were second to the symbol of power and the ability of the leader they portrayed, a useful indoctrination to those who would defy them (Ramage & Ramage, 1991).

Related to the notion of art as a political endorsement of a leader to his people, was the dissemination of real world occurrences to the population. More specifically, during the late 18th century and early part of the 19th century, transition into industrialism resulted in a large population of poor citizens. Idealized depictions from the previous century were therefore replaced with visual expressions of political dissatisfaction through realistic interpretations of that which was seen in life (Hollingsworth, 2003). The era of Romanticism therefore altered the fanciful forms resonant of Neoclassicism and previous periods to representations that were closer depictions of real life. Away were the days of the nudes and embellished representations of the male physique. Scadly clothed men that commonly graced paintings pertaining to mythological battles were replaced with uniformed men of the day. Moreover, following the independence of the Italian government, works that depicted new heroes for the masses to celebrate were in high demand (Sisi, 2001). The figures depicted in these paintings appear to be part of the composition rather than its main focal point. "The Italian camp after the battle of Magenta", by Giovanni Fattori in 1862 is one such example of a number of paintings depicting various military conflicts or their aftermath (Refer to Chiarni, 2001). The beauty lies in the action or circumstances surrounding the men in compositions of this nature, rather than the male physique and/or the God that is the source of idealization.

While attention to the male physique was deemphasized during the Romantic period (circa mid to the late 1800's), the muscular physique was still idealized. In fact, the athletic male body was in demand for art and medical classes as the muscled physique provided a fine example of the musculature of the human form. Though the representation of muscle development was more realistic at this time, the admiration of

the male physique was as aesthetic as it was functional. An illustration of the male physique and its role in this domain is evident in the painting titled “the anatomy class at the Ecole des Beaux” (see Figure 20).



Figure 20. The anatomy class at the Ecole des Beaux. Note. From “Doubles and desire: Anatomies of masculinity in the later nineteenth century”. By A. Callen, 2003, *Art History*, 26, 669-699.

An oil on paint completed in 1888 by Francois Salle, the model portrayed in the painting is believed to be a manual worker of the time as evidenced by the development of his physique (Callen, 2003). Although physical appearance was not as emphasized as it was during Greek, early Roman, Renaissance, Mannerist and Baroque art, the well-developed body was still important, as the opposite of this was effeminacy, a characteristic that was not altogether appealing in latter 19th century (Mosse, 1996).

The last work of art to be examined is the painting titled “Jesus at the tomb”, an oil on canvas completed around 1879 by Jean-Jacques Henner (refer to <http://www.artunframed.com/henner.htm>). True to the realistic style of the time and thus transitioning into the period of Realism, this image of Christ lies somewhere between the

continuum of an ectomorphic and mesomorphic body type. As noted earlier, though the bulk of earlier images, particularly during the time of the Roman republic and Baroque period, would not emerge in representations of Christ, evidence of the influence of the mesomorphic ideal is apparent. The muscular definition and proportion of Christ in this painting is a somewhat softer version to Piero's or Ruben's representations. Yet, muscular definition, particularly in the calf and upper arm region, is observed. Interesting, therefore, is the culmination of the examination of the ideal body type through portrayals of Christ with a noted increase in muscularity from early Christian and Medieval art to the concluding period of Romanticism.

Discussion

The examination of art forms from ancient Greece to the latter part of the 19th century has revealed varied interpretations of a muscular ideal with an interceding portrayal, suggestive of a curvilinear pattern, of thin, frail or nonrealistic interpretations of the male physique. Realistic idealizations of the muscular form is evident in ancient Greece and the Roman republic with abstract representations apparent in the Roman Empire and early Christian art. The semblance of an ectomorphic ideal was apparent in Medieval art with a return to the athletic ideal in the Renaissance and exaggerated representations in the Mannerist and Baroque periods. Finally, a return to a more natural depiction of the male form, slim with slight muscularity, was subsequently noted in the Rococo, Neoclassical and Romantic periods. Interestingly, while the examination of the female ideal body type by others has revealed a rather plump figure depicted in early expressions of art up until more recent times where a thin and somewhat muscular ideal is valued, plump or overweight representations of men did not dominate any art period.

An exception to the representation of mesomorphic or ectomorphic images is the painting titled "Bacchus" by Reubens. The absence of the overweight male physique in representations of art over the time periods reviewed is not altogether surprising when one considers biological determinism. If the biological desire to reproduce and exhibit traits associated with virility influences representations of the male body on canvas or through sculpture, images including the depiction of adiposity would not, in fact, be the norm. Evidence for this lies in the uniformity of the female ideal from ancient Greece through 19th century art where the representation of fat was aptly displayed. Therefore, the association between adiposity and the ability to reproduce may point to the influence of biological determinism in the portrayal of the human body. In addition, although the appearance of fat was associated with wealth in various circles, an abundance of adiposity would not be an advantageous characteristic of virility, a more inherent desire.

Variations in the depiction of muscularity through sculpture and paintings are perhaps best illustrated through depictions of Christ. Interpretations of Christ from early 4th century A.D. through the Baroque period vary greatly in their display of realism and muscular development of his form. Earlier representations of Christ portray an essentially weak, malnourished form, ultimately void of strength. As evident in the eventual representation of muscularity, even Christ was not immune to the idealization of the male physique. This shift becomes increasingly apparent when one considers the depiction of Roman and Greek Gods. Figures of strength and power, the Gods retained their mesomorphic build, though perhaps to varying degrees, the duration of their production throughout various periods. Images of Christ, however, evolved from an ectomorphic to a

somewhat mesomorphic body type, illuminating a shift of the portrayal of Christ and the influence of a muscular ideal on subsequent representations.

While evidence of an ideal body type is provided through the examination of art produced in various art periods, it is unclear as to why the mesomorphic body type was valued in some periods more so than others. It does appear, however, that political propaganda in the form of muscular ideals via sculpture and paintings may provide insight into the depiction of muscularity in certain periods. Whether the depiction of muscularity was to influence other nations and the people under rule, or purely aesthetic, visual representations of power during ancient Greece, the Roman republic and the Renaissance are prominent. Certainly, however, the abstraction of the human physique during the Roman Empire was also associated with power. Therefore, consideration of the potential relationship between political propaganda and the depiction of a mesomorphic body type warrants further examination as it may suggest an interesting link to the present day ideal.

Future Directions

Although beyond the scope of this chapter, the examination of other forms of art such as mosaics, cameos and vase painting, for an interpretation of the male ideal form, would also provide a clearer window into this cyclical ideal. Delving deeper into history, vase painting in particular, is a lush source for the examination of cultural ideals. Further, given that male body image concerns are particularly prevalent in Western society, the examination of an ideal, if any, in the Eastern world throughout various art periods would be an interesting endeavor. Rich sources of artistic expression exist in this vein, dating

back to cave and tomb paintings of 19th century B.C. and carved expressions of the human form through various materials dating back to 30,000 B.C.

Though the examination of various paintings and sculptures throughout various art periods in Western Europe has revealed a changing ideal of the male physique, a more precise method of documenting this change would be valuable. More specifically, obtaining the exact measurements of various sculptures with a comparison between muscle size in proportion to height across all sculptures would provide a more concrete and objective assessment of the degree of change from one period to the next. Although most museums and corresponding guide books provide height measurements and sometimes weight of the majority of their sculptures, more precise measurements of the thigh, for example, are not made available. The feasibility of this endeavor, however, may be problematic as access to statues may not be permissible due to efforts made towards their preservation. Nevertheless, information gleaned from the visual examination of statues and paintings has revealed that a change has occurred in the representation of the ideal male physique from ancient Greece to 19th century art with shifting focus between the mesomorphic and ectomorphic build. Future representations of the male physique will undoubtedly draw upon previous idealizations, further illuminating the cyclical nature to which characteristics of the human form are valued.

Educational Implications

Educational body image programs commonly commence with a definition of the sociocultural notion of beauty (Winzelberg, Abascal & Taylor, 2002). The observation of the cyclical idealization of the male form throughout the time periods reviewed here therefore illuminates an important sociocultural educational implication where in addition

to the identification and acknowledgement of more recent idealizations of the male physique via the print media, discussion of this nature can be extended to representations of earlier eras. The knowledge that varying degrees of muscularity have been valued at one time or another, may provide a learning opportunity where contributing factors to the idealization of the male physique, past and present, can be critically examined; a strategy that has been incorporated into female programs (Levine & Smolak, 2002). Students can discuss, for example, the political and social circumstances that contributed to the idealized muscular representations of the male body in ancient Greece. As stated by Clark (1956), "...although no individual body is satisfactory as a whole, the artist can choose the perfect part from a number of figures and then combine them into a perfect whole" (p. 13). Clark then goes on to state "... the ideal is like a myth" (p. 14). The examination of ideal representations of the male physique throughout the broader context of time may therefore provide males with a better understanding of the nature of idealized images and the degree to which they can deviate from the majority of actual body shapes and sizes seen in real life. Recipients of such knowledge may thus be better able to screen out idealized images which may reduce their internalization and consequent pursuit of the present day ideal. A similar sentiment pertaining to present-day media images has been expressed by others (McCabe & Ricciardelli, 2005).

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Chapter IV – Article 1

In this chapter, the findings from the interviews conducted with eleven men will be presented. The findings presented here were particularly beneficial in that they aided in the generation of items of the MBIBQ. The information shared by these men were also valuable in that they provided voice to this domain and thus explored the issues that are unique to males.

A Qualitative Investigation of Body Image in Young Males

Abstract

The purpose of this study was to gain a better understanding of male body image perceptions, motivations and related behaviors through a qualitative approach. Eleven males between the ages of 18 and 25 participated in two semi-structured interviews. During the first interview, participants were presented with three pictures that represented different body types as well as two image scales that ranged in muscularity and adiposity. The images served to stimulate conversation to a number of questions posed. The follow-up interview permitted the participants to voice additional information pertaining to the first interview as well as assess their comfort level with the interview process. Discussion surrounds the males' level of body satisfaction, perception of the ideal male physique, influences, psychosocial consequences, motivations, and behaviors employed to attain or maintain their desired body type. Finally, the utilization of cross-gender interviewing when investigating male body image is addressed.

Body image, a multidimensional construct, has commonly been investigated in the female population (Cash & Pruzinsky, 2002). While still limited, research on male body image and accompanying behaviors has increased in recent years (Cafri & Thompson, 2004). Similar to the desired achievement of the thin ideal in females, attainment of a particular ideal has also surfaced for males, specifically, the mesomorphic body type (Olivardia, Pope, Borowiecki, & Cohane, 2004). Again, in line with the female literature of this topic, accompanying male body dissatisfaction as a function of desiring the mesomorphic ideal has been identified, as well as adverse psychosocial consequences, including depression and low self-esteem (Olivardia et al., 2004).

In addition to this potential psychosocial corollary, attainment of the ideal build may result in the engagement of unhealthy behaviors associated with achieving muscle for some. For example, the usages of anabolic steroids (Wroblewska, 1997), excessive weight lifting (Pope, Gruber, Choi, Olivardia, & Phillips, 1997), and the consumption of supplements such as creatine (Olivardia et al., 2004), have been reported to increase size. With approximately 43% of males indicating some level of body dissatisfaction in a Psychology Today study conducted with males from various countries, such as the United States, Australia and South Africa (Garner, 1997), it is not surprising that rates of steroid use in males has surpassed the occurrence of anorexia nervosa in females (Spitzer, Henderson, & Zivian, 1999). Thus, it is important that we have a better understanding of male body image concerns.

Although research on male body image has increased, it is still quite limited in scope (Olivardia et al., 2004). A possible explanation for this noted dearth of research is a lack of appropriate measures to tap into concerns unique to men. Indeed, researchers have

questioned the relevance of using existing questionnaires, designed from the female perspective, in the male population (Edwards & Launder, 2000). Hence, there appears to be a need for male body image questionnaire development that is driven from male conversation (Dittmar et al., 2000). To this end, the long-term objective of this research is to develop a male body image behavior questionnaire. With this long-term goal in mind, and considering that quantitative studies pertaining to body image related perceptions, behaviors, and motivations preponderate the literature, a qualitative approach was anticipated to be particularly insightful, particularly given that male body image is not a widely discussed or even acknowledged topic of conversation among males (Pope, Phillips, & Olivardia, 2000).

It should not be assumed, however, that all methods of qualitative inquiry would provide insight into male body image. On the contrary, focus group methodology, for example, may create an atmosphere where discussion of the phenomenon could become a manifestation of social desirability. More specifically, participants may feel influenced by other peers that comprise the group and consequently be dishonest or less than forthright in their responses (Eder & Fingerson, 2002). Although open-ended comments (e.g., Morrison, Morrison & Hopkins, 2003; Ridgeway & Tylka, 2005) and structured interviews (e.g., Blyth et al., 1981) have been used in past research, few have utilized a semi-structured interview approach. Unlike open-ended questions and structured interviews, semi-structured interviews permit participants to address questions in greater detail and share additional information they feel is relevant, while at the same time, allowing the researcher to guide the inquiry in the areas of interest. Thus, a semi-structured interview was deemed optimal for the investigation of male body image.

Having chosen this qualitative approach, and being that my supervisor and I are female researchers, a secondary purpose of the research surfaced. Specifically, research has shown that the sex of the interviewer may play a role in qualitative inquiry (Schwalbe & Wolkomir, 2002). With respect to the topic of male body image, the sex of the interviewer may hinder disclosure of sensitive information. Indeed, some males who have been interviewed by women have voiced their concern about the ability of a female researcher to understand their position (Arendell, 1997). On the other hand, this challenge has been deemed useful as the interviewee may feel the need to become more descriptive in an effort to clearly define his standpoint. This element of elaboration may be lost with a male interviewer, as the interviewee may assume that his position is already understood (Rubin & Rubin, 1995). Thus, the question remains as to whether a male or female would be the preferred choice of a male being interviewed about male body image concerns. In order to obtain more insight into this question, all participants were first contacted by the female researcher, but given the option of being interviewed by a male if they felt uncomfortable with a female interviewer.

In sum, the purpose of this study was to gain a better understanding of body image perceptions, motivations and related behaviors in men through a qualitative approach. Specifically, I wanted to gain a better understanding of perceptions of the ideal male physique, practices/habits utilized to attain a desired body type, as well as their motivations toward attaining a desired body type. Participants were also asked to share information pertaining to various behaviors, perceptions, and motivations that were relevant to their peers as well as themselves. Information obtained in this study would provide insight into the future development of a questionnaire.

Pilot Study

Given that the skill of the researcher is an important dimension to qualitative research (Yin, 2003), a pilot study with two participants was conducted to explore the appropriateness of the questions posed that were developed via a review of the literature, as well as to evaluate my ability to create an atmosphere where the participants felt comfortable to divulge potentially sensitive information. Feedback pertaining to the clarity of questions and level of the participants' comfort was sought via e-mail. Participants were also asked to assess the interviewing skills of the P.I. More specifically, in a follow-up, they were asked 1) if they felt comfortable talking with the P.I., 2) did they have suggestions for what the P.I. could do differently, and 3) whether there was anything related to male body image that they felt was not addressed and should be addressed in future interviews? Both participants shared positive comments with no suggestions for improvement. Upon review of the interview transcripts, however, two modifications to the interview guide were made. First, the addition of photographs depicting different body types (i.e., an endomorph, ectomorph, and a mesomorph) and accompanying questions was deemed advantageous to facilitate discussion. Second, more specific questions pertaining to appearance and related behaviors were added to delve deeper into this area.

Method

Participants

Eleven males between the ages of 18 to 25 years ($M = 21.18$, $SD = 2.27$) and with an average body mass index of 24.02 ($SD = 4.60$) participated in the study. The participants were recruited in Ontario, Canada and included five Francophones and six

Anglophones¹. Nine of the participants were recruited from a local university in various academic areas including management, sociology, psychology, engineering, communications, and biotechnologies. The remaining two participants were recruited from a local fitness club. This convenience sample was deemed suitable as it was likely that students from varying departments within the University as well as a fitness club would provide a more varied sense of body image, rather than those who were solely recruited from one locale, such as a fitness club where more emphasis on the physique may be observed.

Materials

The sources of data collection for this study were two semi-structured interviews, the Adult Figure Instrument (Collins, 1991), the Male Figure Drawings (Lynch & Zellner, 1999), and a demographic questionnaire (see Appendix A). Other materials used included three photographs obtained from men's magazines, each depicting one of three different body types that can be best described as an endomorph, a mesomorph, and an ectomorph. The endomorphic individual was overweight, though not morbidly obese, and was in a seated position and unclothed from the waist up. The mesomorphic individual was also unclothed from the waist up and was somewhat hypermuscular, resembling image eight on the Male Figure Drawings (refer to Figure 1). The ectomorphic individual wore a black t-shirt and was of a thin build. To ensure that attention to body shape of the images was the focus of discussion, only the jaw line of each

¹ Participants were recruited from a bilingual university. Although participants were comprised of both Anglophone and Francophone students, all interviews were conducted in English.

image was revealed. Noteworthy is the difficulty that was met when trying to locate both overweight and thin images of men from magazines.

The Adult Figure Instrument (AFI; Collins, 1991) is comprised of seven adult male images that increase in adiposity from the first figure to the seventh figure. The Male Figure Drawings (MFD; Lynch & Zellner, 1999) consists of nine adult male figures that increase in muscularity from the first figure to the ninth figure. To our knowledge, the psychometric properties of the AFI and MFD have not been examined in an adult sample. Finally, the demographic questionnaire contained information pertaining to height, weight, desired weight, and exercise participation of the participants.

The main source of data collection was through two semi-structured interviews. The content of the first semi-structured interview explored the perception of the ideal body type, level of participant body satisfaction with their current body shape, appearance-related behaviors, methods employed to attain or maintain the ideal body type and motivations for attaining an ideal body type (see Appendix B). All of the interview content, with the exception of level of body satisfaction with current body shape, was asked in the context of perceived peer beliefs and observed behavior.

The follow-up interview was conducted approximately two to four months after the initial interview and permitted the participants to voice additional information pertaining to the content of the first interview, as well as to discuss their comfort level with the interview process.

Procedure

Participants were first recruited via a poster that was affixed to numerous bulletin boards around the university and a local fitness club. The poster requested interested

parties to contact the P.I. Upon contact, parties were then e-mailed an information sheet about the study that also indicated the option of being interviewed by a male if they felt uncomfortable with a female interviewer (see Appendix C). The researcher reiterated this option via e-mail when scheduling a date and time for the interview to take place. No participants requested a male interviewer. All participants subsequently met with the researcher for the first interview, which ranged in time from a half hour to an hour. With the permission of the participants, all interviews were audiotaped. To stimulate conversation, the AFI, the MFD and the three photographs previously described were presented during the first interview. Participants were first asked to use the AFI and the MFD in their identification of their current and desired physique, as well as their perception of what their peers, potential mates, and the media perceived to be the ideal physique. Participants were also presented with the three photographs and asked to discuss their impression, if any, of the individuals depicted.

Subsequently, the interviews were transcribed and sent to the participants for their review. All of the participants were encouraged to examine the transcript to ensure that it was an adequate representation of the information they had provided. A minor clarification to one word that was misheard during the transcription process was requested. No participants expressed that they had been misrepresented in any way. Participants were also encouraged to address any additional comments or points of clarification they deemed necessary at the second interview. Furthermore, as noted earlier, a secondary purpose of the research pertaining to cross-gender interviewing surfaced and was also addressed at the second interview.

The follow-up interview lasted approximately seven to fifteen minutes in length. Seven of the eleven participants agreed to participate in the follow-up interviews with four taking place over the phone and the remaining three in person. Similar to the first interview, the follow-up interview was sent to the participants for their evaluation and feedback. The study was approved by the University of Ottawa research ethics board.

Data Analysis

Data analysis was inductive with the data first broken down into descriptive units. I organized each descriptive unit into categories and then into broader themes. Each descriptive unit was designated a number and manually coded in each transcript (Merriam, 1998). The interviews were subsequently coded into the Atlas.ti version 5.0 qualitative data analysis software program, which assisted in the organization of the data.

Credibility of the analysis was sought by examining whether others “saw” what the P.I. “saw” in the data. To this end, two researchers independently read at least three of the same interviews and noted principal themes. One researcher was familiar with the content of the study and the other researcher was an experienced qualitative researcher. Credibility was also sought through inter-coder reliability; the examination of how consistent different coders are at coding the data. To this end, a third independent rater was provided with a list of the codes (see Appendix D). The coder and the P.I. first coded an interview simultaneously. Then, three transcripts were independently coded for the assessment of percent agreement (Miles & Huberman, 1994) which improved through discussion of inconsistencies from 71% to 85%, and 90% respectively for the three transcripts. Inter-coder reliability was deemed adequate when 90% agreement was achieved (Miles & Huberman, 1994). The P.I. coded all remaining interviews. Finally, as

noted earlier, the transcribed interviews were sent to the participants to establish authenticity. Participants were given instructions to delete information that, upon reflection, did not reflect their position or that, in retrospect, they preferred not to have revealed.

Results and Discussion

Descriptive information pertaining to the body satisfaction of each participant, as examined by the image scales, as well as level of exercise participation will first be discussed. This will be followed by the emergent themes from the data; (1) ideal physique and attributes, (2) influences, (3) behaviors, (4) motivations, and (5) psychosocial consequences. A case description of the behaviors utilized by one participant to gain muscle as well as reduce fat will be described within the behaviors theme.

Body Satisfaction and Exercise Participation

Only one participant indicated that he did not participate in a sport with two indicating involvement at the club level and eight at the recreational level. All but one of the eleven participants engaged in cardiovascular related activities and all but two participants engaged in resistance training (i.e., weight lifting). Table 1 provides more information on the type of exercise participation, days per week, and length of time.

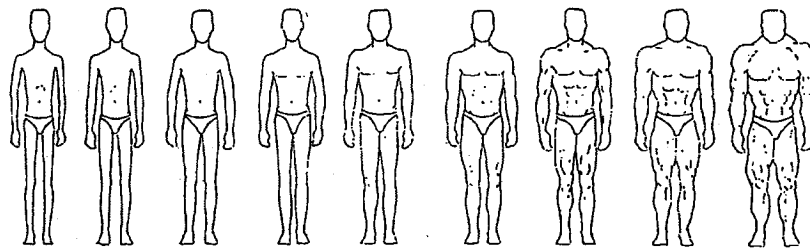
Table 1

The Number of Participants Engaged in Exercise Forms and Frequency of Exercise Participation

Type of exercise	Days per week			Length of time per session ^a			
	1-2	3-5	6-7	≤15	30	60	90
Cardiovascular	6	4	0	2	3	4	1
Resistance training	4	4	1	0	1	8	0

^a Length of time is in minutes.

Via image scales and verbal descriptions, all but three participants (eight) indicated a desire to change their body shape. More specifically, five participants desired an increase in muscle size, three participants desired an increase in muscle size and decrease in adiposity, and three participants expressed overall satisfaction with their current physique with one of the three indicating that a small increase in muscle size would not be unwelcome. The reader will recall that images from the MFD range in muscularity and images from the AFI range in adiposity. The majority of current image selections (eight) were made from the MFD, suggesting that the majority of men perceived that they were somewhat muscular and lean. The other three current image selections were made from the AFI and most closely resembled image 5 on the MFD with the addition of some adiposity in the lower stomach region (refer to Figure 1).



*Figure 1. Male Figure Drawings. Note. From “Figure preferences in two generations of men: The use of figure drawings illustrating differences in muscle mass.” By S.M. Lynch & D.A. Zellner, 1999, *Sex Roles*, 40, 833-843.*

When asked to identify the image that best described their desired physique, however, participants made all selections from the muscular MFD and these selections exhibited more muscularity than the current image selections. Although it is not possible to decipher the amount of muscle weight the men desired from their selections on the MFD,

Pope and colleagues (2004) recently found that the college men in their study desired an increase of approximately 25 pounds in muscle and a decrease of 8 pounds in adiposity. The desire to have a more muscular physique may be a potential consequence of exposure to the mesomorphic ideal via the media (Lorenzen, Grieve & Thomas, 2004).

Emergent themes in the study will next be explored. Although content specific to the malaise of two participants will be discussed, it is important to note that not all of the participants expressed negative feelings in relation to body shape or related concerns. While the majority of participants desired a more muscular physique and some a decrease in adipose, many expressed a level of acceptance concerning how they looked. Although many studies report a high level of body dissatisfaction in men (Garner, 1997), this finding seems to coincide with a study conducted by Hoyt and Kogan (2001). That is, despite the fact that some of the American male university students in their study exhibited dissatisfaction with their arms, abdomen and chest, the majority were satisfied with how they looked. Although some men may express a desired body that differs from their current, perhaps in actuality, the preoccupation with attaining their desired physique is relatively minimal. Nonetheless, the ideal body type and, in particular, the attributes participants attached to the discussion of different body types emerged as a relevant component of the ideal physique and attributes theme.

Ideal Physique and Attributes

When asked what they perceived the ideal physique to be, many in this study responded that it was tall, muscular and lean. However, it was made clear by the participants that the desire to gain muscle should not be confused with the perceived image of Arnold Swarzenegger or other media images depicting a hyper-muscular

physique. Although eight participants desired to gain muscle size, seven of the eight disliked excessive muscular development and some attached negative judgments or evaluations to a person that addressed their level of body image preoccupation or went beyond their body shape. In response to the picture of the mesomorphic body type, for example, William commented, "... that guy spends a lot of time with his body, a little obsessed". Others provided similar evaluations in response to the most muscular images on the MFD. Matthew stated, "you spend all of your time in the gym and don't have a clue about what's happening in the world... he's just all muscle and there's nothing else there"

Although five of the participants viewed the body shape represented in the picture of the ectomorphic individual as average or good, five commented on his clothing in quite opposite ways. One participant was envious of the individual's body as well as what he believed to be his "designer clothing". Three other participants took a different stance on his clothing with one expressing a dislike for fashion and the other two indicating that the individual in the picture was vain and/or effeminate. A fifth participant referred to the individual as a "twink", which he defined as a male who had a skinny physique and could fit into smaller sized clothing. The link between a thin physique and negative descriptions has been documented elsewhere (Kirkpatrick & Sanders, 1978).

Comments that surfaced for the photograph of the overweight individual were also associated with negative qualities. When providing his impression of the photograph depicting an endomorphic body type, Steven commented, "probably drinks a case of beer a week. Probably smokes a carton of cigarettes". Comments such as these were surprisingly descriptive. The belief that an excess of body fat can be attributed to bad

behaviors has been noted by others (Kirkpatrick & Sanders, 1978; Thompson, Heinburg, Altabe, & Tantleff-Dunn, 1999). The association of large muscular development with negative evaluations was interesting as well. In an American study with participants ranging in age from 6 to over 60 years, Kirkpatrick and Saunders (1978) noted that although the mesomorph was seen as the most positive body type across all ages, participants from between the ages of 10 and 25 years provided positive as well as negative descriptors to this body type. One possible explanation purported by the authors was that the mesomorphic body type, though appreciated, emphasized a desirable characteristic the participants lacked, thereby leading to their negative perception. Another likely explanation is that the attainment of the mesomorphic body type was eventually deemed unrealistic and therefore no longer viewed as ideal (Kirkpatrick & Saunders, 1978).

The attributes associated with hyper-developed muscularity that were expressed by the participants may, in fact, be related to participants' own degree of muscular development and level of fitness. That is, while many desired an increase in muscularity, none of the participants selected their current image from the most muscular images on the MFD. With a possible range of 1 through 9 on the MFD, desired image selections for 10 of the men ranged from 4.5 to 7.0. One participant provided a description rather than selecting a particular image. Comments provided by these participants indicated that although muscular definition is desirable, the degree of muscularity as portrayed in men's fitness magazines may be an exaggeration of what some males find to be ideal. This was further corroborated when the males in this study were asked to identify a media ideal body type from the image scales; all participants selected an image from the MFD, that

is, a muscular image. Our participants' selections of a media ideal body type had a greater range of muscular development (6 to 8.5) than their own desired selections. This aligns with several of our participant's view that the media presents an exaggerated ideal. As Brad noted, "...males are made to be more muscular than I would say 95% of our society, but it doesn't mean it's our own objective or an ideal." This finding coincides with an earlier study conducted by Collins and Plahn (1988) where a mesomorphic body type of a medium muscular build was viewed as ideal, as well as a recent study where greater muscularity but yet not hyper muscularity was desired (Ridgeway & Tylka, 2005).

Interestingly, when asked to identify the image that they thought their friends would identify as ideal, 9 of the participants chose similar images to the media perception of the ideal body type with a range in selection from 5 to 9.0. One participant indicated that his friends would not comment on an ideal for fear of being construed as gay. Another participant selected images 4 and 5 on the AFD and one of the 10 who selected an image from the MFD also identified 3.5 on the AFD as well. Recall that these images most closely resemble image 5 on the MFD, but on the AFD there is some adiposity in the lower stomach region. Finally, when asked to identify the image that a potential mate would find ideal, 10 participants selected images on the MFD ranging from 5 to 7, with the remaining participant indicating that potential mates did not prefer a particular image.

Perceived image selections for what the media, peers and potential mates found to be ideal did not greatly differ from one another, and typically it was not the desired body type of the participant. Refer to Table 2 for a distribution of frequencies on the MFD for the media, friends, potential mates, and the desired image of the participants.

Table 2

Frequency of Male Figure Drawing (MFD) selections for what the participants believed mates, friends and the media to be ideal as well as what they themselves desired.

	Image Selections			
	Mates	Friends	Media	Desired
MFD				
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
4.5	0	0	0	1
5	1	2	0	1
5.5	1	1	0	0
6	2	0	2	4
6.5	1	1	5	1
7	5	2	1	3
7.5	0	1	2	0
8	0	0	0	0
8.5	0	1	1	0
9	0	1	0	0

Influences

Three sources of influence on the participants' perception of an ideal physique emerged from the data; the media, potential mates, and peers. Although participants' descriptions and associated attributes of the ideal diverged to some extent from the media, peer, and potential mate ideals, these sources may still have influenced the development of their perceptions to a degree. When illustrating ideals, for example, eight participants referred to actors or models in their discussion to illustrate ideals. Evan stated, "...not Arnold Schwarzenegger built but maybe Jean-Claude Van Damme, Vin Diesel look, something like that." Three participants referred to the media via television

and magazines, the Internet, and health supplement stores as a vehicle for advertising different products for weight gain products.

Five participants commented on societal beliefs with Steven specifically commenting on the perceived ideal body type that is presumably conveyed to the population via mainstream media (i.e., magazines, television, movies);

“Again society... only show men who are smooth, not hairy chested, have a certain physique, have a certain endowment and smile. So a lot of us feel we have to conform to that stereotype or ideal in order to get the girl.”

Related to this quotation was a source of influence from girls/potential mates. The benefit of having a good body in terms of attracting girls did not go unmentioned. However, while many recognized the increased possibility of attracting a potential mate, having or attaining a good body was not a determining factor for a relationship. Alex commented;

“I would rather have a person like me for who I am rather than my body...Like, I know you get muscles and girls will want to sleep with you. I’m not denying the fact, I’m just saying it’s not what drives me.”

Peers were a noted source of influence for five of the 11 participants who recalled past instances where they had been teased. Four of the five participants were teased because they were overweight and one participant was teased because he was underweight. The teasing occurred when they were younger, yet the awareness of their bodies at the time the teasing took place was particularly clear as is evident by Matthew’s comment; “they were stronger, muscular, some of them were developing physically and I was still young, not strong and also chubby.”

The majority of research on teasing and its relationship to body image has been

examined in female samples (Gleason, Alexander, & Somers, 2000). Research has shown, however, that peers are often sources of teasing and teasing itself can predict as well as interact with body dissatisfaction in obese males (Womble et al., 2001). Moreover, being teased because of one's weight in childhood may have adverse effects on body image in later life (Gleason et al., 2000). As indicated by Evan, "I was very heavily teased in school, so I was very aware of what I looked like and what people thought of me. So it wasn't very difficult to attach that to insecurities later on."

Given the noted consequences of teasing, it is not surprising that all participants in this study who indicated past occurrences of teasing also desired a change in body shape. What became evident was that participants did more than simply desire a change in body shape, they utilized behaviors in this vein.

Behaviors

All participants indicated the use of behaviors for the purposes of muscle gain, weight loss, or maintenance of their current weight. Although behaviors related to physical activity and food related techniques were foremost among these behaviors noted, avoidance and appearance related behaviors also emerged as relevant for some of the participants.

Methods to gain size. Methods to gain size encompassed both exercise and eating strategies. Of the eight participants who indicated a desire for an increase in muscularity, almost all reported weight lifting, as the method of physical activity used for muscle gain and tone. Four of the eight participants who desired to gain size also reported that they consumed whey protein supplement (concentrated amounts of protein in a powder form) and/or had an increase in protein consumption in the form of food, shakes, or bars. An

increase in the amount of carbohydrates was also a method utilized to gain size. Brandon indicated that he had taken androstenedione, a weight supplement, with another incorporating liquid creatine into his weight gain regime. Of particular interest was his awareness of the potential danger accompanying the employment of androstenedione; "...the androstenedione stuff that's just not healthy stuff... that's not worth it you know and then the weight gain stuff it was just no...I'm doing this for the wrong reasons and I got to stop doing it..." Androstenedione, a precursor to testosterone, has little effect on muscle gain. It may, however, have adverse effects on the health of the user (see King et al., 1999). Users may therefore have misinformed ideas about what the supplement can actually accomplish in terms of muscle gain.

No participants indicated the use of steroids, although four participants had known of friends who had used steroids. It is not clear, however, whether these friends were involved in sports where a muscular physique would give them a performance advantage or whether they were using steroids for appearance related reasons. Although many researchers have indicated that steroid use is prevalent in males (Spitzer et al., 1999), the actual occurrence rates in a general sample of men may in fact be low. For example, when examining the factor structure of the Drive for Muscularity Scale in a sample of Canadian high school and university students, McCreary, Sasse, Saucier and Dorsch (2004) discovered that an item pertaining to the contemplation of steroid use did not load onto either of the two factors present on the scale which were Muscularity-Oriented Body Image and Muscularity Behavior. The authors concluded that the failure of the item to load onto either factor may have resulted from a lack of variability of responses with the majority of participants indicating that they had never considered

using steroids. Actual steroid use, not just the consideration of, may be more prevalent in the body building community or in particular sports where competition to remain in sport is high. For example, the advent of steroid use in professional sports would be an indication of the potential association of type of sport, level and consequential steroid use (Millman & Ross, 2003). Indeed, Blouin and Goldfield (1995) found that the body builders in their Canadian study reported significantly greater steroid use than runners and martial artists. Moreover, the competitive body builders reported significantly greater steroid use than body builders who were considered recreational.

Methods to Lose Weight. Although only three participants indicated a desire to lose weight, all participants indicated that they engaged in some form of cardiovascular activity. Eating behaviors that were connected to weight loss included watching the intake of food, which encompassed a number of associated behaviors. More specifically, participants claimed to reduce larger meals into smaller meals throughout the day, avoid sweets and junk food, increase fruit and vegetable consumption, with one participant noting that he avoided mixing starches with protein. As well, an overall awareness of the amount of calories consumed in one day was also a noted strategy for weight loss.

Although Jeffrey did not directly indicate a desire to lose weight, he noted that he had used fat burning pills that contained ephedrine as a more extreme method of weight loss in the past. Usage of the pills was discontinued as an aid to weight loss when he began experiencing side effects similar, as he expressed, to what one may experience when drinking too much coffee, "I was shaking a bit and my heart seemed to be faster than usual." The use of supplements, such as ephedrine to lose fat, has also been reported in American college students (Olivardia et al., 2004). Given the noted side effects of

ephedrine use include an increase in heart rate (as described above), blood pressure, and stimulation of the central nervous system (Astrup, Breum, Toubro, Hein, & Quaade, 1992), its use as an aid to burn fat is not recommended. Fortunately, the participant in this study ceased use of the fat burning pill upon experiencing undesirable side effects. Two participants also noted that they had friends who had used fat burning pills. With the exception of Jeffrey, the behaviors indicated for the purpose of losing weight were relatively safe. No participants, for example, indicated severe diet restriction, purging or using laxatives – behaviors more commonly observed in the female population (Croll, Neumark-Sztainer, Story & Ireland, 2002).

Others have found that dieting behaviors, such as watching one's intake of food, may accompany behaviors to increase muscle size in those with muscle dysmorphia (Pope et al., 1997) and in body builders (Blouin & Goldfield, 1995). As noted earlier, a lean muscular build is characteristic of the mesomorphic body type. The three participants in the current study who expressed a desire to lose fat also desired an increase in muscle and engaged in behaviors to increase muscle size. A case description of a male in the study is presented next for the purpose of illustrating the extent to which behaviors utilized in the pursuit of a desired body type can take over one's life.

Case Description

Noteworthy is the regime described by Steven in his effort to attain more muscle and reduce fat. At the time of the interview this participant was eating smaller meals throughout the day and engaging in cardio activities to lose weight as well as exploring "super setting", that is, using resistance training with opposite muscle groups to gain muscle. This regime is not extraordinary, at one point, however, an average day for the

participant was more extreme. Steven reported the following,

“I’d wake up, have two large glasses of water, I’d have my multi-vitamin, I’d have my tablespoon of flaxseed oil. I’d go in the gym, I’d work out. Right after that I’d have a nap or I’d have a protein shake for my post workout meal, then I’d have something mid morning, then I’d have something right at lunch. Again, a protein and a carb, then have something mid afternoon, which would be a shake. Then I’d have something at dinner, something before bed, and it was always just like that. It just, it became too tedious”.

Steven had also tried the Atkins diet as method of weight loss before he eventually abandoned the before mentioned schedule due to the realization that there was more to life than “being a slave to a schedule.” Nonetheless, the schedule points to the amount of time and consequent quality of life issue impacting those men who envelop their lives around their desire to modify their body shape.

Avoidance. Five of the eleven participants referred to avoidance behaviors in relation to their level of body dissatisfaction. This pertained to particular situations as well as the use of clothing. One participant preferred to wear long pants rather than shorts due to dissatisfaction with the excess amount of hair on his legs. Two other participants indicated wearing baggy clothes in the context of the gym and/or dark clothes to appear thinner. Avoidance of situations, both past and present, where the body would be revealed to others was among the most common noted including the gym, locker room, beach and the swimming pool. As Alan indicated,

“...we would have pool parties or something and I wouldn’t take off my shirt just because I knew that you know underneath, I looked slightly different from,

from most of the other boys and I felt really uncomfortable. So, I would either swim with a shirt on or I wouldn't swim at all."

Another participant, Alex, had the condition known as gynecomastia, a condition found in males under the age of 18 that is associated with an increase of mammary glands that occurs with an excess of both testosterone and estrogen (Storch et al., 2004). His condition was the main reason he wore clothing that was not tight fitting, as well as avoided situations where his body would be revealed to others.

Avoidance of situations where the body could be revealed in the presence of others has also been noted with men who exhibit muscle dysmorphia (Pope et al., 1997). The use of clothing as a strategy to conceal the body was also found in a British study conducted by Frith and Gleeson (2004) with male undergraduate students. Avoidance is therefore a likely coping strategy for the anxiety or discomfort associated with exposure of the body to others.

Appearance. Overall, the participants in this study did not appear to devote a great deal of time on their appearance (e.g., style of clothing). Notable, however, are the behaviors related by a few of the participants pertaining to grooming, exercise and clothing. The majority of the participants preferred clothing that was comfortable with only one participant expressing particular interest in the style of clothing he wore and two participants indicating that they wore more fitted clothing when going out socially with the purpose of accentuating their physiques. Another participant also noted that his friends wore tight fitting clothing for this same purpose.

Many of the participants also identified their hair as a source of grooming behavior. Two participants in particular appeared to devote considerably more attention

to their hair than the others. More specifically, one of these participants used a thickening shampoo as well as hair spray as part of his styling regime. Another participant indicated that he dyed his hair, trimmed his facial, chest and pubic hair when needed and also had his back waxed. Removing hair for the purpose of appearing more defined was also a behavior one participant observed of others.

Exercise as it related to the accentuation of a desired characteristic was also noted. More specifically, working out before a social event to appear more muscular was noted by three of the participants. While two of the three did not engage in this behavior themselves, it was an observed behavior of their friends. One participant also indicated that a friend expressed particular excitement when he noticed that a vein was becoming more visible. Another participant also acknowledged that he targeted the training of specific muscle groups that were visible to others when engaging in resistance training.

Motivations

Related to the behaviors previously described are the motivations behind their engagement. Motivations for engaging in physical activity and/or eating behaviors to gain size, and/or to lose weight and for maintenance was a theme that embodied psychological components, health and fitness, social dimensions, and career related aspects.

Psychological components included an overall reduction in stress, time for reflection, and an increase in confidence perhaps best summed up by Carl's comment; "...altogether you feel better about yourself".

Health and fitness motivations for engaging in physical activity and/or eating behaviors surfaced in a number of interviews. Participants identified a "healthy physique" as having a role in disease prevention, such as heart disease. The association between

exercise and a longer life span was also noted. As stated by Colby, "exercise is so important, you gotta stay healthy to live longer." Related to this improvement or maintenance of their level of fitness was the idea of improving their level of energy and overall endurance to be able to participate in activities for a longer duration of time. As noted by Jeffrey, "I'd like to have more endurance... when I go to play soccer with some friends. I can't compete with them because... I can't go as fast."

Quantitative examinations of motivation in males have consistently identified fitness as well as health as primary reasons for exercise (Smith, Handley & Eldredge, 1998). Recently, however, open-ended comments obtained from male university students in response to the question "why do you want to be muscular" (p. 117), indicated that in addition to health benefits, such as increased confidence and stamina, increased sport ability, increased strength, and social benefits such as overall attractiveness and attractiveness to women were also reported (Morrison et al., 2003).

Many of the participants in this study pointed to being noticed or attracting a potential mate. Carl commented, "it's not just the body, but the body makes the first impression..." Six of the participants referred to the underlying drive, instinctual and primal in nature, that fueled potential mates to desire a muscular body type. As Alex remarked,

"...it's the whole mating selection thing, the female will look at the strongest male, the one that's most likely to protect her offspring and stuff like that. So I'm, I'm pretty sure like in your mind even though you don't realize it...you do mate with people that subconsciously you think are more fit to protect you and provide for you."

The belief that women associate muscularity with a certain level of protection has merit (Singh, 1995). Research has also shown that women do in fact find men who exhibit characteristics of strength to be more sexually attractive (Wade, 2000).

Some participants also pointed to career related motivations such as the impression that a fit physique may have on potential employers. They argued that the likelihood of being hired increased with a good physique. A good physique would be associated with the willingness of the applicant to apply some of the dedication put towards his physique to the company. Indeed, research has shown that men of average build receive higher salaries than men who are overweight or slim (Melamed, 1994).

Other motivations to attain an ideal body type that fell under the social aspect of motivation were (1) being accepted by others, (2) making a good impression, and (3) being competitive with other men. As Allan noted, a muscular physique was viewed as a message to other men of their greater level of strength, "... to show off to the other guys, to tell them that you know, I am stronger, I am better looking than you are." This motivation may be linked to the gender parity viewpoint, where muscle size is the only male characteristic women are unable to equal (Kimmel, 1996; Mishkind, Rodin, Silberstein & Striegel-Moore, 1986; Pope et al., 2000). Indeed, men who have more traditional gender role views desire to be more muscular (McCreary, Saucier & Courtenay, 2005). The gender parity notion may therefore be related to the competitiveness associated with muscular development, as it is a noticeable sign of masculinity.

Psychosocial Consequences

Given that many of the men in this study desired a body shape that differed from

their current physique, it became important to explore whether their desire was coupled with distress. Many of our participants expressed a current level of acceptance of their body shape. Although some expressed a certain level of guilt if they missed a workout, this guilt did not appear particularly distressing for them. Two participants, however, had once experienced a past preoccupation and subsequent concern with trying to attain what they believed to be the ideal. Poor body image was one of the contributing factors to the dissatisfaction experienced by Evan.

“...I had a breakdown and had a depression and almost flunked out of high school... now at that time my self-image, my ideal self-image, was so far from the actual self that it was like trying to jump the Grand Canyon...”

Evan eventually turned to a therapist, who he was still seeing at the time of his interview, to help him cope with his feelings of distress. The self-described distress experienced by this participant seems to coincide with the psychosocial ramifications, including poor self-esteem and depression, recently found in a sample of male university students (see Olivardia et al., 2004).

Brandon described himself as being 5’8” in height and weighing 100 pounds when he was a grade seven student. He began to use weight gain products and ultimately turned to a therapist for help when his feelings of distress concerning his lack of weight became overpowering; “...For me it seemed overwhelming and that’s why I kind of, in a way, reached out to weight gaining and then this, and then legitimately reached out to a doctor who could help me. It seemed overwhelming for sure.” Brandon went on to express that circumstances may have been different for him if he had received better information about the inadequacies other males also experienced, “if I would have had

the necessary tools growing up and the whole way through, I would've probably never done the weight gain, cause it just wouldn't have been an issue really."

These life experiences corroborate researchers' requests for health related programs that are designed for males (McCreary & Sasse, 2000; Winzelberg, Abascal, & Taylor, 2002), such as the educational program designed by O'Dea and Abraham (2000) that was successful for the males in their Australian study. Certainly, the inclusion of content relevant to males in health classes is a necessary endeavor, particularly given the experiences expressed by these participants.

Beyond body shape. Areas of concern not related to body shape also emerged. Hair loss was a source of concern for six of the eleven participants. As Allan indicated, "when you're bald, the whole world knows you're bald." Many were conscious of family members who had experienced hair loss and the likelihood that they too may lose their hair in the future. For Brandon, hair loss was particularly distressing, "I check [it] out in the mirror and measure it once in a while, it's very, it's almost obsessive". This participant, as well as others, associated the loss of hair with a loss of virility and attractiveness. Hair loss was also a sign of getting older. Indeed, youthfulness and virility are often associated with a full head of hair (Luciano, 2001). With the popularity of hair transplants and hair growth options, hair loss is also a relevant area for researchers to examine when investigating body image concerns in males.

Another source of concern for several of the participants was the issue of penis size. For three of the four men who mentioned this, a lack of size was viewed as an inadequacy as it pertained to sexually satisfying women. Penis size was also viewed as a demonstration of one's masculinity. As noted by Brandon, "Penis size is...what makes a

man... a center of the masculinity.” Although several men brought up hair loss and penis size on their own, it is not known if more would have discussed these issues if they were directly raised as a topic of discussion. In fact, one participant expressed surprise that penis size was not a direct question in the interview. The purpose of addressing additional concerns related to male body image, however, was not to impose sensitive topics of discussion on the men. Rather, participants were invited to address any additional issues pertaining to male body image that went beyond body shape, thereby reducing the amount of discomfort they may have experienced had the topic been raised by the interviewer. The overall comfort level of the participants during the interviews surfaced as a relevant issue and will be elaborated upon next.

Cross Gender Interviewing

Many of the men discussed the topic of male body image as it pertained to prevalence and their comfort level when discussing male body image issues in the initial interview. Alan commented,

“Most, I think most of my friends would not be comfortable speaking about something like that [ideal body type] because they would [be] emasculated or it would sort of threaten their own sexual identity...they want to let themselves believe that only women, you know, have that that sort of dilemma, you know, which is very false.”

The reluctance of men to discuss body image-related concerns was also noted by Olivardia, Pope, Mangweth and Hudson (1995) in their study on eating disorders in a sample of American males. Similar to the sentiment expressed in the aforementioned

quote, the men in their study expressed embarrassment over what was believed to be a feminine preoccupation.

The disinclination of men to share body image-related concerns with anyone, and in particular a female interviewer, was anticipated prior to the study. Participants were therefore given the option of being interviewed by a male interviewer, if they felt uncomfortable with a female. Surprisingly, none of the participants requested a male interviewer, thus provoking a secondary purpose to the study; to examine why a male interviewer was not requested, and to address the participant's comfort level with a female interviewer. This was addressed in a follow-up interview in which four of the participants expressed that they felt equally comfortable with a male or a female, stating that they preferred to talk to the person who was conducting the research. Three preferred a female interviewer and expressed their reluctance to discuss male body image issues with another male as it would be viewed as demasculinizing and potentially embarrassing. In Evan's words,

"...I would have known that he wouldn't have laughed at me like right there in my face, but I don't know, there's still that fear there, so it makes for uneasiness. I don't know, people just have that image of women as being more emotionally supportive. So when you talk about a very sensitive issue, I do and many other guys do feel more comfortable with women."

Another participant commented that he would not have been as open with a male interviewer and would have provided slightly modified answers. One participant also commented that he would feel the need to be more descriptive with an interviewer of the opposite sex. He believed that a male interviewer would already have an understanding of

male issues and detail, on his part, would be unnecessary. Indeed, qualitative researchers have pointed to the benefit of cross gender interviewing in this regard (Rubin & Rubin, 1995). Although some have pointed to the challenges females face when interviewing males (Arendell, 1997), it appears as if the presence of a female interviewer was beneficial in this study. Though speculative and in need of further examination, female interviewers may be viewed as less threatening and provide an atmosphere where males may be more forthright when examining actual beliefs and experiences pertaining to male body image-related concerns. Finally, it is important to note that one participant revealed in his follow-up interview that he was gay. He therefore preferred a female interviewer in the event that he disclosed information pertaining to his sexuality during the interview. This also points to the issue of cross-gender interviewing when investigating male body image.

Limitations and Future Directions

As in all research, this study had a number of limitations. One such limitation is the potential reluctance of the participants to reveal sensitive information. As noted earlier, the presence of a female interviewer may have helped to reduce the magnitude of these concerns for the participants. Important to note, however, is that it is not known whether the males who expressed a preference for a female interviewer had a previous experience with males in this capacity. Thus, the perceived comfort level with a female interviewer may have been speculative on the part of these participants. Furthermore, males who had serious distress may have been reluctant to address their concerns and therefore did not participate in the study. Nevertheless, the issue of cross gender interviewing is one that deserves further probing when investigating body image

concerns in the male population.

Another limitation with respect to the sample concerns generalizability of the results. More specifically, the participants in this sample may not be illustrative of males in different age groups, other cultures and ethnic backgrounds, and sexual orientations. Although one participant revealed that he was gay, the sexual orientation of the participants was not directly questioned in this study. Furthermore, given the small sample size and exploratory nature of the study, caution is also advised when applying these results to other males with similar demographics. The areas for future research, however, are promising. Future research may further explore the behaviors that accompany body dissatisfaction. More specifically, an interesting finding was that methods for gaining size are also joined with weight loss methods. Emphasis in the research on males has been on weight gain. Both muscle gain and fat loss, however, are indicative of the muscular and lean characteristics of the mesomorphic body type. In addition to body change behaviors associated with gaining size or losing weight, appearance and avoidance behaviors, in particular, may be an important topic of examination. Indeed, body image behaviors are not altogether understood (Cash & Pruzinsky, 2002).

The behaviors that may accompany body dissatisfaction are particularly important to consider when examining the appropriateness of existing body image and disordered eating scales in the male population. In fact, the lack of research on male body image in the past may be attributed to a lack of adequate tools to measure the phenomenon (Edwards & Launder, 2000). Although recent scales have been developed to examine attitudes and behaviors related to gaining muscularity (e.g. Edwards & Launder, 2000;

McCreary & Sasse, 2000), measures that incorporate behaviors related to weight loss, avoidance, and appearance should also be developed so that assessments in this area encompass all relevant behaviors associated with a desired body type in the male population, a long term objective of this research. Finally, future research may delve into concerns related to penis size and hair loss, topics that also emerged as salient areas for investigation in the male population.

Summary and Conclusion

This exploratory qualitative study sought to provide insight into male body image perceptions, motivations, and related behaviors. The majority of the men expressed a desire to gain muscle and/or lose weight to obtain their desired physique and reported relatively healthy methods in this vein. Although avoidance and unhealthy behaviors as well as distress related to body shape was reported, many of the participants expressed a current acceptance of their bodies. The motivations and influential mechanisms underlying the desire for some to attain a body type that differed from their current, as well as concerns beyond body shape such as penis size and hair loss, serves to underscore the relevance and importance of ongoing research in this area. Moreover, as will be discussed further in the educational implications section, the inclusion of content in school-based programs may serve to increase overall awareness of body image concerns and thus illuminate the relevance of the construct for those males who may feel their concerns are unique. Finally, researchers should consider the sex of the interviewer when investigating male body image through a qualitative approach. Accurate information on male body image is particularly important to our overall understanding, treatment, and education of the phenomenon in the male population, as well as to the development of

new measures in this vein.

Educational Implications

As eluded to in the summary and conclusion section, an important educational implication of the findings reported in this chapter pertains to the comments provided by Brandon and his belief that he would have been able to better cope with his body image concerns if he had received information in this vein in the past. Given the reluctance of some males to discuss body image and the potential internalization of concerns resulting from the belief that body image concerns are solely a female preoccupation, dialogue surrounding body image in males should therefore be acknowledged on a broader level in the form of health related content in schools. The inclusion of content unique to the male position may serve to increase overall awareness and thus illuminate the relevance of the construct for those males who may feel their concerns are unique. The inclusion of male body image concerns in school-based programs may thus provide males who are reluctant to voice their concerns, publicly or privately, with an “anonymous” method of receiving information and intervention (Winzelberg et al., 2002).

The influences theme and ideal physique and attributes theme also point to the erroneous assumptions that some associate with a particular body type. Given the noted link between teasing and body dissatisfaction (Womble et al., 2001), teachers and school administrators can play an important role in highlighting the unsuitable nature of attaching attributes and teasing those of different weights and sizes (Levine & Smolak, 2002). Certainly, positive feedback and acceptance of all body shapes in an environment where students spend a significant amount of time, is a necessary component in the development of healthy body image attitudes.

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Chapter V – Article 2

With the interviews presented in chapter IV providing voice to male body image and insight into the various behaviors that accompany body image concerns, chapter V will address the specific details of the development of a body image-related behavior questionnaire and the examination of its structure. Through this examination, a better understanding of the latent variables that comprise various behaviors will be ascertained.

Examining Body Image-Related Behaviors Employed by Males:
The Construction and Structural Validity of the Male Body Image Behavior
Questionnaire

Abstract

The purpose of the studies presented herein was to gain a better understanding of the structure of the Male Body Image Behavior Questionnaire (MBIBQ) through exploratory and confirmatory analyses. Principal components analysis in the first study revealed that the MBIBQ was comprised of four subscales; Weight Loss, Weight Gain, Avoidance, and Appearance. Confirmatory factor analysis presented in the second study was exploratory in nature as model re-specification was deemed necessary. Recommendations for further psychometric evaluation of the MBIBQ are provided and the benefits of the measure for the examination of body image-related behaviors in the male population are presented.

Body image is a multidimensional construct, encompassing both perceptual and attitudinal components that can influence various aspects of one's life including thoughts, emotions, relationships, and behaviors (Pruzinsky & Cash, 2002). Body image concerns, once considered only a female phenomenon, have recently been acknowledged as a relevant area of investigation in the male population (Olivardia, Pope, Borowiecki, & Cohane, 2004). Researchers have acknowledged that males also exhibit concerns related to the desire for an ideal mesomorphic body type (McCreary & Sasse, 2000). While investigation of methods to attain the mesomorphic build have commonly concentrated on behaviors related to the attainment of size, behaviors related to lean body mass, that is, weight loss behaviors, also a characteristic of the muscular build, have not received similar attention. Research in this domain typically focuses on the desire to gain muscle (e.g., McCreary & Sasse, 2000), or to lose weight (Anderson, 1995), but not both. Others, however, have pointed to one's body composition, including percent body fat, when addressing the overall direction of change (Cafri & Thompson, 2004a; Olivardia, et al., 2004). In other words, gaining size may not be desirable if it is not coupled with an increase in muscularity and a decrease in adiposity (Blouin & Goldfield, 1995; Ridgeway & Tylka, 2005). Behaviors employed in this vein appear to support this notion. For example, weight lifting to attain muscle mass and exercising to decrease adiposity has been found to accompany the desired attainment of a muscular body shape (Pope, Gruber, Choi, Olivardia, & Phillips, 1997).

Despite this basic knowledge of behaviors that some males may employ to achieve their desired body shape, existing questionnaires that were developed to investigate body image disorders have been deemed unsuitable for the examination of

body image concerns in males due to a lack of knowledge of the male position (Cafri & Thompson, 2004; Hausenblas & Carron, 1999). For example, scales such as the Eating Disorder Inventory (EDI; Garner, Olmstead & Polivy, 1983), the Eating Attitudes Test (EAT; Garner & Olmsted, Bohr, & Garfinkel, 1982), and the Questionnaire for Eating Disorder Diagnoses (QEDD; Mintz, O'Halloran, Mulholland, & Schneider, 1997) were developed for the purpose of identifying those who may be at risk for anorexia nervosa or bulimia nervosa. While males may also exhibit weight loss behaviors, measures such as the EDI and EAT do not tap into the desire for males to gain size (McCreary, Sasse, Saucier & Dorsch, 2004). In response to this observation, McCreary and Sasse (2000) developed the Drive for Muscularity Scale (DMS) and Edwards and Launder (2000) developed the Swansea Muscularity Attitudes Questionnaire (SMAQ).

The SMAQ (Edwards & Launder, 2000) is a 20-item questionnaire that was designed to address behaviors and attitudes related to muscularity. Limitations of the SMAQ noted by Morrison and colleagues (2004) include repetitious statements pertaining to the desire for muscle, the retainment of complex loadings (i.e., items that "significantly" load onto more than one factor), the absence of reversed scored attitudinal items, the combination of both behavioral and attitudinal items in the same measure, and the choice of varimax rotation (see Morrison, Morrison, Hopkins & Rowan, 2004). Moreover, factor extraction was solely determined by Kaiser's minimum eigenvalue of one rule (see Fabrigar, Wegener, MacCallum & Strahan, 1999 for a review of the recommended methods for factor extraction). Thus, the impact this chosen method of factor extraction had on the number of factors extracted and their content is unknown.

Finally, the type of factor analysis was not specified and the validity nor test-retest reliability of the SMAQ have been assessed.

Acknowledged as the only existing scale recommended for examination of male body image (Cafri & Thompson, 2004), the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000) is a 15-item questionnaire that was designed to assess attitudes surrounding muscularity and behaviors to gain size. Similar to the SMAQ, Morrison and colleagues (2004) point out limitations of the measure including the absence of reversed scored items as well as the combination of behavioral and attitudinal items within the same measure. It is noted, however, that the inclusion of reversed scored items may introduce poor performance for those participants who fail to notice the different direction of the item (Devellis, 2003). The latter concern may also not pose a problem as recent factor analysis of the scale parceled out behaviors and attitudes into two separate components (McCreary et al., 2004). Examination of some of the behavioral items, however, raises the question of whether the specified behavior reflects the drive for muscularity or whether it can be explained by other factors. For example, the utilization of the behaviors indicated in item 3; "I use protein or energy supplements" and item 4; "I drink weight gain or protein shakes" (p. 50, McCreary et al., 2004), may be due to a nutritional deficiency in one's diet or due to the dietary needs of vegetarians or vegans rather than related to a desire for muscularity.

Morrison and colleagues (2004) also noted that contrary to the hypothesis of McCreary and Sasse (2000), the DMS was positively related to the EAT ($r = .37, p < .001$). Although moderate, this correlation suggests that a relationship exists between weight gain attitudes and behaviors, and behaviors and attitudes related to weight loss.

Attainment of a muscular body type does not exclude the coexisting desire to become lean. It therefore becomes important to examine a wider range of behaviors that males may utilize to achieve a desired body shape.

Along this line, Hildebrandt, Langenbucher and Schlundt (2004) recently developed the Muscle Dysmorphic Disorder Inventory (MDDI) in a sample of American weightlifters. The MDDI contains 13 items that were constructed to assess three characteristics of muscle dysmorphia including the Drive for Size (DFS), Appearance Intolerance (AI), and Functional Impairment (FI). Similar to the DMS and SMAQ, the MDDI is comprised of items that contain a mixture of both attitudes and behaviors. The three behavioral items are presented in the AI and FI subscales and pertain to foregoing social activities and opportunities to meet people due to one's workout schedule, as well as wearing loose clothing so others are unable to view the body. Similar to the SMAQ, the sparse number of behavioral items on the MDDI, choice of varimax rotation, absence of reverse scored attitudinal items, and the integration of behaviors and attitudes within factors may be problematic. Furthermore, given that the population was comprised of weightlifters recruited from both supplement stores and gyms, the generalizability of the factor structure beyond this subgroup is questionable. The structure of the MDDI should therefore be examined before use in other male samples, including those who have had a clinical diagnosis of muscle dysmorphia.

Recently, Cafri and Thompson (2004) noted the importance of considering "which methods are appropriate in addressing how males perceive, think, and behave with respect to their bodies" (p. 18). Indeed, behaviors associated with body image are not altogether understood (Cash & Pruzinsky, 2002). Thus, given the need for measures

to encompass behavioral items related to male body image, the purpose of the studies presented here is to develop and address the structure and psychometric properties of a questionnaire designed to address relevant behaviors in the male population. The steps taken in the construction of the questionnaire will broaden our understanding of relevant body image-related behaviors in males

Study I

The goal of this study was to construct and examine the internal consistency and structure of a questionnaire entitled the Male Body Image Behavior Questionnaire (MBIBQ).

Method

Participants

A convenience sample was recruited to participate in the study. More specifically, 297 males between the ages of 17 to 28 years ($M = 21.17$, $SD = 2.25$) from Ontario universities in various undergraduate classes including, Human Kinetics, Political Science, Sociology, English, Math, Music, Biology, Chemistry, Philosophy, and Physics participated in the study. Recruitment of participants from different classes was deemed suitable as it was likely that they would provide a broader perspective of body image behaviors. Level of sport involvement for the participants included 45.5% recreational, 12.1% club, 5.1% varsity, 1% provincial, .3% national, .3% international, 17.5% selected two or more levels of sport involvement, 3.7% did not specify their sport involvement, and 14.5% indicated no sport involvement at any level. The participants were comprised of 14.1 % eastern European, 41.8% western European, 10.4% Asian, 3.4% African, 4.4% Middle Eastern, .7% South American, 2.4% Native American, 1.7% West Indian, 3.0%

East Indian, 8.8% other, 6.7% selected more than one background, and 2.7% did not specify.

Materials

Two sources of data collection were used for this study; the Male Body Image Behavior Questionnaire (MBIBQ) and a demographic questionnaire. The demographic questionnaire contained information pertaining to height, weight, desired weight, level of sport involvement, and the cultural background of the participants (refer to Appendix A).

Questionnaire Construction

Generation of items for the MBIBQ was accomplished through three methods; 1) a review of literature including relevant questionnaires, 2) semi-structured interviews with 11 males aged 18 to 25 years ($M = 21.18$, $SD = 2.27$), and 3) expert review. In the interviews, the men were asked to elaborate upon the body image-related behaviors they themselves had utilized or they had observed their peers utilize in pursuit or maintenance of a desired body shape, as well as any other related behaviors in this domain. A number of behaviors were compiled from the review of literature and interviews including behaviors pertaining to weight loss and weight gain, as well as both enhancement, concealment and avoidance behaviors. Refer to chapter three of this dissertation for more information on the results of the interviews. A total of 43 behavioral items comprised the preliminary version of the male body image behavior questionnaire (MBIBQ; see Appendix E for all distributed versions of the questionnaire).

The MBIBQ was subsequently distributed to four experts in the area of male body image for the assessment of the questionnaire's content validity. Two of the content reviewers were clinicians and two had previously generated body image-related measures in the male population. The experts were asked to rate the relevance of each item on the

MBIBQ, that to their knowledge, were characteristic of some males as low, medium or high (Devellis, 2003) and to comment on the appropriateness and construction of individual items as well as the possible inclusion of items not mentioned, that is, content representation (Messick, 1995). Based on their input, the preliminary version of the MBIBQ underwent a number of modifications. More specifically, three reversed scored items were removed, two behaviors associated with weight gain that were mentioned within the same item were separated, two additional items were added, and minor revisions to the wording of some items were made. This modified 43 item MBIBQ was sent to the same experts for further recommendations regarding comprehensibility of items as well as comments regarding directions provided for the completion of the MBIBQ. Only two of the four experts were available to provide comments in this regard.

From these three sources, the content of the MBIBQ encompasses a number of body image-related behaviors pertaining to weight loss, weight gain, avoidance of particular situations, wearing clothes for the purpose of accentuating or concealing one's body, as well as self assessment and comparison of one's body to others. Participants were asked to indicate on a 7-point scale from "never" to "always" their frequency of engagement in the behaviors listed. The possible selections were provided definitions with never pertaining to "never", very rarely to "about once a year", rarely corresponded to "every few months", occasionally to "monthly", frequently to "biweekly", very frequently to "weekly" and always to "daily".

Procedures

The researcher sought permission from professors to access their students. The MBIBQ, a demographic questionnaire and information sheet (see Appendix F) were

distributed to the participants during a class lecture. Prior to the distribution of the questionnaire packets, all potential participants were informed that the research pertained to male body image. The participants completed the questionnaires after class concluded and directly returned them to the researcher in a sealed envelope. Information for an alternate drop off location for those who preferred to complete the materials at a later time was also provided. Of the 297 participants who participated in the study, only seven (2.4%) utilized the latter return method. It took approximately seven minutes for the participants to complete the questionnaires.

Results and Discussion

Before proceeding with the main analysis, the reversed scored items on the MBIBQ were reassessed. The inclusion of reverse scored items was originally thought to be beneficial to reduce response set bias (Neuman, 1997). Some items, for example, were written to reflect a moderate versus more severe engagement in the same behavior with the moderate item receiving a reversed score. Item 5, for example; "I engage in weight training activities 3-4 days a week" was originally considered to be a moderate level of engagement with item 15; "I weight train 6-7 days a week to gain or maintain muscle" deemed excessive. Further consideration of this logic appeared problematic. If, for example, a respondent scored that he never engaged in weight training three to four days a week, he would receive a score of seven which would contribute to the overall score indicating a higher level of behavior engagement in the specified behavior. Furthermore, the participant may not be attempting to gain or maintain muscle or via the specified behavior. Consideration of the number of days per week represented in each item also

conflicted with the definitions provided for the response format¹. The reversal of the aforementioned items resulted in the inclusion of only three reversed scored items that were largely unrelated to the others and were therefore deleted from the analysis (Field, 2001). These items included item 28; "I avoid products that are harmful for my body", item 30; "I keep my body hydrated on a regular basis", and item 36; "I get the daily requirement of vitamins through the food that I eat rather than supplements".

Normality of the remaining variables (40) was then assessed with many items exhibiting positive skewness. Transformations were therefore examined and skewness and kurtosis was reassessed upon logarithm and inverse transformations. While skewness and kurtosis improved for all variables, many were still beyond the acceptable values with six of the 40 items still exhibiting substantial skewness. These six items exhibited severe skewness before transformations were performed, with values that were both greater or equivalent to a skew of 2 and a kurtosis of 7 (West, Finch & Curran, 1995). Although normality is an assumption for multivariate statistics, few studies, if any, exhibit true normality (Micceri, 1989), and factor analysis has been shown to be strong against such a violation (Gorsuch, 1983). In fact, skewed data, may not be altogether unexpected due to the nature of the research domain and population examined (Curran, West & Finch, 1996). A common error in factor analytic studies, however, is the inclusion of severely skewed items (Comrey, 1973), thus these six items were deleted from the analysis. Moreover, Devellis (2003) notes the importance of examining the variability of each item when considering item inclusion. Low standard deviations adversely hamper factor analytic studies (Gable & Wolf, 1993). Notable, therefore, is that

¹ Given that the days per week reference conflicted with the definitions provided in the response format, they were later omitted from the subsequent version of the MBIBQ distributed in study II.

the six items with substantial departures from normality also had standard deviations less than 1. The deleted items included item 4; "I take steroids to gain or maintain muscle size or weight" (skew = 7.29, kurtosis = 62.15), item 7; "I fast to lose or maintain weight" (skew = 3.27, kurtosis = 11.29), item 12; "I smoke cigarettes to lose or maintain weight" (skew = 5.90, kurtosis = 36.95), item 14; "I engage in trendy diets (e.g. Atkins diet) to lose or maintain weight" (skew = 3.99, kurtosis = 17.24), item 17; "I dehydrate my body to make my muscles and veins appear more defined" (skew = 6.03, kurtosis = 39.98), and finally, item 41; "I take legal steroids to gain or maintain muscle size or weight" (skew = 3.86, kurtosis = 13.84). Factor analysis of the 34 transformed items was also performed. Results were similar to that obtained with untransformed variables, thus the analysis was conducted with the original values.

Exploratory principal components analysis. To determine the number of items to retain and their underlying factor structure, principal components analysis (PCA) with oblique (direct quartimin) rotation was performed. PCA was deemed optimal because there was little research to support a priori theory of the number of subscales that would emerge¹.

The data was first assessed through the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO). The KMO value was .88 which is deemed "great" by Hutchinson and Sofroniou (1999). Analysis therefore proceeded and eigenvalues greater than 1 and a scree plot were requested. Seven eigenvalues greater than one emerged, accounting for

¹ It is important to note, however, that a common factor analysis (principal axis) was also performed and resulted in essentially the same structure, albeit with slightly lower loadings on the respective factors. Differences observed between the factor structure of PCA and exploratory factor analysis is often minimal when the same number of factors is requested (Velicer & Jackson, 1990). Analysis therefore proceeded with PCA and in keeping with the appropriate terminology of this analysis, "factors" will be referred to as components herein (Gable & Wolf, 1993).

61% of the variance. Examination of the scree plot, however, suggested that between three and five components were salient. Further examination of the optimal number of components was sought through parallel analysis which suggested the presence of five components. When five components were extracted, however, only three items loaded onto the fifth component with the desired criteria of .50 (Tabachnick & Fidell, 2001). Examination of the items appeared to be the result of a low variation of responses and tapped into both weight gain and weight loss behaviors. In keeping with the goals of interpretation, the MBIBQ was thus deemed to be comprised of four components. Items that were complex (had a cross loading of .32 or greater) were identified. This resulted in the deletion of item 3; "I eat a healthy well balanced diet to gain or maintain muscle size or weight", item 5; "I weight train 3-4 days a week to gain or maintain muscle", and item 20; "I follow a strict diet and workout schedule to lose or maintain weight".

Items that did not meet the loading criteria of .50 resulted in the further deletion of item 6; "I consume products that claim to reduce fat (e.g. liposafe, thermolean), item 13; "I engage in cardio activities 6-7 days a week to lose or maintain weight," item 16; "I lift weights before I go out for a social event to make my muscles and veins more visible", item 22; "I limit all food groups to lose or maintain weight", item 23; "I carefully monitor my daily caloric intake to gain or maintain weight", item 31; "When I lift weights, I only target muscle groups that are visible to others", item 34; "I assess my body shape in the mirror", item 1, "I take creatine to gain or maintain my muscle size or weight", item 35; "I compare my body to others to assess my body shape", item 42; "I follow a strict diet and workout schedule to gain muscle size or weight", and finally item 43; "I carefully monitor my daily caloric intake to lose or maintain weight". The four

factors with their retained items, proposed meaning, respective loadings, and percent variance can be seen in Table 1.

Table 1

Principal Components Analysis Loadings, Alpha Coefficients and Percent Variance for the MBIBQ

Items	Components			
	1	2	3	4
Weight Gain (1)				
11. I load up on foods high in protein to gain or maintain weight ^a	.79	-.09	-.14	-.06
10. I load up on foods high in carbohydrates to gain or maintain weight ^a	.75	-.10	.06	.04
37. I binge on foods to put on size	.68	.28	.28	-.09
33. I take protein powders/shakes to gain or maintain muscle size or weight ^a	.60	-.07	-.03	-.22
15. I weight train 6-7 days a week to gain or maintain muscle ^b	.57	-.05	-.24	-.13
Avoidance (2)				
38. I avoid revealing my body to others in the locker room or bathroom because I am unhappy with some aspect of my appearance	.10	.79	-.02	.15
39. I avoid social events or dating because I am unhappy with some aspect of my appearance	.09	.76	-.01	.11
8. I avoid revealing my body to others at the swimming pool or at the beach because I'm unhappy with some aspect of my appearance	-.10	.75	-.01	.04
21. I avoid exercising at the gym because I am not in good shape	-.08	.61	.26	-.05
19. I wear baggy clothes to conceal my body when I'm exercising	.19	.59	-.21	-.10
25. I wear dark clothes to make myself appear slimmer	-.08	.52	-.21	-.12
Weight Loss (3)				
18. I avoid sweets and junk food to lose or maintain weight	-.17	.12	-.79	-.07
9. I eat a healthy well balanced diet to lose or maintain weight	.05	-.04	-.75	.06
40. I avoid foods that are high in fat to lose or maintain weight	-.18	.18	-.70	-.17
24. I engage in cardio activities 3-4 days a week to lose or maintain weight ^b	.05	-.03	-.69	-.05
Appearance (4)				
26. I wear tight clothes when exercising to make my muscles appear larger	-.01	-.13	.02	-.78
32. I wear tight clothes to make my muscles appear larger when going out socially	-.06	-.07	-.02	-.78
27. I tan to make my muscles appear more defined	.01	.01	-.02	-.65
29. I lift weights to make my veins stand out more and look stronger	.21	-.01	.03	-.63
2. I remove unwanted hair from my body to make myself appear more defined	.04	-.10	.04	-.58
Cronbach alpha	.80	.77	.80	.76

Variance	28.22	9.56	6.62	5.03
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Note. ^a Items were reworded from "...to gain or maintain weight/muscle size or weight" to "... to gain or maintain muscle."

^b Days per week reference within these items were removed.

Internal Consistency and Subscale Correlations. Internal consistency of the subscales was assessed and found to be acceptable (Nunnally, 1978). Alpha coefficients for the subscales can also be seen in Table 1 and the subscale correlations can be seen in Table 2. Examination of correlations between WG and WL ($r = .31$), WG and AP ($r = .51$) and WL and AP ($r = .38$) revealed moderate associations. Although significant, a low correlation between component avoidance and component weight loss existed ($r = .14$). There was no relationship between the avoidance and weight gain subscales, nor between the avoidance and appearance subscales.

Table 2

Subscale Correlations for the MBIBQ

Scale	1	2	3	4
1. Weight Gain	-	.31**	.51**	.08
2. Weight Loss		-	.38**	.14*
3. Appearance			-	.08
4. Avoidance				-

* $p < 0.05$, ** $p < 0.01$.

Given that the avoidance component was relatively unrelated to the other three components, a higher order principal components analysis with varimax rotation was performed on the subscales. The appearance, weight gain and weight loss subscales loaded onto the same component with loadings of .84, .80 and .67 respectively and accounted for 46% of the variance. The avoidance subscale loaded onto a second component at .98 and accounted for 24% of the variance. The lack of association of the

avoidance subscale to the weight gain and appearance subscales suggest that avoidance behaviors do not appear to accompany the engagement in weight gain nor appearance related behaviors in this sample. Given that the MBIBQ is in the early stages of development, the inclusion of avoidance behaviors was deemed important. Further investigation of the relationship between the components is therefore necessary to determine how an overall score should be computed for the MBIBQ. Nonetheless, higher scores on the MBIBQ are indicative of a greater investment in body image-related behaviors.

Overall, PCA revealed that the MBIBQ is comprised of four, internally consistent subscales which tapped into weight loss, weight gain, appearance and avoidant behaviors. An interesting finding was that the more extreme behaviors, such as steroid use and fasting, were excluded from the analysis either due to a lack of variance or because they did not meet the criteria for item inclusion on their respective components. Although males may indicate knowledge of more extreme behaviors to gain or lose weight, their actual utilization may be limited with a greater frequency of use seen in specific populations where the desired attainment of muscle mass is magnified, such as in the world of bodybuilding.

Another interesting finding is that although researchers have pointed to the dual engagement in fat loss and muscle gain activities in pursuit of the mesomorphic body type (Olivardia et al., 2004; Pope et al., 1997), these behaviors loaded onto separate components. While behaviors utilized for weight gain and weight loss may be utilized in combination for some, others may solely focus or focus to a greater degree on either

weight loss or weight gain. Given the exploratory nature of PCA, the structure of the MBIBQ must be confirmed before preliminary evidence of construct validity is observed.

Study II

The goal of study II was to further examine the internal consistency as well as the factor structure of the MBIBQ through confirmatory factor analysis.

Method

Participants

A convenience sample of 253 participants aged 17 to 29 years ($M = 20.83$, $SD = 2.35$) were recruited from various undergraduate classes in Ontario Universities including, Administration, Chemistry, Biology, History, Human Kinetics, Sociology, Music, Engineering, Math and Religion. The participants in this study did not take part in study I. Level of sport involvement for the participants was very similar to that reported by participants in study I suggesting that the two samples are comparable (see Table 3).

Table 3

Level of Sport Involvement

	Study I	Study II
Recreational	45.5 %	43.1 %
Club	12.1 %	15.4 %
Varsity	5.1 %	5.1 %
Provincial	1.0 %	2.4 %
National	.3 %	.4 %
International	.3 %	1.2 %
Two or more levels	17.5 %	15.8%
No sport involvement	14.5 %	15.4 %
Did not respond	3.7 %	1.2 %

Examination of the cultural origin/background of the participants in study I and study II also points to the similar nature of both samples (see Table 4).

Table 4

Cultural Background/Origin

	Study I	Study II
Eastern European	14.1%	13.4%
Western European	41.8%	40.3%
Asian	10.4%	13.0%
African	3.4%	4.3%
Middle Eastern	4.4%	7.1%
South American	.7%	1.6%
Native American	2.4%	.8%
West Indian	1.7%	1.6%
East Indian	3.0%	2.4%
Other	8.8%	6.3%
More than 1	6.7%	8.3%
Did not specify	2.7%	.8 %

Materials

The sources of data collection for this study were the revised Male Body Image Behavior Questionnaire as well as a demographic questionnaire. Some items on the revised MBIBQ, now comprised of 20 items, received small modifications to their wording that were not deemed substantial (Gable & Wolf, 1993). More specifically, three items were reworded from "...to gain or maintain weight/muscle size or weight" to "... to gain or maintain muscle" and the days per week reference within two items was removed (see Study I).

Procedures

The same procedures that were used in study I were also used in study II. Unlike study I, however, an incentive of a draw for \$100 was included for participant involvement. A ticket was stapled to the envelope of each questionnaire packet. Participants detached the ticket, provided their e-mail or phone number, and returned the ticket to the researcher when they returned their questionnaires. Tickets were placed in a separate envelope and the winning ticket was drawn and the ticket holder subsequently contacted. Of the 253 males who participated in this study, 25 (9.9%) utilized the alternate drop off location for the return of their questionnaires.

Results and Discussion

Confirmatory Factor Analysis. Confirmatory factor analysis with Maximum Likelihood (ML) estimation using AMOS 6.0 was performed. Examination of skew and kurtosis revealed many items with moderate univariate nonnormality as well as the presence of multivariate kurtosis as assessed by Mardia's coefficient (72.23). Given that ML is adversely affected by nonnormality (Nevitt & Hancock, 2001), a bootstrap procedure was employed whereby a number of sub samples (2000) were randomly drawn from the original sample. Bootstrap procedures are not constrained by distributional assumptions of normality and are therefore appropriate for use in non-normal score distributions. Given that current statistical structural equation modeling programs do not have methods of dealing with missing data when a bootstrap procedure is utilized, all cases with missing data were deleted from the analysis resulting in a final sample of 234.

To assess how well the data fit the specified model, the Bollen-Stine bootstrap test, a modified χ^2 goodness of fit statistic, was examined (Bollen & Stine, 1992). The

Bollen-Stine bootstrap has been shown to elicit an improved performance over other available methods such as the Satorra-Bentler chi-square in samples with more modest numbers (Nevitt & Hancock, 2000). In addition to the Bollen-Stine bootstrap, a number of fit indexes were examined. More specifically, the χ^2/df ratio, the Comparative Fit Index (CFI; Bentler, 1990), the Goodness of Fit Index and the Adjusted Goodness of Fit Index (AGFI; Jöreskog & Sörbom, 1984), the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993), and the Standardized Root Mean Squared Residual were assessed. A non significant Bollen-Stine bootstrap p value is indicative of a good fit, however, given that the χ^2 is based on the assumption that the model will fit perfectly in the population, which in of itself is problematic, a number of fit indexes have been developed and will therefore be examined (Byrne, 2001). The χ^2/df ratio has been provided as an alternate fit test to the χ^2 with values that range from 1 to 3 indicative of an acceptable fit (Carmines & McIver, 1981). A value greater than or equal to .90 indicates an acceptable fit for the CFI (Bentler, 1992) and GFI (Jöreskog & Sörbom, 1984), and a value greater than or equal to .80 signifies satisfactory fit for the AGFI. Finally, a value less than .05 is a close fit for the RMSEA with a value of less than or equal to .08 reasonable for both the RMSEA (Browne & Cudeck, 1993) and SRMR (Hu & Bentler, 1998). Although more rigorous cutoff values than those mentioned above have been suggested by Hu and Bentler (1999), their study has limited generalizability (Fan & Sivo, 2005), and their overly stringent cutoff values resulting in Type 1 errors have been viewed as problematic (see Marsh, Hau, & Wen, 2004). Indeed, many researchers have ignored the caution expressed by Hu and Bentler (1999) when over generalizing their results (Fan & Sivo, 2005; Marsh et al., 2004).

As evident in Table 3, the data clearly did not fit the specified model well with the Bollen-Stine bootstrap ($p < .05$) indicating that the model did not fit.

Table 3

Confirmatory Factor Analysis Fit Indices for the Original and Re-specified MBIBQ

Model

Model	Bollen-Stine						
	df	χ^2/df	CFI	GFI	AGFI	RMSEA	SRMR
Model 1	166	2.58	.85	.85	.81	.08	.09
Model 2	115	2.07	.92	.90	.86	.07	.08

Note. CFI = Comparative Fit Index; GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Squared Residual.

Although post hoc modifications are generally not recommended in a strictly confirmatory factor analysis, researchers have noted that they may ensue if it is understood that any re-specification of the model results in exploratory rather than confirmatory research in nature (i.e., model generating). Important to note is that strictly confirmatory scenarios are rare. Indeed, model generating is the most common CFA scenario reported in the literature (Byrne, 2001). Examination of the modification indices revealed that item 18 from the weight gain subscale, "I binge on foods to put on size", cross loaded onto the avoidance and weight loss subscales. Item 13 from the avoidance subscale; "I wear dark clothes to make myself appear thinner", cross loaded onto the appearance and weight loss subscales as well. Consequently, these items were deleted in the re-specification of the model. Furthermore, item 1, "I remove unwanted hair from my body to make myself appear more defined" loaded weakly onto the appearance factor (.21) and was also deleted from the analysis. In addition, the error terms of item 6, "I

weight train to gain or maintain muscle” and item 15, I engage in cardio activities to lose or maintain weight” were allowed to correlate. Byrne (2001) posits that error terms may be permitted to correlate if a rationale is provided. Moreover, in certain areas of research, such as the psychological domains, correlated error terms can be appropriate.

Cardiovascular and weight lifting activities are the only exercise behaviors on the MBIBQ utilized for the purpose of gaining or losing weight and may therefore measure an additional facet that is unique from the food related behaviors that also comprise the WG and WL subscales. It may also be that the social desirability of engaging in these behaviors resulted in the relationship between their error terms.

Finally, unlike study I, the AV and WL subscales were not related and were therefore not permitted to correlate in the re-specification of the model. Further examination of the modification indices revealed that further improvement to the model could be achieved. Given that the MBIBQ is still in the early stages of development, however, and that model 2 did meet the criteria of the goodness-of-fit indexes, no further modifications to the model were made. Final bootstrap estimates can be seen in Table 4.

Table 4

Confirmatory Factor Loadings and Alpha Coefficients for the MBIBQ

Items	Factors			
	1	2	3	4
Weight Gain (1)				
11. I load up on foods high in protein to gain or maintain muscle	.89	.00	.00	.00
4. I load up on foods high in carbohydrates to gain or maintain muscle	.76	.00	.00	.00
16. I take protein powders/shakes to gain or maintain muscle	.67	.00	.00	.00
6. I weight train to gain or maintain muscle	.63	.00	.00	.00
18. I binge on foods to put on size	-	-	-	-
Avoidance (2)				
19. I avoid revealing my body to others in the locker room or bathroom because I am unhappy with some aspect of my appearance	.00	.88	.00	.00
2. I avoid revealing my body to others at the swimming pool or at the beach because I'm unhappy with some aspect of my appearance	.00	.77	.00	.00
20. I avoid social events or dating because I am unhappy with some aspect of my appearance	.00	.66	.00	.00
8. I wear baggy clothes to conceal my body when I'm exercising	.00	.50	.00	.00
10. I avoid exercising at the gym because I am not in good shape	.00	.41	.00	.00
13. I wear dark clothes to make myself appear slimmer	-	-	-	-
Weight Loss (3)				
7. I avoid sweets and junk food to lose or maintain weight	.00	.00	.83	.00
9. I avoid foods that are high in fat to lose or maintain weight	.00	.00	.83	.00
3. I eat a healthy well balanced diet to lose or maintain weight	.00	.00	.69	.00
15. I engage in cardio activities to lose or maintain weight	.00	.00	.60	.00
Appearance (4)				
17. I wear tight clothes to make my muscles appear larger when going out socially	.00	.00	.00	.84
12. I wear tight clothes when exercising to make my muscles appear larger	.00	.00	.00	.77
14. I tan to make my muscles appear more defined	.00	.00	.00	.51
5. I lift weights to make my veins stand out more and look stronger	.00	.00	.00	.48
1. I remove unwanted hair from my body to make myself appear more defined	-	-	-	-
Cronbach alpha	.82	.78	.83	.74

Internal Consistency and Subscale Correlations.

All subscales were internally consistent (see Table 4). Similar to study I, Pearson correlations between the subscales showed that the WG subscale was related to the WL subscale ($r = .34$) and the AP subscale ($r = .47$), and the WL subscale was related to the AP subscale ($r = .24$). As noted, the AV subscale, however, was not related to the WL subscale ($r = .11$). Item 13 on the MBIBQ may have contributed to the relationship previously observed between the WL and AV subscales in study I. Although the WL and AV subscales were not related to each other before the model was re-specified in this study, examination of the modification indices revealed that item 13 cross loaded on both the WL and AP subscales which resulted in its ultimate deletion. Subscale correlations can be seen in Table 5.

Table 5

Subscale Correlations for the MBIBQ

Scale	1	2	3	4
1. Weight Gain	-	.34**	.47**	-.09
2. Weight Loss		-	.24**	.11
3. Appearance			-	.11
4. Avoidance				-

** $p < 0.01$.

General Discussion

The studies presented here provide initial construct validity of the MBIBQ. Examination of the MBIBQ via PCA and CFA analyses revealed that the questionnaire is comprised of four, internally consistent subscales. Initially constructed via a review of literature, interviews with 11 males, and with the examination of the measures content validity through expert review, behaviors pertaining to weight gain, weight loss,

appearance, and avoidance have emerged as relevant dimensions of body image-related behaviors in the samples presented here. With respect to the item make-up of each subscale, PCA in study I delineated five behaviors to the WG subscale, five behaviors to the AP subscale, six behaviors to the avoidance subscale and four behaviors to the WL subscale. Confirmatory factor analysis of this model revealed that further modifications to the WG, AP and AV subscales was necessary to obtain an acceptable model fit. Thus, an exploratory confirmatory factor analysis ensued with the further deletion of three items which resulted in a five item AV subscale, four item WG subscale and four item appearance subscale. Moreover, the error term of the item reflecting lifting weights to gain or maintain muscle and the error term of the item pertaining to utilizing cardio activities to lose or maintain weight were permitted to correlate.

While these studies provide initial support for the construct validity of the MBIBQ via the examination of its structure, further confirmatory analyses are needed as is the examination of additional validity measures. Also important dimensions in the assessment of construct validity are both convergent and discriminant validity, the examination of the MBIBQ's relationship to other constructs of known relation. Furthermore, predictive validity of the MBIBQ is also an important component in assessing whether the measure is related to other measures of the same construct and the assessment of its temporal stability is needed to determine whether it is reliable over time.

It is important to point out that the generalizability of the findings reported here is not known in other university samples and while examination of the demographic information points to the comparable nature of each sample, it can not be stated with

absolute certainty that they were in fact drawn from the same population. Moreover, although a number of different classes were targeted for recruitment, questionnaire completion was not permitted during class-time and thus the number of potential volunteers from each class appeared to be low (e.g., 10 out of 65 male students). A draw for \$100 was therefore added to study II of this phase as an incentive for participation. Even with this incentive, however, the number of males that opted to receive a packet did not appear to increase (see chapter VII for further discussion of this issue). Furthermore, future studies are needed to examine the factor structure of the MBIBQ in other cultures, age groups, sexual orientations, as well as in subgroups of the male population, such as competitive bodybuilders where higher levels of eating problems and steroid use are observed (Goldfield, Blouin, & Woodside, 2006), or in clinical samples of those with muscle dysmorphia. Although weight loss and weight gain behaviors parceled out into two distinct subscales, it is not known whether they would comprise the same subscale in the before mentioned samples nor what the relationship of the AV subscale would be to the other subscales of the MBIBQ. Although the avoidance subscale exhibited a small relationship to the WL subscale in study I, no such relationship was observed in study II. It is important to note, however, that Hildebrandt and colleagues (2004) showed significant relationships between their DFS subscale and both the AI and FI subscales (r 's = .28 and .25 respectively). The DFS subscale captures a drive for various body parts to be larger in size and the AP and FI subscales pertain to a reluctance to reveal the body, overall body dissatisfaction, as well as the adverse feelings associated with missing a workout session and the foregoing of particular activities. The relationship between a desire to be larger in size and "avoidance type" behaviors in their sample of weightlifters,

may provide insight into the potential relationship between AV and the WL, AP and WG subscales on the MBIBQ in purposeful samples of males with particular characteristics. Given that the DFS subscale on the MDDI did not contain any behaviors, the relationship of actual behaviors in this capacity can only be speculated. In consideration of these points, the deletion of the avoidance subscale was deemed premature. More research is needed before a more conclusive decision can therefore be made.

Beyond these limitations, the MBIBQ is a novel measure in that it specifically focuses on the behaviors that may be a consequence of body image dissatisfaction and the frequency to which they are utilized in males. In fact, to our knowledge, the MBIBQ is the first questionnaire of its kind to provide definitions for its frequency format providing researchers with a more accurate assessment of the actual frequency in which behaviors are employed. A potential limitation of the definitions, however, is the extent to which they influenced item distributions. Of interest, therefore, would be the comparison of the distribution of items of the MBIBQ with definitions provided versus the results obtained from the MBIBQ without definitions. Subjectivity of responses may be negligible if all definitions of selected responses are inferred by every respondent and if slight differences are observed.

In conclusion, the construction of the MBIBQ has illuminated body image-related behaviors that have not received as much attention to weight gain behaviors in the male population; weight loss, appearance, and avoidance behaviors. Research is now needed to assess whether these behaviors are related to psychosocial variables and attitudes related to a desire for muscularity.

Educational Implications

The examination of the structure of the MBIBQ may aid in the development of educational materials, for use in school-based programs or otherwise, that include the male position. Given that the majority of school-based programs were constructed around female notions of beauty and consequences resulting from the internalization of a thin ideal, assessment in this vein is particularly important. To this end, the MBIBQ could provide insight into an existing education program, for example, that was the first of its kind to include male students and had a positive impact on their body image (O'Dea & Abraham, 2000). The study by O'Dea and Abraham (2000) did not include, however, a measurement tool that encompassed the spectrum of behaviors the construction of the MBIBQ revealed to be relevant for males. More specifically, although the study included a measure to examine the programs effectiveness on weight losing behaviors of the participants, no measures that examined weight gain, avoidance, nor appearance were included. The MBIBQ may therefore be used as a pre and post measure to examine whether education programs actually elicit behavioral changes in the students, a goal of many existing psycho-educational programs (Winzelberg, Abascal & Taylor, 2002). As a result, the results from the pre and post tests may identify areas in the curriculum that are in need of modification or further supplementation.

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Chapter VI – Article 3

The examination of the structure of the Male Body Image Behavior Questionnaire revealed that the measure is comprised of four subscales. In this chapter, further psychometric evaluation of the MBIBQ will be examined through the relation of each subscale to other measures of predicted relation. A semantics-related issue pertaining to the Weight Gain subscale of the MBIBQ will also be explored in this chapter.

The Psychometric Properties of the Male Body Image Behavior Questionnaire

Abstract

The purpose of this study was to gain a better understanding of the psychometric properties of a new tool for the assessment of body image-related behaviors in the male population; the Male Body Image Behavior Questionnaire (MBIBQ), as well as to explore the perceived meaning of the word weight. A sample of 253 male undergraduate students between the ages of 17 to 29 years completed the MBIBQ, a 17 item instrument consisting of four subscales; Weight Gain, Weight Loss, Avoidance, and Appearance. Each of the subscales showed evidence of temporal stability, convergent validity as well as concurrent validity, and were internally consistent. Initial evidence of discriminant validity was also revealed for each subscale. Finally, the findings also suggested that the majority of a sub-sample of participants associated the word weight with muscle. The MBIBQ is the first of its kind to address several dimensions of body image behaviors in males. The relation of the MBIBQ to other measures and its role in extending existing knowledge in the male body image domain is discussed.

Researchers have shown that body image is associated with a number of dimensions in the male population, including the drive for muscularity (McCreary & Sasse, 2000), behavioral avoidance of situations where body dissatisfaction is manifested (Pope, Phillips, & Olivardia, 2000) and the donning of clothing for concealment or accentuation purposes (Frith & Gleeson, 2004). Knowledge of these dimensions has culminated in the construction of various questionnaires that tap into these specific domains, such as the Drive for Muscularity Scale (McCreary & Sasse, 2000), the Swansea Muscularity Attitudes Questionnaire (Edwards & Launder, 2000), and the Muscle Dysmorphic Disorder Inventory (Hildebrandt, Langenbucher, & Schlundt, 2004). An important component to our overall understanding of male body image is if and how the body image concerns that some males may experience, manifest themselves in actual behaviors. Given that behavioral items on the DMS, SMAQ and MDDI are limited in number, the construction of a questionnaire that examined body image-related behaviors was developed and presented in chapter V of this thesis.

In chapter V, I presented evidence concerning the content validity and structure of this scale for the assessment of a range of behaviors accompanying body image concerns in the male population: the Male Body Image Behavior Questionnaire (MBIBQ). The MBIBQ was found to be comprised of four subscales; Weight Gain (WG; 4 items), Weight Loss (WL; 4 items), Avoidance (AV; 5 items), and Appearance (AP; 4 items). In the research presented here, examination of the validity and reliability of the MBIBQ is now provided.

The psychometric evaluation of the MBIBQ is an important component in establishing whether it assesses that which it purports to assess (Shea & Fortna, 2002).

Preliminary evidence of the MBIBQ's construct validity was provided via the examination of its structure through exploratory and confirmatory analyses. Further validation of the construct, however, is necessary in the form of convergent, discriminant, and concurrent validity. More specifically, for convergent validity, the question concerns what the relationship of the new instrument of measure is to other constructs of hypothesized relation (Campbell & Fiske, 1959).

Convergent validity predictions for the MBIBQ subscales stem from previous research where an association between a drive for muscularity and thinness has been shown (McCreary & Sasse, 2000) and where insight into appearance related behaviors and the pursuit of the mesomorphic ideal has been provided (Frith & Gleeson, 2004). Moreover, McCreary and Sasse (2002) also reported that males who were dieting to lose weight in their Canadian study had significantly higher scores on a measure of eating attitudes than those who were dieting to gain weight or not dieting at all. Thus, convergent validity of the MBIBQ was examined by predicting a positive relationship between the Weight Loss, Weight Gain and Appearance subscales of the MBIBQ and the Muscularity-Oriented Body Image subscale of the Drive for Muscularity Scale. It was predicted that the Weight Loss subscale of the MBIBQ would be positively related to the Drive for Thinness subscale of the Eating Disorder Inventory (Garner, Olmstead, & Polivy, 1983) and the Muscularity Behavior subscale of the Drive for Muscularity Scale. Support for this latter prediction also stemmed from the previous relationship observed between the Weight Loss and Weight Gain behaviors on the MBIBQ presented in chapter V. It was also predicted that the Appearance subscale of the MBIBQ would be related to the Muscularity Behavior subscale of the Drive for Muscularity Scale. Finally, it was

predicted that that MBIBQ total score would be positively related to the Drive for Thinness subscale and the Drive for Muscularity Scale.

Given that the relationship between self-esteem and muscularity attitudes and related behaviors is somewhat equivocal with self-esteem showing a negative association with the drive for muscularity in some studies (e.g., McCreary & Sasse, 2000; Morrison, Morrison, Hopkins, & Rowan, 2004) and no relation to dieting to gain weight nor dieting to lose weight in others (e.g., McCreary & Sasse, 2002), it was tentatively predicted that all four subscales and thus the MBIBQ total score, would be negatively related to self-esteem as measured by the Rosenberg Self-Esteem scale (Rosenberg, 1989).

Discriminant validity of the MBIBQ, that is, its relation to other measures purported to have no association (Campbell & Fiske, 1959), was predicted via a lack of relationship to friendship behaviors on the Behavioural Closeness subscale of the Friendship Closeness Inventory (Polimeni, Hardie, & Buzwell, 2002). More specifically, it was believed that the spectrum of interactions one may have with their friends that are included on the Behavioral Closeness subscale, such as watching t.v. and discussing things of a nonpersonal nature, would be unrelated to body image-related behaviors.

Concurrent validity, a form of criterion validity, was assessed by whether the MBIBQ was related to similar measures in nature (Shea & Fortna, 2002). Given that the Weight Gain subscale of the MBIBQ and the Muscularity Behavior subscale of the Drive for Muscularity Scale both contain behaviors pertaining to gaining size, it was predicted that these measures would be positively related to each other. In addition, it was also predicted that the Weight Gain subscale of the MBIBQ would be positively related to participant frequency of weight lifting involvement. Furthermore, given that the Weight

Loss subscale of the MBIBQ and the Eating Restraint subscale of the Body Image Avoidance Questionnaire contain behaviors pertaining to losing weight, it was predicted that these subscales would be positively related to each other. Similarly, it was also predicted that the Weight Loss subscale of the MBIBQ would be positively related to participant frequency of cardio involvement. Given that the Appearance subscale of the MBIBQ contains items that are similar in nature to the Grooming and Weighing subscale of the Body Image Avoidance Questionnaire (Rosen, Srebnik, Saltzberg & Wendt, 1991), it was also predicted that these subscales would be positively related. As well, it was predicted that the Social Activities and Clothing subscales of the Body Image Avoidance Questionnaire and the Avoidance subscale of the MBIBQ, also containing items that are similar in nature, would be positively related to each other.

Finally, a second purpose of this study was to gain clarification on a semantics-related issue pertaining to the weight gain subscale. More specifically, examination of the items on the weight gain subscale of the MBIBQ upon the examination of its structure (presented in study I of chapter V), brought to attention the ambiguous wording of two out of the five items. These items were posed such that the engagement of the behavior was done for the purpose of gaining or maintaining weight. In retrospect, the word weight was deemed ambiguous as it could pertain to fat, muscle, or both fat and muscle. Given that muscularity is more reflective of the mesomorphic ideal, rather than adiposity, the decision to modify the items that included the word weight to muscle was therefore made. This modification, occurring after the initial distribution of the MBIBQ, however, made the investigation of the word weight a necessary endeavor in this study. Any ambiguity or lack thereof would serve to better our understanding of what males actually

desire in terms of weight. In their study, McCreary and Sasse (2002) also questioned whether males desire more muscle mass or an overall increase in size. Furthermore, although item 18 (I binge on foods to put on size) remained unchanged from the PCA to the CFA stages of the research and was ultimately deleted in the exploratory CFA, it was also of interest to see if participant responses to item 18 would change if it read "I binge on foods to put on fat".

In summary, the purpose of this study was to investigate the validity and reliability of the MBIBQ, as well as to gain clarification on the perceived meaning of the word weight.

Method

Participants

The participants were 253 male undergraduate students from Ontario Universities that were recruited from various classes including, Administration, Chemistry, Biology, History, Human Kinetics, Sociology, Music, Engineering, Math and Religion. The participants also took part in study II of phase III and ranged in age from 17 to 29 years ($M = 20.83$, $SD = 2.35$). Level of sport involvement for the participants included 43.1% recreational, 15.4% club, 5.1% varsity, 2.4% provincial, .4% national, 1.2% international, 15.8% selected two or more levels of sport involvement, 1.2% did not specify their sport involvement, and 15.4% indicated no sport involvement at any level. The participants were comprised of 13.4 % eastern European, 40.3% western European, 13% Asian, 4.3% African, 7.1% Middle Eastern, 1.6% South American, .8% Native American, 1.6% West Indian, 2.4% East Indian, 6.3% other, 8.3% selected more than one background, and .8% did not specify. A subset of 70 participants completed four open-ended questions to shed

light on the perceived meaning of weight and a subset of 51 participants completed the MBIBQ at a two week time span to assess the test-retest reliability of the instrument.

Materials

The materials for this study included the Male Body Image Behavior Questionnaire (MBIBQ), four open-ended questions, the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000), the Drive for Thinness subscale (DT) of the Eating Disorder Inventory (EDI; Garner et al., 1983), the Rosenberg Self-esteem Scale (RSE; Rosenberg, 1989), the Behavioral Closeness subscale (BC) of the Friendship Closeness Inventory (FCI; Polimeni et al., 2002), the Body Image Avoidance Questionnaire (BIAQ; Rosen et al., 1991), and a demographic questionnaire. The demographic questionnaire contained information pertaining to the age, height, current weight and desired weight of the participants, as well as their level of involvement in cardiovascular and weightlifting activities.

Male Body Image Behavior Questionnaire (MBIBQ). The MBIBQ is a 17-item scale designed to measure various body image-related behaviors in the male population. The factor structure of the MBIBQ was examined in two samples of male university students and is comprised of four internally consistent subscales with alpha coefficients as follows: Weight Gain (WG; .80, .82), Weight loss (WL; .80, .83), Avoidance (AV; .77, .78), and Appearance (AP; .76, .74), for the first and second samples respectively. Statements on the MBIBQ range from 1 (never) to 7 (always). Definitions for each point on the scale are provided with never corresponding to “never”, rarely corresponding to “about once a year”, rarely to “every few months”, occasionally to “monthly”, frequently to “biweekly”, very frequently to “weekly”, and always to “daily”.

Open-Ended Questions. To shed light on the perceived meaning of the word weight, the following open-ended questions were distributed to a sub-sample of participants; 1) Are you trying, or have you ever tried to gain or maintain weight? 2) If you are trying, or have ever tried to gain or maintain weight, what form of weight are you or were you trying to gain: fat, muscle, or both fat and muscle? 3) Read statements 4, 6, 11 and 16 (see study II presented in chapter V). Are you now or have you ever engaged in these behaviors to gain fat? Finally, 4) read statement 18 (I binge on foods to put on size). Would your response to this statement change if it read "I binge on foods to put on fat"?

Drive for muscularity scale (DMS). The DMS is a 15-item scale designed to measure attitudes surrounding muscularity and behaviors to gain size (see Appendix G). Evidence of convergent validity (McCreary & Sasse, 2000) and examination of the factor structure of the DMS has been reported for both males and females (McCreary, Sasse, Saucier, & Dorsch, 2004). Principal components analysis revealed that the DMS is comprised of two internally consistent components for males, the Muscularity-Oriented Body Image subscale and the Muscularity Behavior subscale with alpha coefficients of .88 and .81 respectively. Test-retest reliability has also been established for the total scale ($r = .93$), the Muscularity-Oriented Body Image subscale ($r = .84$), and the Muscularity Behavior subscale ($r = .96$; Cafri & Thompson, 2004). Statements on the DMS range from 1 (never) to 6 (always).

Rosenberg self-esteem scale (RSES). The RSES is a 10-item scale designed to measure global self-esteem (Rosenberg, 1965). Evidence of both convergent and discriminant validity, temporal stability, and internal consistency has been provided for

the scale (see Blascovich & Tomaka, 1991). Each item on the RSES is scored on a four point scale from 1 (strongly agree) to 4 (strongly disagree) (see Appendix H).

Behavioral closeness subscale. The Behavioral Closeness subscale of the Friendship Closeness Inventory (FCI) is a 19-item scale designed to measure various behaviors friends engage in (see Appendix I). Internal consistency of the Behavioral Closeness subscale (.93) has been reported for a sample comprised of both Australian female and male participants (Polimeni et al., 2002). Statements on the Behavioral Closeness subscale range from 1 (not at all) to 7 (very frequently).

Drive for thinness subscale (DT). The DT subscale of the Eating Disorders Inventory (EDI) is a 7-item scale designed to measure a preoccupation with the desire to be thin (Garner et al., 1983). Acceptable internal consistency of the DT has been reported for a control group of Canadian female university students (.85) as well as anorexia nervosa patients (.85) (Garner et al., 1983). Although the psychometric properties of the DT are not known in the male population, it has been utilized with males in various studies (e.g., Blouin & Goldfield, 1995; Ricchiardelli & McCabe, 2002). The DT subscale is scored on a six point scale from always to never with the upper end of the scale receiving a score of 3, 2, and 1 and the three least anorexic behaviors all receiving scores of 0 (see Appendix J).

Body Image Avoidance Questionnaire (BIAQ). The BIAQ is a 19-item scale designed to measure various avoidance and grooming behaviors associated with body dissatisfaction (Rosen et al., 1991). The structure of the BIAQ has been assessed in a female sample of American university students and was found to consist of four subscales: Clothing, Social Activities, Eating Restraint, and Grooming and Weighing.

Concurrent validity, good test-retest reliability and acceptable internal consistency has been reported for the entire questionnaire (.89). The psychometric properties of the scale in the male population are also unknown. Statements on the BIAQ range from 0 (never) to 5 (always) (see Appendix K).

Procedures

The questionnaires along with an information sheet (see Appendix L) were distributed by the researcher to participants during a class lecture. Prior to the distribution of the questionnaire packets, all potential participants were informed that the research pertained to male body image. Participants were then informed that they would be entered into a \$100.00 draw in return for their participation. The participants completed the questionnaires after class commenced and directly returned them to the researcher in a sealed envelope. Information for an alternate drop off location was provided for participants who preferred to complete the materials at a later time. A total of 25 (9.9%) participants utilized the drop off location for the return of their questionnaires.

The participants were asked to indicate their level of agreement to each statement on the MBIBQ, DMS, RSES, BC, and BIAQ. It took the participants approximately 15 minutes to complete the questionnaires. A subset of 70 participants also completed the four open-ended questions. Participants were instructed to answer the questions as honestly and accurately as they could. Finally, two weeks later, a subset of 51 participants from the entire sample of 253 participants completed the MBIBQ again and similarly returned the completed questionnaire in a sealed envelope directly to the researcher or a trained research assistant.

Results

Descriptive statistics

Desired weight. Of the 253 participants, only 241 indicated a desired weight. Of these 241 participants, 76 desired to lose weight (31.5%), 123 desired to gain weight (51%), and 42 indicated a desired weight that was the same as their current weight (17.4%). Of the 123 participants who indicated a desired gain in weight, 112 (91.1%) also indicated some frequency of involvement in one or more of the weight loss behaviors on the MBIBQ. Of the 76 participants who indicated a desired loss of weight, 68 (89.5%) indicated some frequency of involvement in one or more of the weight gain behaviors on the MBIBQ. Finally, of the 42 participants who indicated that their desired weight was the same as their current weight, 40 (95.2%) reported some frequency of use of the weight loss and/or weight gain behaviors on the MBIBQ. Refer to table 1 for means and standard deviations of each item on the MBIBQ.

Table 1

MBIBQ Item Means and Standard Deviations

Item	<i>M</i>	<i>SD</i>
Weight Gain		
14. I take protein powders/shakes to gain or maintain muscle	2.27	1.91
3. I load up on foods high in carbohydrates to gain or maintain muscle	3.05	1.88
5. I weight train to gain or maintain muscle	4.14	2.13
10. I load up on foods high in protein to gain or maintain muscle	3.53	2.02
Weight Loss		
13. I engage in cardio activities to lose or maintain weight	3.59	1.99
8. I avoid foods that are high in fat to lose or maintain weight	3.17	1.92
6. I avoid sweets and junk food to lose or maintain weight	3.05	1.91
2. I eat a healthy well balanced diet to lose or maintain weight	4.01	1.92
Appearance		
15. I wear tight clothes to make my muscles appear larger when going out socially	2.27	1.59
12. I tan to make my muscles appear more defined	1.57	1.18
11. I wear tight clothes when exercising to make my muscles appear larger	1.99	1.49
4. I lift weights to make my veins stand out more and look stronger	2.24	1.61
Avoidance		
17. I avoid social events or dating because I am unhappy with some aspect of my appearance	1.52	1.41
16. I avoid revealing my body to others in the locker room or bathroom because I am unhappy with some aspect of my appearance	1.97	1.52
9. I avoid exercising at the gym because I am not in good shape	1.79	1.34
7. I wear baggy clothes to conceal my body when I'm exercising	1.93	1.47
1. I avoid revealing my body to others at the swimming pool or at the beach because I'm unhappy with some aspect of my appearance	2.13	1.63

Open-ended questions. Of the 70 participants who completed the open-ended questions, 64 (91.4%) noted that they were now trying or had previously tried to gain weight. Of these participants, 2 (3.1%) indicated that they were trying or had previously tried to gain fat, 9 (14.1%) were trying or had tried to gain both fat and muscle, and 52 (81.3%) indicated that they were trying or had previously tried to gain muscle. One

participant (1.56%) indicated that he was or had previously tried to gain weight, but did not specify what type of weight he was trying to gain. For those participants who indicated a desired weight gain in the form of muscle, 43 of the 52 (82.7%) noted that they had never engaged in the behaviors referred to in question 3 for the specific purpose of gaining fat. Although the type of weight they desired was a gain in muscle, 9 of the 52 (17.3%) participants indicated that they had utilized the behaviors noted in statements 4, 6, 11 and 16 (loading up on foods high in carbs and protein, taking protein powders/shakes, and weight training) for the purpose of gaining fat.

Of the 9 participants who had tried or were trying to gain both fat and muscle, two indicated that they had never used the behaviors noted in statements 4, 6, 11 and 16 for the purpose of gaining fat. Six of the nine participants noted that they had used the behaviors for gaining fat and 1 of the 9 did not indicate whether he had utilized the behaviors for this purpose or not. Furthermore, only 1 of the 2 participants who was solely trying to gain fat had used the behaviors referred to in question 3 for the specific purpose of gaining fat. Thus, of the 64 participants who had or were trying to gain weight, only 15 (23.4%) had ever utilized strategies 4, 6, 11 and 16 for the purpose of gaining fat with the majority (46; 71.9%) noting that they had never used the behaviors for the purpose of gaining fat. Finally, one of the two participants who indicated that he desired a gain in fat weight and who also used the behaviors for the purpose of gaining fat commented: "Yes I am trying to gain weight. Preferably fat so I can turn it into muscle quicker."

With respect to whether responses to the item "I binge on foods to put on size" would change if it read "I binge on foods to put on fat", two out of 64 did not respond, 36

indicated that they never engaged in this behavior, and 26 of the 64 indicated some level of binge eating frequency with 9 of the 26 noting that their answer to the question would have changed. Participants commented, “it might cause bad fat growth”, “yes, no one wants to put on fat”, “I binge to put on bulk”, and “I don’t want to become fat, I just want to eat a lot to help working out”.

Reliability and Internal Consistency

Test-retest reliability of the MBIBQ was determined through a Pearson correlation between responses at time 1 and time 2 separated by a two week time span. Each subscale showed evidence of temporal stability with $r = .89, p < .01$ (WG), $r = .85, p < .01$ (AP), $r = .77, p < .01$ (WL), $r = .91, p < .01$ (AV), and $r = .86, p < .01$ for the entire questionnaire. Acceptable alpha coefficients were also confirmed for each subscale indicating that they are internally consistent with .83 (WG), .83 (WL), .79 (AV), .73 (AP) and an alpha coefficient of .81 for the entire questionnaire.

Validity Measures

Convergent Validity. The correlations between the convergent validity measures are shown in Table 2. As predicted, a significant positive relationship was found between the Weight Gain subscale of the MBIBQ and Muscularity-Oriented Body Image subscale of the DMS ($r = .48$). A significant relationship was not found, however, between the Weight Gain subscale and the RSES. Also as predicted, a significant relationship was found between Appearance subscale of the MBIBQ and Muscularity Behavior subscale ($r = .46$) as well as the Muscularity-Oriented Body Image subscale ($r = .38$) of the DMS. A significant relationship was not found, however, between the AP subscale and the RSES. With respect to the Weight Loss subscale of the MBIBQ, as predicted, Weight Loss was

positively related to the DTS ($r = .34$) and to a lesser extent, the Muscularity Behavior subscale of the DMS ($r = .19$). The Weight Loss subscale was not, however, related to the Muscularity-Oriented Body Image subscale of the DMS nor the RSE scale. As predicted, the avoidance subscale of the MBIBQ was negatively related to self-esteem ($r = -.39$). Finally, as predicted, the MBIBQ total score was positively related to the DTS ($r = .34$, the Muscularity Behavior subscale of the DMS ($r = .60$), and the Muscularity-Oriented Body Image subscale of the DMS ($r = .42$). See Appendix M for a summary table of convergent validity predictions and results.

Table 2

Convergent Validity Correlations for the MBIBQ

Scale	1	2	3	4	5	6	7	8	9
1. MBIBQ total	-	.73**	.71**	.69**	.42**	.60**	.42**	.34**	-.04
2. Weight Gain		-	.34**	.51**	-.07	.83**	.48**	.08	.11
3. Weight Loss			-	.28**	.12	.19**	.01	.34**	.10
4. Appearance				-	.11	.46**	.38**	.18**	.04
5. Avoidance					-	.00	.21**	.27**	-.39**
6. MB						-	.54**	.12	-.03
7. MBI							-	.07	-.15*
8. DT								-	-.13*
9. RSE									-

Note: MBIBQ = Male Body Image Behavior Questionnaire, MB = Muscularity Behavior subscale, MBI = Muscularity-Oriented Body Image subscale, DT = Drive for Thinness subscale, RSE = Rosenberg Self-Esteem scale.

* $p < 0.05$, ** $p < 0.01$.

Discriminant Validity. The correlations between the discriminant validity measures can be seen in Table 3. As predicted, the Behavioral Closeness subscale was not related to the MBIBQ total, Appearance, nor the Weight Loss subscale. Small yet significant associations were found between the Behavioral Closeness and Avoidance subscales ($r = .14$) and between the Behavioral Closeness and Weight Gain subscales ($r =$

.16). See Appendix N for a summary table of discriminant validity predictions and results.

Table 3

Discriminant Validity Correlations for the MBIBQ

Scale	1	2	3	4	5	6
1. MBIBQ total	-	.73**	.71**	.69**	.42**	.04
2. Weight Gain		-	.34**	.51**	-.07	.16*
3. Weight Loss			-	.28**	.12	.00
4. Appearance				-	.11	.07
5. Avoidance					-	-.14*
6. BC						-

Note: MBIBQ = Male Body Image Behavior Questionnaire, BC = Behavioral Closeness subscale.

* $p < 0.05$, ** $p < 0.01$.

Concurrent Validity. The correlations for the concurrent validity measures can be seen in table 4. As predicted, the Weight Gain subscale of the MBIBQ was positively related to the Muscularity Behavior subscale of the DMS ($r = .83$) and days per week of weightlifting involvement ($r = .67$). With respect to the Weight Loss subscale of the MBIBQ, Weight Loss was positively related to the Eating Restraint subscale of the BIAQ ($r = .39$) as well as days per week of cardio engagement ($r = .35$). Also as predicted, the Appearance subscale of the MBIBQ was related to the Grooming and Weighing subscale of the BIAQ ($r = .36$), and the Avoidance subscale of the MBIBQ was positively correlated to the Clothing ($r = .50$) and Social Activities subscales ($r = .38$) of the BIAQ. See Appendix O for a summary table of concurrent validity predictions and results.

Table 4

Concurrent Validity Correlations for the MBIBQ

Scale	1	2	3	4	5	6	7	8	9	10	11
1. WG	-	.34**	.51**	-.07	.83**	.04	.33**	.03	-.22**	-.67**	.23**
2. WL		-	.28**	.12	.19**	.39**	.18**	.03	-.19*	.27**	.35**
3. AP			-	.11	.46**	.19**	.36**	.11	-.10	.36**	.10
4. AV				-	.00	.30**	.08	.38**	.50**	-.15*	-.10
5. MB					-	.09	.32**	.17**	-.08	.62**	.15*
6. ER						-	.14*	.33**	.18**	-.02	.08
7. GW							-	.03	-.11	.28**	.15*
8. SA								-	.37**	-.00	-.03
9. CL									-	-.27**	-.24**
10. WT										-	.33**
11. CA											-

Note: WG = Weight Gain, WL = Weight Loss, AP = Appearance, AV = Avoidance, MB = Muscularity Behavior subscale of the DMS, ER = Eating Restraint subscale, GW = Grooming and Weighing subscale, SA = Social activities subscale, CL = Clothing subscale, WT = Weight Training involvement, CA = Cardio involvement.

* $p < 0.05$, ** $p < 0.01$.

Discussion

The psychometric properties of the MBIBQ, a questionnaire that taps into relevant behavioral domains in males, were examined. Specifically, convergent, discriminant, and concurrent validity, as well as the internal consistency and test-retest reliability of the measure were assessed. All MBIBQ subscales and the total scale were internally consistent and showed temporal stability across a two week time period. With respect to construct and criterion validity, a number of predictions were made between each of the subscales on the MBIBQ and other measures. With the exception of a weak relationship between the Behavioral Closeness subscale of the FCI and the Avoidance and Weight Gain subscales of the MBIBQ, lack of association between the Weight Loss subscale of the MBIBQ and the Muscularity-Oriented Body Image subscale of the DMS as well as

between self-esteem and the Weight Loss, Weight Gain and Appearance subscales and total score of the MBIBQ, all predictions were supported. As examples, individuals who scored high on the Weight Gain and Appearance subscales on the MBIBQ also scored high on the Muscularity Behavior subscale of the DMS. As well, those who scored high on the Weight Loss subscale of the MBIBQ also scored highly on the Drive for thinness subscale. Finally, those who scored high on the Avoidance subscale of the MBIBQ, scored low on self-esteem as measured by the Rosenberg Self-Esteem scale.

Self-Esteem

With respect to self-esteem, the lack of relationship between the Rosenberg Self-Esteem scale and the MBIBQ total score, Weight Loss, Weight Gain and Appearance subscales of the MBIBQ was not unexpected given the ambiguous findings reported in the literature. More specifically, McCreary and Sasse (2000), for example, reported a moderate relationship between self-esteem and the total score of the DMS ($r = -.41, p < .001$) in their study. In our study, however, the DMS total score showed no relation to self-esteem ($r = -.11$). While the Muscularity-Oriented Body Image subscale of the DMS showed a small relationship to self-esteem ($r = -.15, p < .05$), no relation was observed with the Muscularity Behavior subscale of the DMS. The lack of relationship between the MBIBQ as well as the DMS and self-esteem supports the findings from a later study conducted by McCreary and Sasse (2002) where neither dieting to lose weight nor dieting to gain weight was associated with self-esteem. The authors purported that self-esteem may be related to the motivation behind the desire to gain size rather than actual dieting behavior. Someone with low self-esteem may thus be motivated to increase muscularity yet lack the self-esteem to implement behaviors in that vein. Indeed, this would provide

some support to our finding that the Muscularity-Oriented Body Image subscale on the DMS had a significant yet small relationship to self-esteem whereas the Muscularity Behavior subscale on the DMS and MBIBQ did not. Furthermore, although body dissatisfaction was negatively related to self-esteem in their study with male undergraduate students, Olivardia and colleagues also reported a positive relationship between perceived fat free mass index and self-esteem (Olivardia, Pope, Bororwiecki, & Cohane, 2004). In other words, those with more muscle mass exhibited a positive relationship (although low) to self-esteem. Perhaps those who begin to see the results of their weight gain or weight loss may exhibit an increase in self-esteem, while those who do not see improvement exhibit no relation or a negative relationship to self-esteem. Indeed, an earlier study conducted by Tucker (1983) revealed higher levels of self-esteem in weightlifters when compared to controls.

A possible explanation for the equivocal self-esteem findings in males may pertain to the use of a global measure of self-esteem (i.e., the Rosenberg Self-Esteem Scale) in the studies reported here. A measure that examines different facets of self-esteem, such as Harter's Self Perception Profile (Harter, 1988), may provide a better indication of whether the different domains of self-esteem (e.g., physical appearance) relate to body image-related areas (O'Dea & Abraham, 2000). More research is therefore needed to examine the different domains of self-esteem as well as the desired change in body shape and evidence of the desired change to gain a better understanding of the nature of the relationship between self-esteem and male body image.

Although self-esteem was not related to the Weight Loss, Weight Gain, nor Appearance subscales and total score of the MBIBQ, a moderate relationship between

self-esteem and the Avoidance subscale did exist. These findings suggest that behavioral avoidance may be a distinct construct from actual behaviors utilized to change one's body shape or enhance their physique. Avoidance as a coping mechanism for poor body image may be suggestive of a learned helplessness whereby the motivation required to engage in body modification behaviors is lacking. Unfortunately, little information is known about body image avoidance, particularly in the male population.

An important issue pertaining to the lack of relationship between the Avoidance subscale and Weight Loss, Weight Gain and Appearance subscales of the MBIBQ, is its implication on the scoring of the MBIBQ. Researchers need to consider whether the Avoidance subscale should be included in a total scale score of the MBIBQ when examining a sample similar in nature to that examined here. The relationship of the Avoidance subscale to the Weight Loss, Weight Gain and Appearance subscales of the MBIBQ in various subpopulations is not yet known and is therefore needed to determine when or if the scoring of the MBIBQ should include the Avoidance subscale in the total score (see chapter VI for further discussion of this issue). Important to note, however, is that all items on the MBIBQ are behavioral in nature and not all subscales on the widely used Eating Disorder Inventory were inter-related (Garner, Olmstead, & Polivy, 1983). Regardless of whether the avoidance subscale is included in the total scale score of the MBIBQ, a higher score on all the subscales would indicate greater body image behavioral investment with lower scores indicating minimal to no investment. With respect to individual subscales, higher scores on the weight loss, weight gain, appearance and avoidance subscales would indicate a high investment in these respective behaviors with

low overall or individual subscale scores indicating that the respondent exhibits no to a low investment in the behaviors reflected in each of these subscales.

Descriptive Findings

Although the examination of the desired direction of body change was not a specific purpose of this study, worth mention was the percentage of males desiring to be of a lesser weight, greater weight, or those who desired a weight identical to their current. Our findings somewhat corroborate those of an American study conducted by Wang and colleagues where 27.5% of their grade 12 participants aged 18 years or older did not desire a change in weight, 47% desired to gain weight and 25.6% desired to lose weight (Wang, Yesalis, Fitzhugh, Buckely, & Smiciklas-Wright, 1994). Examination of the responses to the weight loss items on the MBIBQ of those who indicated a desired gain in weight revealed that a substantial percentage (91.1%) indicated that they engaged in weight loss behaviors and participants who desired to lose weight also indicated that they utilized weight gain behaviors in their responses on the MBIBQ (89.5%). Lastly, participants who indicated that their desired weight was equivalent to their current weight also reported that they utilized weight gain and/or weight loss behaviors in their responses on the MBIBQ (95.2%). Thus, it is the desired degree of weight gain or weight loss that is reflected in the number they provide. Overall weight loss, for example, may be greater than a desired gain in muscle or they may desire to change their body composition without actually modifying their weight. It may also be that those who did not indicate a desired change in weight may have reached their target weight and may or may not have been engaging in weight maintenance behaviors which could have included

weight loss, weight gain, or both. Thus, the items on the MBIBQ were written to reflect whether the behavior indicated was employed to gain or lose size, or maintenance.

With respect to the open-ended questions, the majority of males desired a gain in muscle, not fat, nor the combination of fat and muscle. As a review, of particular interest is that 64 of the 70 participants responded “yes” to the question; Are you trying, or have you ever tried to gain or maintain weight? Of these 64 participants, 52 indicated that the specific type of weight they had or were trying to gain or maintain was muscle (81.3%). Thus, it appears that the majority of participants in this study associated the word weight with muscle. This finding has implications for body image questionnaires that include the word weight in their items. The Body Change Inventory developed by Ricciardelli and McCabe (2002), for example, includes three subscales; strategies to decrease body size, strategies to increase body size (SIBS), and strategies to increase muscle size (SIMS). The SIBS subscale poses items such that the statement is done for the purpose of increasing weight. Indeed, the authors observed a fairly strong correlation between the SIBS and SIMS subscales ($r = .60$). Weight gain may have been more of a factor in their sample of younger males (ages 11 to 17) where a gain in fat would not be unwelcome for the pubescent male. Indeed, one participant on the open-ended questions from phase IV commented that he tried to gain fat at the age of 16 when he had a body fat percentage of 8.9. It may also be, however, that similar to before mentioned results of the university males, the word weight was construed as solely muscle to the majority and a combination of muscle of fat or solely fat to a smaller percentage. It is therefore incorrect to assume that males associate fat with the word weight.

Limitations

Limitations of the MBIBQ are noteworthy. As with all self-report measures, the accuracy of participant responses is not known. Anxiety associated with the admittance of particular behaviors on the MBIBQ as well as the open-ended questions may have influenced participant responses to a degree. It should be noted, however, that no questions pertaining to illegal or particularly unhealthy behaviors, such as steroid use to gain muscle or fasting to lose weight were included. Although behaviors of this nature were originally included on a preliminary version of the MBIBQ, substantial skewness resulted in their ultimate deletion. Furthermore, as noted in the previous chapter, the sample here was limited to male undergraduate students and the results should therefore not be generalized to other age groups, cultures, sexual orientations, or subgroups of males, such as competitive body builders.

Future Research

Further examination of the psychometric properties of the MBIBQ is needed before conclusions can be drawn in specific populations such as body builders, males in the same age groups who do not attend university, older as well as younger age groups, other cultures, and males diagnosed with muscle dysmorphia. Along this line, how or does, for example, the MBIBQ aid in the diagnosis of individuals with muscle dysmorphia? The content to the MBIBQ does tap into some of the behavioral criteria used for the diagnosis of individuals with muscle dysmorphia and may therefore prove to be useful in this vein. Furthermore, demographic information pertaining to the sexual orientation of the participants was not collected thus the potential differences observed between homosexual and heterosexual samples is not known.

In addition to the psychometric properties of the MBIBQ in various subgroups, future research may focus on the predictive validity of the MBIBQ, as well as further concurrent, convergent and discriminant validity measures. Given that self-esteem did not emerge as a construct of relation to the overall MBIBQ score, its relation to other measures of expected relation such as, depression and body dissatisfaction, should be investigated. Although no relationship was found between the Behavioral Closeness subscale and the Avoidance and Appearance subscales of the MBIBQ or total scale score, small yet significant correlations were obtained with the Weight Gain and Avoidance subscales. Others note that small correlations are not unexpected in measurements of discriminant validity (Shea & Fortna, 2002). Furthermore, given that the analysis conducted on the MBIBQ was correlational, future research should investigate the precise nature of the relationships between, for example, the Muscularity-Oriented Body Image subscale of the DMS and the Weight Gain subscale of the MBIBQ. As noted by Morrison and colleagues (2004), does the drive for muscularity lead to the engagement of behaviors or does the engagement in the behaviors strengthen the drive?

A further avenue of research stems from the finding that although males have exhibited a drive for muscularity as well as a drive for thinness as measured by the Drive for Thinness subscale of the EDI in previous studies (see Blouin & Goldfield, 1995; McCreary & Sasse, 2000), the Weight Gain subscale of the MBIBQ nor the Muscularity Behavior subscale or total scale score of the DMS for that matter were related to the Drive for Thinness subscale of the EDI in this study, r 's = .08, .12, and .10 respectively. Furthermore, the Weight Loss and Weight Gain subscales of the MBIBQ were positively related ($r = .34$), whereas the Weight Loss subscale of the MBIBQ and Muscularity-

Oriented Body Image subscale of the DMS were not. Behaviors that pertain to leanness rather than thinness are more congruent with the lean mesomorphic ideal. The Drive for Thinness subscale was developed for the assessment of eating disorders in the female population and thus reflects thinness. Although males may desire a loss in fat to achieve lean muscle mass, they may not actually desire overall thinness, especially if they desire a mesomorphic physique where a gain in muscle mass would increase overall size, regardless if a loss in adiposity was accomplished. This may shed light onto the lack of relationship between weight loss behaviors and attitudes reflecting a desire for muscularity. The incremental validity of the Weight Loss subscale in this vein is purely speculative. Research is therefore needed to determine if the Weight Loss subscale of the MBIBQ provides a more accurate assessment of actual weight loss tendencies over other scales, such as the Drive for Thinness subscale, where attitudes and feelings comprise the majority of the scale.

In conclusion, preliminary evidence of validity and reliability has been provided for the measurement of various body image-related behaviors in males. The construction of a behavioral questionnaire, constructed specifically for males, provides valuable insight into the specific behaviors males utilize, the structure of the various behaviors for the deciphering of latent variables, and the relation of the latent variables to other dimensions of male body image and constructs of hypothesized relation. This study expands upon existing literature and as a result, our overall understanding of male body image-related behaviors.

Educational Implications

A comment provided by one individual and his misconception that fat can be

turned into muscle speaks to the misinformed beliefs of some males who are trying to ultimately gain muscle through unhealthy means (i.e. fat). It is unclear how many of the 18.7% of participants who desired a gain in fat or both fat and muscle also believed that an initial gain in fat would later turn into muscle. The number of men who desire muscle as their form of weight gain may therefore be even greater. Others have also commented on the fat to muscle conversion myth that many people believe to be true (McCreary & Sasse, 2002). Thus, educational programs could be instrumental in debunking such a myth. There is question, however, as to whether educational programs should actually address the unhealthy methods of achieving a desired body shape and/or weight in their curriculum.

Educational programs that teach students about the unhealthy methods of, for example, weight loss and the adverse ramifications of their use, may actually inform students about behaviors that they consequently utilize (Springer, Winzelberg, Perkins, & Taylor, 1999). Given the notion that self-esteem may be related to the motivation to gain muscularity rather than actual dieting behavior, the demystification of the idealized mesomorphic physique may in fact be a better approach in body image programs with a focus on improving self-esteem a goal. Indeed, a recent educational program that focused on self-esteem did improve the body image of the participants (see O'Dea & Abraham, 2000).

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Chapter VII - Elaborated Discussion

In this chapter, an overview of the research, elaborated discussion of the major findings, and open-ended comments not presented in chapters V and VI will be presented. This will be followed by an overall synthesis of the thesis, discussion of the limitations, strengths, implications, and suggestions for future research.

My personal observation of behaviors related to the desired attainment of the mesomorphic ideal and knowledge of the lack of available research in this domain, prompted me to investigate why male body image was under-researched. This initial examination brought to my attention the underlying misperception of many studies that males are void of body image concerns. It is likely that this misinterpretation resulted from an incorrect conclusion derived from mean calculations of those who wanted to lose weight and those who wanted to gain weight that was compounded by a lack of dialogue on male body image. These circumstances impelled me to focus my attention on the demystification of male body image. Thus, my ultimate goal when this journey began in 2001 was to increase our overall awareness and understanding of body image in males with the specific objective of gaining a better understanding of body-image related behaviors in this population. The investigation of this main objective was complemented by (1) a contextualization of the ideal male physique through the study of representations of the male body from ancient Greece to 19th century art and through (2) a better understanding of body image, related behaviors, perceptions, and motivations via a qualitative approach. These components of the research, while providing valuable information in and of themselves, served to inform the main objective of the research by aiding in the construction of a questionnaire that, via the examination of its structure and relation to other variables, culminated in a better understanding of body image-related behaviors in males.

A sequential mixed method approach was deemed to be the most effective way to approach the goals of the research with the qualitative phase comprising the complimentary less dominate phase of the overall research project (Tashakkori &

Teddlie, 1998). Qualitative inquiry, particularly in a domain that is relatively new, is valuable in the construction of new measures. Thus, the qualitative component of this research (phase II, presented in chapter IV) served to aid in the generation of items that comprised the preliminary version of the MBIBQ. The quantitative phases of this mixed method design (phases III and IV, presented in chapters V and VI) encompassed the psychometric evaluation of the MBIBQ. Specifically, construct and concurrent validity as well as the temporal reliability and internal consistency of the measure were examined. The main findings of each chapter will next be summarized with interconnections between each chapter examined and, finally, a synthesis of the overall results provided.

Ideal Male Physique

Before investigation of the research questions ensued, it first became important to provide context to the “phenomenon” of the mesomorphic ideal. Given the recent increase in research on male body image, stemming in part from an increase in portrayals of the male physique in the media, the question arose as to whether the present day mesomorphic ideal was a relatively new occurrence in the media as is the thin ideal in the female population (Mazur, 1986), or was there evidence to show a mesomorphic ideal depicted in past time periods? The examination of the male ideal body (phase I), if one could indeed be deciphered, would therefore have to occur through the media resource of earlier times; specifically, art. Given that a number of art mediums exist from various corners of the world throughout time, the examination of the male physique was narrowed to paintings and sculptures, Western society, and from Ancient Greece (520 B.C.) to the 19th century (1879 A.D.). From this examination spanning approximately 2,399 years, a cyclical ideal of a mesomorphic body type, ranging in degree of

muscularity portrayed, was observed with interceding portrayals of a thin physique.

While the art review presented in chapter III is far from exhaustive with many other time periods, mediums and areas of the world left to be examined, it served to not only provide context to the mesomorphic ideal, but to also elucidate two notions in particular that purport to provide insight into the increase in male body image concerns observed in recent decades.

Primarily, the examination of art served to challenge the steroid view and the gender parity view that was presented in Chapter II. With respect to the steroid view, in contrast to the assertions of others (e.g., Pope, Phillips & Olivardia, 2000), past art representations of the male physique were comparable to steroid produced body builders of more recent times. Indeed, examples of these massive representations can be seen in the Baroque period. The advent of steroid availability and its use has therefore not necessarily resulted in the idolization of a mesomorphic physique, rather, made its attainment more feasible. Furthermore, it seems more likely that it is the communication capability of the modern media to the masses that has resulted in the desire for some males to achieve a mesomorphic body type. Certainly the outreach of paintings and sculptures of previous time periods was not as vast as it is today. It seems, therefore, that the introduction of steroids may not be as significant to the internalization of muscularity as is the expansive reach of the media itself.

The review of art also served to provide insight into the gender parity view. One assertion of the gender parity view is that an increase in portrayals of the mesomorphic physique in recent years is a result of women's equal rights movement. While an increase in unclothed male images have been documented in the latter part of the 20th century

(Pope, Olivardia, Borowiecki & Cohane, 2001), the examination of art in earlier time periods reveals that a focus on male muscularity existed even back then. The portrayal of the nude male physique, mesomorphic in build, can be observed in abundance during various periods throughout history. Certainly women's liberation was far from evident in ancient Greece, the Renaissance and Baroque periods. Therefore, can it be stated that the increase in muscular portrayals of the male physique in more recent years is a result of gender parity? Although it is unclear, the review of art would suggest that this claim is unlikely. Perhaps, it is gender parity itself that has increased male body image concerns, that is, women's equality with men in various areas of the work domain, not the actual appreciation of muscularity. It is important to note, that no research to date has actually provided evidence to suggest that males in recent decades are more concerned about their bodies than previous periods where an emphasis on muscular beauty is also observed (Pope et al., 2000). The lack of tools to assess body image concerns, combined with the misinterpretation of earlier research, makes this assertion purely speculative.

Male Voices

With the review of art serving as a historical frame of reference for the ideal male body type, the notion of the ideal male physique was further examined in a sample of male undergraduate students (phase II, presented in chapter IV) which served to provide voice to not only the ideal male physique, but to other related aspects of body image. More specifically, the findings showed that although eight of the eleven men interviewed desired a change in body shape, they did not find a hyper-muscular physique to be superlative. Rather, a mesomorphic physique of medium build was viewed as ideal. This qualitative component to the research also permitted the examination of the behaviors

surrounding body image in the male population as well as the underlying motivations in this vein. Although two men in particular expressed substantial past concerns and somewhat current concerns, the majority of men revealed that they were relatively satisfied with their bodies. Some indicated a desired change in body shape for aesthetic purposes, while the employment of weight gain and/or weight loss behaviors for others was ultimately motivated by a desire to be healthy. Indeed, the healthy lifestyle view does appear to be prevalent for the men interviewed in phase II of this research. The healthy lifestyle view also purports, however, that initial health related motivations may develop into body image concerns. It is not possible to ascertain whether this was or will become a possibility for the participants in this study. It does appear, however, that void of concerns, health as a motivation was salient.

The interviews from phase II also linked to the homophobia notion. More specifically, in response to the picture of the ectomorphic individual, a few participants included “twink” and “effeminate” in their descriptions. While the issue of homophobia was not probed in any great detail in phase II, these particular comments do raise the question of whether men engage in specific behaviors to gain muscularity in an effort to debunk the association of homosexuality with a particular body type. To my knowledge, the homophobia notion has not received attention in the literature and thus the association between the desired attainment of a mesomorphic body type and homophobia is purely speculative.

Although homophobia was not discussed nor probed as a salient factor in phase II, several sources of influence did surface for the men including potential mates, peers, and the media with the latter perhaps serving to impact the former two sources. Indeed, the

media is a powerful conduit of beliefs (Tiggeman, 2002). Regardless of the influence and/or motivation behind a specific behavior, the men reported the utilization of both healthy and unhealthy behaviors, such as weight gain, weight loss, avoidance and grooming related appearance type behaviors. Similar to the links between the art review, steroids and gender parity views, the findings from phase II also speak to the healthy lifestyle view described in this thesis.

Exploratory PCA and CFA

The findings from phase II served to emphasize the complexity of male body image and was an important component in the construction of many items that comprised the preliminary version of the MBIBQ. A review of literature and expert review also contributed to the preliminary construction of the questionnaire. Upon the generation of the items from these three sources, it next became important to examine the underlying structure of the questionnaire in phase III of the research (presented in chapter V). Although behaviors that were similar in nature were presented in the qualitative write-up, it was not known whether the WG and WL subscales, for example, would parcel out into two separate subscales. Given that lean muscularity would result in both types of behavior, their integration was not unexpected. Similarly, it wasn't known whether appearance and weight gain behaviors would also comprise the same subscale or load onto separate subscales. Without prior research to support a predicted number of subscales, Principal Components Analysis (PCA) over an exploratory factor analysis method was deemed appropriate.

Examination of the PCA revealed that four internally consistent subscales comprised the MBIBQ. The four components were described as weight gain, weight loss,

avoidance, and appearance. Unsurprisingly, some of the more unhealthy behaviors were eliminated due to complex loadings, insignificant loadings, or substantial skewness suggesting that although males may indicate knowledge of more extreme body modification behaviors, their utilization is actually minimal. Further refinement of the MBIBQ occurred during the CFA study when the specified model resulted in an unsatisfactory fit. An exploratory factor analysis therefore proceeded. Unlike the exploratory PCA sample, the avoidance subscale was not related to the WL subscale in the confirmatory sample. The model was re-specified with the avoidance subscale deleted. The Bollen-Stine bootstrap p value was still significant, yet the fit indices were much improved with $\chi^2/df = 1.88$, CFI = .96, GFI = .94, AFGI = .91, RMSEA = .06, and SRMR = .05. Although an improved model fit was obtained, an adequate fit was also achieved with the inclusion of the avoidance subscale.

Notable is that in their construct validity examination of the EDI, Garner, Olmstead and Polivy (1983) reported that not all of the eight subscales within the EDI were inter-related. Thus, the fact that the avoidance subscale was unrelated to the other subscales on the MBIBQ may not necessarily justify its omission. Moreover, given that the MBIBQ is in the early stages of development with the examination of its structure and interrelations between its subscales unexplained in various subpopulations that may exhibit a combination of behaviors to heightened degrees (e.g., muscle dysmorphics), the elimination of the behavioral avoidance items on the MBIBQ was deemed premature. More research is needed before a conclusive decision can be made.

Of all of the modifications made to the MBIBQ, a surprising change was the deletion of the items "I assess my body shape in the mirror" and "I compare my body to

others to assess my body shape". Although each item weakly loaded onto the appearance subscale, neither met the loading criteria necessary for their inclusion. The failure of either item to load onto a subscale was curious because if men had no reference images of noted appreciation or feedback of their shape, would they desire to change their bodies if for aesthetic reasons? To my knowledge, no health benefits could be derived from the behaviors that comprised the appearance subscale. A source of additional insight into relevant behaviors was provided via an open ended comments section that was distributed to all participants in the quantitative phases of the research (n = 550).

Open Ended Comments

Given my surprise that the items pertaining to comparing and assessing one's body was not ultimately included on the final version of the questionnaire, it was interesting to find that only two of the participants from the CFA sample commented on "a tendency to look in the mirror often" with none indicating that they compared their bodies to others. Other behaviors noted by the participants included eating well and eating raw organic foods. The purpose for which these behaviors were utilized was not indicated. Nonetheless, item 3 on the final version of the MBIBQ; "I eat a healthy well balanced diet to lose or maintain weight" does appear to get at the essence of the before mentioned behaviors.

Other noted behaviors in the open-ended comments section included frequent and excessive exercise, sit-ups, and physical activity in the form of landscaping, biking, windsurfing, planting trees, and brisk walks. These behaviors essentially fall under the general denotation of item 15, "I engage in cardio activities to lose or maintain weight". The purpose for which these behaviors were employed was also not clarified. Thus, it is

uncertain if item 15 encompasses the intent of the behaviors indicated in the open-ended comments section. Nevertheless, the degree of cardiovascular output was initially considered in the early stages of the questionnaire. Items that probed both excessive and moderate levels of cardio were originally included. An expert reviewer, however, pointed out the subjective nature of the terms excessive and moderate. Thus, a more objective indication of these terms was sought by providing a definition of moderate and excessive with “I engage in cardio activities 3-4 days a week to lose or maintain weight” corresponding to moderate and “I engage in cardio activities 6-7 days a week to lose or maintain weight” corresponding to excessive. As noted in chapter V, these items were ultimately revised as the days per week reference conflicted with the definitions provided for the response format.

A comment from the CFA sample that pertained to behavioral avoidance; “I don’t like to reveal my legs to others, but I don’t care to reveal my upper body to others. There’s nothing wrong with my legs. I just feel pants make my legs look in better shape.” The items that pertained to avoidance on the MBIBQ were descriptive in terms of where the avoidance behavior may take place, but not with respect to the specific area of the body that could cause distress. Given that avoidance ultimately appeared to be unrelated to WL, WG and AP subscales in phases II and III, future thought into the development of a more comprehensive avoidance instrument may therefore be considered. As noted in chapter I, the BIAQ was developed with a sample of women and is thus reflective of a female preoccupation with body image. Given that behavioral avoidance, particularly in the male population, is not understood (Cash & Pruzinsky, 2002); this avenue of inquiry is warranted.

Other comments noted by participants in the open-ended comments section included pushups, constantly eating, eating a lot before bed time, and eating a strict diet to gain weight. An original item on the MBIBQ that did not meet the PCA loading criteria of .50 was "I follow a strict diet and workout schedule to gain muscle size or weight". Push ups is a type of resistance behavior and although the weight training behavior included on the MBIBQ falls under the realm of resistance behaviors, it does not encompass all types. Finally, other behaviors that may or may not have fallen under the appearance subscale include, showing off at the locker room, flexing one's muscles to appear larger, and "I take pictures of myself flexing".

Overall, the examination of the open-ended comments indicated that the MBIBQ did appear to encompass the general categories of behaviors and/or those that tapped into the same dimension as those provided in the open comments section. A substantial number of participants (522 of the 540) did not list additional behaviors to those already mentioned on the questionnaire, indicating that the MBIBQ was successful in capturing relevant behaviors in the samples studied here.

Do They Mean Fat, Muscle, or Both?

The opportunity for participants to indicate additional behaviors was beneficial in that it expanded upon the knowledge gained from the interview and questionnaire data. It also became clear that additional clarification of a semantics-related issue pertaining to the weight gain subscale was necessary. More specifically, examination of the items on the weight gain subscale upon PCA brought to attention the ambiguous wording of two out of the five items that were posed such that the engagement of the behavior was done for the purpose of gaining or maintaining weight. The word weight is ambiguous as it

could pertain to fat, muscle, or both fat and muscle. Given that muscularity and not adiposity is more reflective of the mesomorphic ideal, the decision to modify the items that included the word weight to muscle was made. This modification prompted the investigation of the word weight through four open-ended questions distributed to a subset of participants in phase IV (refer to chapter VI). The reason that the open-ended questions were posed such that the behavior occurred in the past or present was because the frequency scale on the MBIBQ ranged from a time span of “about once a year” to “daily”. It was therefore possible for respondents to indicate that they had fluctuated, for example, from weight loss in the early part of the year, to weight gain in the latter part of the year. This being particularly true if the respondent was focusing more on weight loss maintenance after achieving their desired loss in fat and subsequently turned their attention to muscle gaining behaviors.

The findings suggested that the majority of males desired a gain in muscle, not fat. More specifically, muscle was the desired form of weight gain for 81.3% of the participants who were trying or had tried to gain weight. Based upon the comments provided by one individual, it is also unclear how many of the 18.7% of participants who desired a gain in fat or both fat and muscle believed that an initial gain in fat would later turn into muscle. The number of men who desire muscle as their form of weight gain may therefore be even greater. Regardless, it appears that the majority of participants in this study associated the word weight with muscle. Thus, this finding has implications for body image questionnaires that include the word weight in their items (e.g. Ricciardelli & McCabe, 2002).

Validity Measures

With a better understanding of the structure of the MBIBQ as well as clarification provided by open-ended comments and thus relevant body image-related behaviors in males, the next goal of this research was to further investigate the psychometric properties of the MBIBQ via the examination of the MBIBQ's relation to other measures. Specifically, the convergent, discriminant, concurrent validity as well as temporal stability of the tool were addressed. It was predicted that all subscales and the total score on the MBIBQ would be unrelated to a measure of behavioral friendship and negatively related to self-esteem. On an individual subscale level, it was predicted that the WL subscale would be related to muscle-oriented body image, muscle-oriented behavior, the drive for thinness, eating restraint and participant involvement in cardio activities. It was predicted that the WG subscale would be related to muscle-oriented body image, muscle-oriented behavior, and weight lifting involvement. It was also predicted that the AP subscale would be related to muscle-oriented body image, muscle-oriented behavior, and grooming and weighing (measured by the BIAQ). Finally, it was predicted that the MBIBQ total score would also be related to the subscales of the DMS and the drive for thinness subscale of the EDI.

Preliminary evidence of concurrent, convergent, initial evidence of discriminant validity and test-retest reliability of the MBIBQ was provided. The results pertaining to the relationship, or lack thereof, between the WL, WG and AP subscales and total score of the MBIBQ and self-esteem illuminated the complexity and lack of understanding of the relationship between male body image-related behaviors and this psychosocial variable. Moreover, the negative relationship between self-esteem and avoidance

provided further evidence that avoidance is distinct from the dimensions represented by the weight gain, weight loss and appearance subscales.

In summary to this point, an exploratory and confirmatory analysis of the MBIBQ resulted in a number of modifications to the questionnaire with further analysis revealing that the avoidance subscale was unrelated to the other subscales on the MBIBQ.

Preferable though it would have been to include a second exploratory phase to this research, the difficulty faced in collecting a suitable number of participants for phases II and III, which I will discuss in greater detail next, made the addition of another quantitative phase unfeasible. Thus, in addition to the description of the steps taken during this research thus far, it is important to further elaborate upon the overall limitations of the research. In doing so, we will have a better understanding of the implications these limitations have on the generalization of the results reported throughout this thesis as well as on future use of the MBIBQ with particular samples, as well as an understanding of what issues remain to be addressed.

Limitations

As with all research, the studies reported herein have a number of limitations worth mentioning. Specifically, a limitation of interviews as well as self-report questionnaires, is that the element of truth provided in the responses is unknown. This may be explained by the reluctance of participants to reveal sensitive information pertaining to the actual behaviors employed that surround their desired body shape as well as their comfort level with their bodies. As noted earlier, males are often unwilling to talk about body image concerns, to do so would be viewed as unmasculine (Pope et al., 2000). Therefore, the admission of body image concerns and related behaviors, even on

an anonymous questionnaire, may be embarrassing for the participant. A couple of strategies were therefore implemented to reduce the lack of comfort experienced by the participants; interviewees were given the option of being interviewed by a male if they felt uncomfortable with a female and when possible, an alternate location was provided for the drop-off of questionnaires.

It should also be noted that while member checking in the form of participant review of their respective transcripts took place in phase II, participants were not provided with the data codes in an effort to ascertain their agreement with my interpretation of the raw data. The interpretation of the data may therefore be limited as a modified interpretation of the data may have ensued with participant input. Important to note, however, is that credibility of the analysis was sought by examining whether two other researchers “saw” what I “saw” in the data and through inter-coder reliability.

As with all ethical studies, participation in this research was voluntary. As a result, it is possible that the sample may have been comprised of those who do not exhibit body image concerns and related behaviors, and were therefore more comfortable completing questionnaires on the topic than those who do. The reluctance of persons with eating problems to participate in eating-pathology surveys has been noted by others (e.g., Beglin & Fairburn, 1992; Hausenblas & Carron, 1999). Thus, Hausenblas and Carron (1999) suggest that researchers report the response rate in studies that examine eating behaviors as it might have implications for our understanding of prevalence rates. I will therefore discuss the number of classes I was granted access to, the number of questionnaires that were distributed, and the number of questionnaires returned.

In the exploratory component (presented in chapter V), professors from four

Ontario universities were contacted via e-mail and permission to approach their students was requested. Of the 66 professors contacted, 14 (21%) granted access to their students. Approximately 588 questionnaires were distributed among these 14 classes with 297 returned for a response rate of 50%. In the confirmatory and validation component (presented in chapters V and VI), data collection took place at two universities with approximately 60 professors contacted and of these, 19 professors (31.6%) granted me access to their students. Approximately 420 questionnaire packets were distributed with 253 returned (60% proportion of returned questionnaires).

While the proportion of returned questionnaires of 50% and 60% are seemingly high, it should be noted that the number of professors who granted me access to their classes was somewhat low and not all potential males in each class that was visited received a questionnaire packet. In one class of approximately 65 males, for example, 10 of the 65 students volunteered to participate in the study. The number of males in each class and number of these males that received questionnaire packets varied across classes. In an effort to increase the response rate upon data collection for phase II and the exploratory component to phase III, each participant was entered into a draw for \$100.00 in the confirmatory component to phase III and phase IV. Even with this incentive, the number of males that opted to receive a packet was uniformly low. Moreover, prior to the distribution of the questionnaire packets, all potential participants were informed that the research pertained to male body image. Certainly the interviews in phase II were helpful in providing insight into the lack of comfort some males feel when addressing male body image concerns. Given the lack of societal conversation surrounding male body image and given that those individuals who suffer from more serious concerns are unlikely to

participate in studies of this kind (Pope et al., 2000), the low volunteer rate coupled with the convenient nature of this sample, reduces the degree of generalizability of these findings to other samples. Moreover, as mentioned within chapters V and VI, the results cannot be generalized to other age groups, cultures or subgroups of the population.

Finally, it is important to note that it can not be stated with certainty that the samples in phase III were drawn from the same population. Every effort was made, however, to visit the same types of classes in both studies and examination of level of sport involvement and cultural background/origin for both samples suggests that they are comparable.

Strengths

Despite the limitations mentioned herein, the research presented here has a number of strengths. Drawing on physical artifacts, interviews and quantitative methods, this research provides a broad, yet in-depth study of male body image. In its entirety, the art review helped to place the mesomorphic physique within the context of history. The qualitative phase provided voice to male body image perceptions, motivations and related behaviors. The quantitative phases revealed relevant behaviors, their structure, relation to each other, and relation to other variables in a sample of male undergraduate students. While research has increased in the domain of male body image in recent years, to my knowledge this is the first study in the body image domain to provide a review of sculptures and paintings over a 2,399 year time period, utilize semi-structured interviews where participants could opt for a male interviewer, and report the creation of a questionnaire that examines behaviors that are specifically relevant for the male population. Furthermore, the defined frequency format on the MBIBQ provides a more

accurate assessment of the actual frequency in which various behaviors are utilized. On a broader level, the findings reported in this dissertation also provide insight to the recent notions put forth by various researchers to explain the more recent rise in male body image concerns. Therefore, this dissertation contributes to our understanding of male body image and has numerous implications.

Educational Implications

Given that the sociocultural perspective is the dominant perspective pertaining to the internalization of ideal body types, consequential body dissatisfaction and behaviors in pursuit of the ideal, an extended examination of representations of the male physique in school-based educational programs, dating back to ancient Greece perhaps, may provide students with a greater conception of varying idealized representations of the male physique over time. A broader examination of representations of the male physique may thus expand critical discussion surrounding the factors that contribute to idealized depictions at various times throughout history and allow for greater insight into the present day ideal. This educational approach may potentially defuse the adverse impact of the media. School-based programs may not only serve to “curtail” the internalization of media portrayed idealized images, they may also provide an anonymous source of intervention for males that are unwilling or unaware that help exists, a sentiment expressed by a participant in phase II.

In addition to the educational implications of the findings from phases I and II of this research, the construction of a tool has broadened our understanding of the body image-related behaviors observed in males, their structure, and their relation to other measures. With this knowledge, educational programs that include measures that were

developed for the purpose of identifying those who may be at risk for suffering from disorders related to the desire to be thin such as anorexia nervosa and bulimia nervosa, could broaden to include those behaviors that are indicative of body image-related behaviors seen in the male sample examined here. This is of particular importance as existing body image and counseling interventions provided by schools and universities commonly focus on disordered eating tendencies observed in the female population (McCreary & Sasse, 2000). Knowledge of all relevant behaviors could aid in the identification, prevention, and treatment of health related consequences of body dissatisfaction, as well as further our understanding of the psychosocial consequences that may result. Indeed, others have expressed the need for existing programs to include male body image concerns (McCreary & Sasse, 2000; Winzelberg, Abascal & Taylor, 2002).

In their study, O'Dea & Abraham (2000) designed an educational program to improve body image and prevent the development of eating disorders through improving self-esteem. Existing school-based programs were criticized by the authors as solely providing information on potential techniques to lose weight, rather than improving the actual beliefs and practices of female students (e.g., Paxton, 1993; Neumark-Sztainer, Butler, & Palti, 1995). As noted in chapter V, the educational program designed by O'Dea and Abraham succeeded in improving body image of both male and female adolescents, as well as weight loss behaviors of female adolescents. However, no measures in their study examined potential behaviors employed to gain size, avoidance or appearance related behaviors. Thus, the inclusion of the MBIBQ as a pre and post measure of program effectiveness could aid in the identification of areas of the

curriculum that need further modification.

Future Research

The examination of other forms of art such as mosaics, cameos and vase painting via subjective and objective measures for an interpretation of the male ideal form would also provide a clearer window into the idolization of the male physique throughout time. Further, examination of an ideal in the Eastern world would allow for cross comparisons of ideal representations of the male physique.

The examination of the male physique in non-western societies also extends to the psychometric evaluation of the MBIBQ in other cultures. Examinations of the psychometric properties are also recommended for other age groups, sexual orientation, various subgroups, such as bodybuilders, and clinical samples in the male population. Examination of the item characteristics as well as measures of validity and reliability among clinical samples is recommended. More research must be done on the avoidance behaviors of the MBIBQ in other samples before more definitive conclusions on how to score the questionnaire can be made (i.e., should the avoidance subscale be included in a total scale score?). Related to this issue is further investigation of different facets of self-esteem rather than the examination of global self-esteem. Furthermore, given the limitations noted earlier, replication of the findings is necessary as is a strictly confirmatory factor analysis of the model.

In addition to the psychometric properties of the MBIBQ in various subgroups, age ranges and cultures, future research may focus on the predictive validity of the MBIBQ and concurrent validity of the appearance subscale and total scale score. Further convergent and discriminant validity measures should also be examined. For example, a

discriminant validity measure that delimits the construct more clearly than a measure of behavioral friendship is recommended. Furthermore, given that the analysis conducted on the MBIBQ was correlational and causality cannot be ascertained, future research should investigate the precise nature of the relationships between, for example, the MBI subscale of the DMS and the WG subscale of the MBIBQ. Furthermore, concerns beyond actual body shape such as penis size and hair loss should be examined as well as further consideration of cross-gender interviewing and the associated level of comfort/discomfort males experience when the topic of male body image is raised. A suggestion in this vein would be to have a male and female researcher individually interview a number of male participants in a counter-balanced manner. Interviewees could then complete a questionnaire on their level of comfort and interviewer preference, if any, upon being interviewed by both researchers.

Another interesting area for future inquiry pertains to the finding that the majority of a small subset of participants from phase IV indicated that their desired form of weight gain was muscle. Although fewer in number, some males also indicated a desired gain in both muscle and fat with fewer numbers desiring a sole gain in fat. The comments provided by one participant made it clear that more research is needed to determine whether those who desire a gain in fat, ultimately believe that they can turn fat into muscle. Furthermore, investigation of the meaning of the word weight is also needed in younger males. As noted earlier, it is not known if puberty may play a role in the type of weight younger males desire to gain. A final note with regards to the meaning of the word weight is the assumption of the word as it pertains to a loss of weight. The

assumption that weight loss solely encompasses fat needs further investigation. It cannot be stated that no males desire a loss in muscle.

Finally, the image scale measures used in phase II warrant discussion. The AFI did not include muscularity and the MFD excluded the representation of adiposity. The representation of both muscularity and adiposity within the same pencil-and-paper measure was not available at the time this research was conducted. Therefore, the utilization of both the AFI and the MFD was particularly beneficial as an illustrative aid to participants' descriptions of current and ideal body types. Inclusion of both scales provided a broader range of images to choose from which provided a better understanding of participant perceptions. Indeed, participants referred to both scales in their descriptions. Although the computer somatomorphic matrix, developed by Gruber, Pope, Borowiecki and Cohane (2000), does include realistic depictions of adiposity and muscularity, the instrument has shown less than adequate test-retest reliability (Cafri, Roehrig & Thompson, 2004). Hildebrandt, Langenbucher and Schlundt (2004) recently developed the Bodybuilder image grid (BIG) that contains 30 images of varying adiposity and muscularity. Examination of the representation of adiposity and muscularity for each image is somewhat awkward and not altogether life-like. Thus, when examining body shape in males, the utilization of an image scale that exhibits realistic depictions of muscularity, adiposity, and adequate psychometric properties is recommended. The construction of measures in this vein is therefore recommended.

In summary, this dissertation provided context to the ideal mesomorphic physique via a review of various art periods, voice to male body image through a qualitative approach, insight to the viewpoints that purport to explain an increase in male body

image concerns observed in recent years, and also provided insight into the behaviors that accompany body image in a sample of male undergraduate students. During this journey, other aspects of body image that were not original goals of the research were also gained; the issue of cross gender interviewing when examining the sensitive and still relatively un-discussed topic of male body image, and the perceived definition of the word weight when investigating desired forms of weight gain in males. In the very least, this dissertation supports the need for continued research in this area while highlighting avenues for future inquiry and investigation.

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Appendices

Appendix A

Demographic Questionnaire

Age: _____

Height: _____

Current weight: _____

Desired weight: _____

Do you participate in a sport? (please specify) _____

Level: _____ recreational _____ provincial
 _____ club _____ national
 _____ varsity _____ international

I exercise (cardio/fat burn) _____ times per week

- A. Zero
- B. 1 or 2 days/week
- C. 3-5 days/week
- D. 6 or 7 days/week
- E. 2 or more times per day, every day

The average length of my cardio session is:

- A. ½ hour
- B. 1 hour
- C. 1 ½ hours
- D. 2 hours
- E. other _____

I lift weights _____ times per week

- A. Zero
- B. 1 or 2 days/week
- C. 3-5 days/week
- D. 6 or 7 days/week
- E. 2 or more times per day, every day

The average length of my weight session is:

- A. ½ hour
- B. 1 hour
- C. 1 ½ hours
- D. 2 hours
- E. other _____

Cultural origin/background:

_____ Eastern European _____ South American
 _____ Western European _____ Native American
 _____ Asian _____ West Indian
 _____ African _____ East Indian
 _____ Middle Eastern _____ Other (please specify)

Appendix B

Interview Guide

Ideal Body Type

1. Do you remember when you first became aware of the way your body looks?
2. What is your perception of the ideal physique?
3. What do you think your friends perceive to be the ideal physique? Ask them to identify the image on the scales.
4. What do you think those that you are attracted to perceive to be the ideal physique? Ask them to identify the image on the scales.
5. What do you think the media perceives to be the ideal physique? Ask them to identify the image on the scales.
6. Do you think you have the ideal physique? Why or why not? Ask them to identify their current physique and desired physique on the scales.
7. If you saw this guy on the street, what would your impression of him be?

Practices/Habits

1. Do you find that you are particularly preoccupied with any aspect of your appearance?
2. How would you go about attaining/maintaining the ideal physique?
3. More specifically, what dieting techniques or physique enhancement techniques do you currently use?
4. What dieting techniques or physique enhancement techniques have you already done to attain or maintain the ideal physique?

5. Do you currently have an exercise program that you engage in? What does it entail?
What have you done in the past?
6. If they do workout: Have you ever felt guilty about missing a workout?
7. Do you wear clothes to enhance your physique while you are working out or at social events?
8. Do you lift weights before you go out for a social event?
9. What do your friends do to maintain or attain the ideal physique?
10. Do you think that attaining or maintaining an ideal physique can get to a point where it interferes with daily activities and becomes somewhat of an obsession? Or would you describe it as a healthy aspect of your life?
11. Have you ever avoided a certain situation because you were uncomfortable with the way you looked?

Theory

1. What motivates you and your peers to attain the ideal physique?

Appendix C

Consent Form – Phase II

Principal Investigators:

Gina Bottamini
Ph.D. Candidate
Faculty of Education
University of Ottawa
562-5800 ext. 4248

Diane Ste-Marie
Associate Professor
School of Human Kinetics
University of Ottawa
562-5800 ext. 4240

I, _____, agree to participate in the research conducted by Gina Bottamini of the Faculty of Education at the University of Ottawa. This research project is in partial fulfillment of her doctoral studies under the supervision of Dr. Diane Ste-Marie. The purpose of the research is to construct a questionnaire that examines male body image.

My participation will consist essentially of attending one to two interview sessions depending on the point in time when no additional information that is pertinent to the study is revealed. Each interview session will last approximately 45 minutes to 1 hour in length. During the interviews I will be asked to answer a number of questions related to male body image. The interview sessions will be taped and later transcribed verbatim.

The interviews will be scheduled at my convenience. I understand that the contents will be used only for the construction of a male body image questionnaire and that my confidentiality will be respected. The interview(s) will take place in a closed lab and at a time when it is unlikely that other students would be around. If I do not feel comfortable being interviewed at the University of Ottawa, an alternate location can be established. It is important to note that potential economical inconveniences could arise for me if I require transportation to the University. Therefore, the researcher will compensate me for parking expenses or bus tolls.

I understand that since this activity deals with very personal information, it may cause me psychological discomfort, which may, at times, be difficult. I have received assurance from the researchers that every effort will be made to minimize these occurrences. If I do not feel comfortable with a female interviewer, a male interviewer will be provided. I am free to withdraw from the project at any time, before or during an interview. I am also free to refuse to participate and refuse to answer questions.

While potential psychological discomfort may result for me, it is important to note that this research is extremely beneficial as the construction of an appropriate tool to investigate the habits and practices that males may employ could broaden our understanding of the lengths males will go to attain the ideal body type. With this knowledge, measures that were developed for the purpose of identifying those who may

be at risk for suffering from disorders related to the desire to be thin such as anorexia nervosa and bulimia nervosa, could broaden to include those behaviors that are indicative of the desire to gain size. Thus, the identification, prevention and treatment of health related consequences as well as our understanding of the psychosocial consequences that may result could ensue.

I have received assurance from the researchers that the information I will share will remain strictly confidential. Anonymity will be assured in the following manner, my name will not appear on the interview transcript nor on a resulting paper. Tape recordings of interviews and other data collected will be kept in a locked file cabinet accessible to only the principal investigators and will be destroyed five years post publication.

Any information about my rights as a research participant may be addressed to **Protocol Officer for Ethics in Research, 550 Cumberland Street, Room 160, (613) 562-5387 or cpaquet@uottawa.ca**. There are two copies of the consent form, one of which I may keep. If I have any questions about the conduct of the research project, I may contact the researcher or her supervisor.

Researcher's signature:

Date:

Research Subject's signature:

Date:

Appendix D

Interview Codes

Interviewees	Descriptive information	1.0
Age		1.1
Status		1.2
Student		1.2.1
Professional		1.2.2
Background		1.3
Francophone		1.3.1
Anglophone		1.3.2

Interviewer Preference/Cross-gender interviewing

This relates to anything they may say about the sex of the interviewer and their preference or comfort level with a male or female when discussing body image related issues.

	1.4
Male	1.4.1
Female	1.4.2
no preference	1.4.3
Comfort level	1.4.4

Persons/context	Time period/who or what the interviewee is referring to	2.0
Person	Who the participant is referring to	2.1
Peers/friends		2.1.1
Media		2.1.2
Mate		2.1.3
Others/people		2.1.4
Photographs or images they are presented with		2.1.5
Image scales		2.1.5.1
Ectomorph picture		2.1.5.2
Endomorph picture		2.1.5.3
Mesomorph picture		2.1.5.4
Time Period		2.2
Past		2.2.1
not necessary to code present, assumed unless coded past		

Body Satisfaction		3.0
No change	Does not want to change body shape, happy or ok with current physique	3.1
Increase/Decrease	wants to lose fat and gain muscle	3.2
Increase Size only	Wants to increase body size, may be more specific about direction	3.3
Weight	Desires an overall increase in weight, could be muscle/fat	3.3.1
Muscle	Increase in size is a desire for muscle mass only	3.3.2
Decrease Size only	Wants to decrease body size or fat	3.4
Room for Improvement	May not indicate an overall desire for change, but state that they could improve their physique somewhat	3.4.3

Psychosocial consequences	ramification of a concern or interest	4.0
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See physical codes under ideal body type and attributions to be specific about what body part/or body shape the good or bad feelings concerned.

Negative Feelings	Decreased Self-esteem, Depression, Self-consciousness, Guilt/shame and feeling or emotion, obsessive etc.	4.1
Interference in life:		4.2
Academics	may have done poorly in school	4.2.1
Socially	may have interfered with dating or social activities	4.2.2
Positive Feelings		4.3
Increase self-confidence etc.		
Neutral	no preoccupation or guilt, no feeling attached, none or little/minimal Doesn't interfere with responsibilities	4.4

Ideal Body Type and Attributions	Descriptions related to ideals	5.0
----------------------------------	--------------------------------	-----

Physical		5.1
Head/Face		5.1.1
Hair	facial/head/hair loss/male pattern baldness	5.1.1.1
Feature	could be about teeth/jaw line/	5.1.1.2
Body part	Reference to any body part: arms/stomach/penis/legs etc.	5.1.2
Body Shape	Reference to shape of body: good shape/fit/ripped/defined/toned could also be overweight: fat/chubby/soft/chunky etc. Also use this to code the number of the image that they might Identify in answer to a question. It all refers to body shape/proportion	5.1.3 5.1.4
Height		5.1.4
Attributes	They may attach a trait or impression to a description. If you are unsure and it doesn't fall into one below, code as	5.2
Comfortable	could be that the person is laid back with taking care of their body or it could be that they are just comfortable with their body and showing it.	5.2.1
Effeminate/artsy	effeminate or "artsy fartsy", also referred to as "twink"	5.2.2
Masculine/Virile		5.2.3
Preditor		5.2.3.1
Protector	provider/strong/security/	5.2.3.2
Confident		5.2.4
Jock	or gym nut/obsessed anything related, body size not necessarily natural	5.2.5
Sedentary	one who is lazy, may also be described as a bum etc.	5.2.6
Hardworking	hardworking on body or in life	5.2.7
Image	someone who fits an image such as model look, movie star	5.2.8
Wimpy/weak	their body or overall feeling may be one that is weak	5.2.9
Ideal	the body is the image of the ideal	5.2.10
Type of Evaluation		5.3
N/A	Can't gain information. They may say that they can't say or don't have an impression. Doesn't matter: may say that there is no ideal or a broad range exists. Or they may not express or have an impression	5.3.1
Positive Evaluation	explains or describes person/impression in a positive or approving way	5.3.2

Negative Evaluation	may describe something as ideal, but not personally think so	5.3.3
Neutral Evaluation	Say it's fine, no real opinion or impression either way	5.3.4

Influences		6.0
Peers		6.1
Teasing	May have received or still receive messages about how they Look or looked through teasing of their peers	6.1.1
Social Comparisons	May have or currently compare the way they look to others.	6.1.2
Media		6.2
Actors/Models	May refer to actors or people on t.v. or in the magazines in their descriptions: e.g. (Brad Pitt, Vin Diesel, Keanu Reeves etc.)	6.2.1
Methods	Media may present ways to change your body, advertisements	6.2.2
N/A	media does not convey messages about ideals	6.2.3
Society	convey an ideal body type	6.2.4
Mates/Girls	anything related to knowing or thinking what girls would desire and that influences what they think	6.3

Behaviors		7.0
Weight Intent		7.1
Weight Loss/maintenance		7.1.1
Weight Gain/maintenance		7.1.2
Physical Activity	Any general info. That they do some sort of exercise can be coded here	7.2
Aerobic	Endurance type activities, biking, running, anything consecutive	7.2.1
Anaerobic	Short bursts of activities such as Karate	7.2.2
Resistance	Any type of weight lifting exercise or push-ups (lifting body weight)	7.2.3
Duration	Length of time or frequency or engaging in physical activity	7.2.4.
Foods/Techniques	code here if you can't find it below	7.3
Steroids		7.3.1
Creatine/Protein	could be in the forms of powders or foods	7.3.2
Carbs		7.3.3
Herbal Supplements	Oils, pills, fat burning pills, vitamins	7.3.4
Watch intake of food	may keep a menu or cut down on certain types of foods	7.3.5
Eat normally	may eat small meals throughout day, dieting	7.3.6
Water	standard diet, likes to eat well	7.3.7
Knowledge of Dangers	aware of what techniques/activities can do to your body	7.4
Effects	effects on your body	7.4.1.
investment	waste of money	7.4.2
Avoidance	an avoiding type of behavior	7.6
Relationships	avoids dating or social events	7.6.1
Situations	avoid pool, taking off shirt, beach, locker room, wash room	7.6.2
Appearance/Grooming	anything related to appearance	7.7
Accentuate/Deaccentuate	Related to either to making body more visible or less visible	7.7.1
tight clothing		7.7.1.1
loose clothing		7.7.1.2
doesn't care		7.7.1.3
style of clothing		7.7.1.4
Context	where would the clothing be worn	7.7.2
socially	going out	7.7.2.1
working out		7.7.2.2
Primping		7.7.3
hair styling/facial hair		7.7.3.1
Hair removal		7.7.3.2

Exercise	targeting of specific areas or specific times (before event)	7.7.4
Reasons/motivations why they may workout/eat or why others do things or desire things		8.0
Mental		8.1
Confidence	makes them feel more confident or anything related to improving feelings, feeling better about self	8.1.1
Stress	a good reliever of stress, takes mind off of things	8.1.2
Time for reflection	think back on week	8.1.3
Health/Fitness	anything related to health or level of fitness	8.2
Improve/maintain fitness	endurance/strength/anything related to being able to do things, increase energy, look healthy	8.2.1
Return to level	return to a level of fitness or body shape	8.2.1.2
Live Longer		8.2.2
Avoid future condition	may have history of heart disease in family	8.2.3
Social		8.3
Attract others/attention	may get noticed or attract a mate/lead to sex Why women prefer a particular body type etc.	8.3.1
Compete	may compete with other guys/jealousy	8.3.2
Be accepted/image	be accepted by others, portray a certain image	8.3.3
Impression	make a good impression	8.3.4
Career		8.4.
Position	may be more likely to get a job if look a certain way	8.4.1
promotion	may be more likely to get a promotion	8.4.2

Appendix E

Male Body Image Behavior Questionnaire Distributed Versions

Study I, Phase III

This questionnaire contains a number of statements that pertain to behaviors you may exhibit. Please respond to each of the following statements by circling the number that best applies to you. The results of this questionnaire are both anonymous and confidential so please respond as honestly as you can to each statement. Please note; there are no right or wrong answers. Your response should reflect what is most appropriate for you.

Example

I engage in exercise activities to increase my level of fitness 1 2 3 4 5 6 7

Circle 1 if you **Never** (*never*) exhibit the behavior indicated in the statement

Circle 2 if you **Very Rarely** (*about once a year*) exhibit the behavior indicated in the statement

Circle 3 if you **Rarely** (*every few months*) exhibit the behavior indicated in the statement

Circle 4 if you **Occasionally** (*monthly*) exhibit the behavior indicated in the statement

Circle 5 if you **Frequently** (*biweekly*) exhibit the behavior indicated in the statement

Circle 6 if you **Very Frequently** (*weekly*) exhibit the behavior indicated in the statement

Circle 7 if you **Always** (*daily*) exhibit the behavior indicated in the statement

1=Never 2=Very Rarely 3=Rarely 4=Occasionally 5=Frequently 6=Very Frequently 7=Always
(never) (about once a year) (every few months) (monthly) (biweekly) (weekly) (daily)

		Never	Very Rarely	Rarely	Occasionally	Frequently	Very Frequently	Always
1.	I take creatine to gain or maintain muscle size or weight	1	2	3	4	5	6	7
2.	I remove unwanted hair from my body to make myself appear more defined	1	2	3	4	5	6	7
3.	I eat a healthy well balanced diet to gain or maintain muscle size or weight	1	2	3	4	5	6	7
4.	I take steroids to gain or maintain muscle size or weight	1	2	3	4	5	6	7
5.	I weight train 3-4 days a week to gain or maintain muscle	1	2	3	4	5	6	7
6.	I consume products that claim to reduce fat (e.g. liposafe, thermo lean)	1	2	3	4	5	6	7

		Never	Very Rarely	Rarely	Occasionally	Frequently	Very Frequently	Always
7.	I fast to lose or maintain weight	1	2	3	4	5	6	7
8.	I avoid revealing my body to others at the swimming pool or at the beach because I'm unhappy with some aspect of my appearance	1	2	3	4	5	6	7
9.	I eat a healthy well balanced diet to lose or maintain weight	1	2	3	4	5	6	7
10.	I load up on foods high in carbohydrates to gain or maintain <i>weight</i>	1	2	3	4	5	6	7
11.	I load up on foods high in protein to gain or maintain <i>weight</i>	1	2	3	4	5	6	7
12.	I smoke cigarettes to lose or maintain weight	1	2	3	4	5	6	7
13.	I engage in cardio activities 6-7 days a week to lose or maintain weight	1	2	3	4	5	6	7
14.	I engage in fad diets (e.g. atkins diet) to lose or maintain weight	1	2	3	4	5	6	7
15.	I weight train <i>6-7 days a week</i> to gain or maintain muscle	1	2	3	4	5	6	7
16.	I lift weights before I go out for a social event to make my muscles and veins more visible	1	2	3	4	5	6	7
17.	I dehydrate my body to make my muscles and veins appear more defined	1	2	3	4	5	6	7
18.	I avoid sweets and junk food to lose or maintain weight	1	2	3	4	5	6	7
19.	I wear baggy clothes to conceal my body when I'm exercising	1	2	3	4	5	6	7
20.	I follow a strict diet and workout schedule to lose or maintain weight	1	2	3	4	5	6	7
21.	I avoid exercising at the gym because I am not in good shape	1	2	3	4	5	6	7
22.	I limit all food groups to lose or maintain weight	1	2	3	4	5	6	7
23.	I carefully monitor my daily caloric intake to gain or maintain muscle size or weight	1	2	3	4	5	6	7

		Never	Very Rarely	Rarely	Occasionally	Frequently	Very Frequently	Always
24.	I engage in cardio activities <i>3-4 days a week</i> to lose or maintain weight	1	2	3	4	5	6	7
25.	I wear dark clothes to make myself appear slimmer	1	2	3	4	5	6	7
26.	I wear tight clothes when exercising to make my muscles appear larger	1	2	3	4	5	6	7
27.	I tan to make my muscles appear more defined	1	2	3	4	5	6	7
28.	I avoid supplements that are harmful to my body	1	2	3	4	5	6	7
29.	I lift weights to gain more veins and look stronger	1	2	3	4	5	6	7
30.	I keep my body hydrated on a daily basis	1	2	3	4	5	6	7
31.	When I lift weights, I only target muscle groups that are visible to others	1	2	3	4	5	6	7
32.	I wear tight clothes to make my muscles appear larger when going out socially	1	2	3	4	5	6	7
33.	I take protein powders/shakes to gain or maintain muscle <i>size or weight</i>	1	2	3	4	5	6	7
34.	I assess my body shape in the mirror	1	2	3	4	5	6	7
35.	I compare my body to others to assess my body shape	1	2	3	4	5	6	7
36.	I get the daily requirement of vitamins through the foods that I eat rather than supplements	1	2	3	4	5	6	7
37.	I binge on foods to put on size	1	2	3	4	5	6	7
38.	I avoid revealing my body to others in the locker room or bathroom because I am unhappy with some aspect of my appearance	1	2	3	4	5	6	7
39.	I avoid social events or dating because I am unhappy with some aspect of my appearance	1	2	3	4	5	6	7
40.	I avoid foods that are high in fat to lose or maintain weight	1	2	3	4	5	6	7
41.	I take legal steroids to gain or maintain muscle size or weight	1	2	3	4	5	6	7

		Never	Very Rarely	Rarely	Occasionally	Frequently	Very Frequently	Always
42.	I follow a strict diet and workout schedule to gain muscle size or weight	1	2	3	4	5	6	7
43.	I carefully monitor my daily caloric intake to lose or maintain weight	1	2	3	4	5	6	7

Note: Items in bold were deleted

Words that are italicized were modified to read muscle rather than weight

Words within items that are bolded and Italicized were deleted

Study II, Phase III

This questionnaire contains a number of statements that pertain to behaviors you may exhibit. Please respond to each of the following statements by circling the number that best applies to you. The results of this questionnaire are both anonymous and confidential so please respond as honestly as you can to each statement. Please note; there are no right or wrong answers. Your response should reflect what is most appropriate for you.

Example

I engage in exercise activities to increase my level of fitness 1 2 3 4 5 6 7

Circle 1 if you **Never** (*never*) exhibit the behavior indicated in the statement

Circle 2 if you **Very Rarely** (*about once a year*) exhibit the behavior indicated in the statement

Circle 3 if you **Rarely** (*every few months*) exhibit the behavior indicated in the statement

Circle 4 if you **Occasionally** (*monthly*) exhibit the behavior indicated in the statement

Circle 5 if you **Frequently** (*biweekly*) exhibit the behavior indicated in the statement

Circle 6 if you **Very Frequently** (*weekly*) exhibit the behavior indicated in the statement

Circle 7 if you **Always** (*daily*) exhibit the behavior indicated in the statement

1=Never 2=Very Rarely 3=Rarely 4=Occasionally 5=Frequently 6=Very Frequently 7=Always
(never) (about once a year) (every few months) (monthly) (biweekly) (weekly) (daily)

		Never	Very Rarely	Rarely	Occasionally	Frequently	Very Frequently	Always
1.	I remove unwanted hair from my body to make myself appear more defined	1	2	3	4	5	6	7
2.	I avoid revealing my body to others at the swimming pool or at the beach because I'm unhappy with some aspect of my appearance	1	2	3	4	5	6	7
3.	I eat a healthy well balanced diet to lose or maintain weight	1	2	3	4	5	6	7
4.	I load up on foods high in carbohydrates to gain or maintain muscle	1	2	3	4	5	6	7
5.	I lift weights to make my veins stand out more and look stronger	1	2	3	4	5	6	7
6.	I weight train to gain or maintain muscle	1	2	3	4	5	6	7
7.	I avoid sweets and junk food to lose or maintain weight	1	2	3	4	5	6	7
8.	I wear baggy clothes to conceal my body when I'm exercising	1	2	3	4	5	6	7
9.	I avoid foods that are high in fat to lose or maintain weight	1	2	3	4	5	6	7

10.	I avoid exercising at the gym because I am not in good shape	1	2	3	4	5	6	7
11.	I load up on foods high in protein to gain or maintain muscle	1	2	3	4	5	6	7
12.	I wear tight clothes when exercising to make my muscles appear larger	1	2	3	4	5	6	7
13.	I wear dark clothes to make myself appear slimmer	1	2	3	4	5	6	7
14.	I tan to make my muscles appear more defined	1	2	3	4	5	6	7
15.	I engage in cardio activities to lose or maintain weight	1	2	3	4	5	6	7
16.	I take protein powders/shakes to gain or maintain muscle	1	2	3	4	5	6	7
17.	I wear tight clothes to make my muscles appear larger when going out socially	1	2	3	4	5	6	7
18.	I binge on foods to put on size	1	2	3	4	5	6	7
19.	I avoid revealing my body to others in the locker room or bathroom because I am unhappy with some aspect of my appearance	1	2	3	4	5	6	7
20.	I avoid social events or dating because I am unhappy with some aspect of my appearance	1	2	3	4	5	6	7

Note: Items that are bolded were deleted in study II, phase III of the analysis.

Phase IV

This questionnaire contains a number of statements that pertain to behaviors you may exhibit. Please respond to each of the following statements by circling the number that best applies to you. The results of this questionnaire are both anonymous and confidential so please respond as honestly as you can to each statement. Please note; there are no right or wrong answers. Your response should reflect what is most appropriate for you.

Example

I engage in exercise activities to increase my level of fitness 1 2 3 4 5 6 7

Circle 1 if you **Never** (*never*) exhibit the behavior indicated in the statement

Circle 2 if you **Very Rarely** (*about once a year*) exhibit the behavior indicated in the statement

Circle 3 if you **Rarely** (*every few months*) exhibit the behavior indicated in the statement

Circle 4 if you **Occasionally** (*monthly*) exhibit the behavior indicated in the statement

Circle 5 if you **Frequently** (*biweekly*) exhibit the behavior indicated in the statement

Circle 6 if you **Very Frequently** (*weekly*) exhibit the behavior indicated in the statement

Circle 7 if you **Always** (*daily*) exhibit the behavior indicated in the statement

1=Never 2=Very Rarely 3=Rarely 4=Occasionally 5=Frequently 6=Very Frequently 7=Always
(never) (about once) (every few months) (monthly) (biweekly) (weekly) (daily)
a year

		Never	Very Rarely	Rarely	Occasionally	Frequently	Very Frequently	Always
1.	I avoid revealing my body to others at the swimming pool or at the beach because I'm unhappy with some aspect of my appearance	1	2	3	4	5	6	7
2.	I eat a healthy well balanced diet to lose or maintain weight	1	2	3	4	5	6	7
3.	I load up on foods high in carbohydrates to gain or maintain muscle	1	2	3	4	5	6	7
4.	I lift weights to make my veins stand out more and look stronger	1	2	3	4	5	6	7
5.	I weight train to gain or maintain muscle	1	2	3	4	5	6	7
6.	I avoid sweets and junk food to lose or maintain weight	1	2	3	4	5	6	7
7.	I wear baggy clothes to conceal my body when I'm exercising	1	2	3	4	5	6	7
8.	I avoid foods that are high in fat to lose or maintain weight	1	2	3	4	5	6	7

9.	I avoid exercising at the gym because I am not in good shape	1	2	3	4	5	6	7
10.	I load up on foods high in protein to gain or maintain muscle	1	2	3	4	5	6	7
11.	I wear tight clothes when exercising to make my muscles appear larger	1	2	3	4	5	6	7
12.	I tan to make my muscles appear more defined	1	2	3	4	5	6	7
13.	I engage in cardio activities to lose or maintain weight	1	2	3	4	5	6	7
14.	I take protein powders/shakes to gain or maintain muscle	1	2	3	4	5	6	7
15.	I wear tight clothes to make my muscles appear larger when going out socially	1	2	3	4	5	6	7
16.	I avoid revealing my body to others in the locker room or bathroom because I am unhappy with some aspect of my appearance	1	2	3	4	5	6	7
17.	I avoid social events or dating because I am unhappy with some aspect of my appearance	1	2	3	4	5	6	7

Appendix F

Information Sheet – EFA component of Phase III

Principal Investigators:

Gina Bottamini
Ph.D. Candidate
Faculty of Education
University of Ottawa
562-5800 ext. 4248

Diane Ste-Marie
Associate Professor
School of Human Kinetics
University of Ottawa
562-5800 ext. 4240

Hello, this research is being conducted by Gina Bottamini of the Faculty of Education at the University of Ottawa. This research project is in partial fulfillment of her doctoral studies under the supervision of Dr. Diane Ste-Marie. The purpose of the research is to establish the length and structure of a questionnaire that examines the practices and habits males may employ to attain or maintain the perceived ideal physique.

Your participation will consist essentially of completing a demographic questionnaire and the Male Behavior Questionnaire. It will take approximately 10 minutes to complete the questionnaires. You will be asked to answer a number of questions related to male body image. The contents will be used only for the construction of a male body image questionnaire and that your confidentiality will be respected. Confidentiality will be assured in the following manner, you may return the questionnaires, completed or not, to the researcher in a sealed envelope or I may also return the questionnaires in a sealed envelope to a box located outside of room 321 on the third floor of Montpetit hall at my convenience. Please note, incomplete questionnaires will not be used in the research project.

This activity deals with very personal information and it may cause you psychological discomfort, which may, at times, be difficult. You may also find it inconvenient to complete the questionnaires. The researchers will make every effort to minimize these occurrences. You are free to withdraw from the project at any time, before or during completion of the questionnaires, refuse to participate and refuse to answer questions.

While potential psychological discomfort may result for you, it is important to note that this research is extremely beneficial as the construction of an appropriate tool to investigate the habits and practices that males may employ could broaden our understanding of the lengths males will go to attain the ideal body type. With this knowledge, measures that were developed for the purpose of identifying those who may be at risk for suffering from disorders related to the desire to be thin such as anorexia nervosa and bulimia nervosa, could broaden to include those behaviors that are indicative of the desire to gain size. Thus, the identification, prevention and treatment of health related consequences as well as our understanding of the psychosocial consequences that may result could ensue.

All of the information you will share will remain strictly anonymous. Anonymity will be assured in the following manner, you will not write my name on the questionnaires or on the envelope and the data from all participants will be pooled. The questionnaires will be kept in a locked file cabinet accessible to only the principal investigators and will be destroyed five years post publication.

Any information about my rights as a research participant may be addressed to **Protocol Officer for Ethics in Research, 550 Cumberland Street, Room 160, (613) 562-5387 or ethics@uottawa.ca**. If you have any questions about the conduct of the research project, you may contact the researcher or her supervisor.

Thank you!

Appendix G

The Drive for Muscularity Scale

Please read each item carefully then, for each statement, 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 gained a little more muscle mass.	1	2	3	4	5	6
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 H

Rosenberg Self-Esteem Scale

INSTRUCTIONS:

Below is a list of statements dealing with your general feelings about yourself. Read each question and place an (X) under the column which applies best for you. Please answer each question *very* carefully. Thank you.

	Strongly agree	Agree	Disagree	Strongly disagree
1. On the whole, I am satisfied with myself.				
2. At times I think I am no good at all.				
3. I feel that I have a number of good qualities.				
4. I am able to do things as well as most other people.				
5. I feel I do not have much to be proud of.				
6. I certainly feel useless at times.				
7. I feel that I'm a person of worth, at least on an equal plane with others.				
8. I wish I could have more respect for myself.				
9. All in all, I am inclined to feel that I am a failure.				
10. I take a positive attitude toward myself.				

Appendix I

Behavioural Closeness Subscale

INSTRUCTIONS:

Below is a list of statements dealing with the activities you do with your friends. Read each question and place an (X) under the column which applies best for you. Please answer each question *very* carefully. Thank you.

	1: Not at all	2	3	4	5	6	7: Very frequently
1. We spend a social evening together.							
2. I loan him/her/them money.							
3. We watch TV together.							
4. I go for a walk/drive with my friend(s).							
5. We plan a social event together							
6. We go on trips together, e.g., vacation or weekend.							
7. I discuss things of a nonpersonal nature (cars, sports, music, parties) with my friend(s).							
8. I go to the department/book/hardware/sporting goods stores with my friend(s).							
9. We go to the cinema together.							
10. We go to the pub together.							
11. We visit family together.							
12. We visit other friends together.							
13. I attend sporting events, e.g., football, with my friend(s).							
14. I go to concerts with my friend(s)							
15. We clown around.							
16. We make fun of each other in a light-hearted way.							
17. We pig out together.							

18. We keep one another company.							
19. We get drunk together.							

Appendix J

Drive for Thinness Subscale

INSTRUCTIONS:

The following are scales which measure a variety of attitudes, feelings and behaviours. Some of the items relate to food and eating. Others ask you about your feelings about yourself. **THERE ARE NO WRONG ANSWERS SO TRY VERY HARD TO BE COMPLETELY HONEST IN YOUR ANSWERS. RESULTS ARE COMPLETELY CONFIDENTIAL.** Read each question and place an (X) under the column which applies best for you. Please answer each question *very* carefully. Thank you.

	Always	Usually	Often	Sometimes	Rarely	Never
1. I eat sweets and carbohydrates without feeling nervous.						
2. I think about dieting.						
3. I feel extremely guilty after overeating.						
4. I am terrified of gaining weight.						
5. I exaggerate or magnify the importance of weight.						
6. I am preoccupied with the desire to be thinner.						
7. If I gain a pound, I worry that I will keep gaining.						

Appendix K

Body Image Avoidance Questionnaire

Circle the number which best describes how often you engage in these behaviors at the present time.

	Always	Usually	Often	Sometimes	Rarely	Never
1. I wear baggy clothes	5	4	3	2	1	0
2. I wear clothes I do not like	5	4	3	2	1	0
3. I wear darker color clothing	5	4	3	2	1	0
4. I wear a special set of clothing, e.g., my "fat clothes"	5	4	3	2	1	0
5. I restrict the amount of food I eat	5	4	3	2	1	0
6. I only eat fruits, vegetables and other low calorie foods	5	4	3	2	1	0
7. I fast for a day or longer	5	4	3	2	1	0
8. I do not go out socially if I will be "checked out"	5	4	3	2	1	0
9. I do not go out socially if the people I am with will discuss weight	5	4	3	2	1	0
10. I do not go out socially if the people I am with are thinner than me	5	4	3	2	1	0
11. I do not go out socially if it involves eating	5	4	3	2	1	0
12. I weigh myself	5	4	3	2	1	0
13. I am inactive	5	4	3	2	1	0
14. I look at myself in the mirror	5	4	3	2	1	0
15. I avoid physical intimacy	5	4	3	2	1	0
16. I wear clothes that will divert attention from my weight	5	4	3	2	1	0
17. I avoid going clothes shopping	5	4	3	2	1	0
18. I don't wear "revealing" clothes (e.g., bathing suits, tank tops, or shorts)	5	4	3	2	1	0
19. I get dressed up or made up	5	4	3	2	1	0

Appendix L

Information Sheet – Phases II (CFA component) and III

Title of the study: Examining behaviors employed by males to gain size:
The construction and validation of the male behavior questionnaire

Principal Investigator:	Gina Bottamini Ph.D. Candidate Faculty of Education University of Ottawa 562-5800 ext. 4248	Supervisor:	Diane Ste-Marie Associate Professor School of Human Kinetics University of Ottawa 562-5800 ext. 2453
--------------------------------	---	--------------------	--

Invitation to Participate: You are invited to participate in the abovementioned research study conducted by Gina Bottamini of the Faculty of Education at the University of Ottawa. This research project is in partial fulfillment of her doctoral studies under the supervision of Dr. Diane Ste-Marie.

Purpose of the Study: The purpose of this study is to establish the length and structure of a questionnaire that examines the practices and habits males may employ to attain or maintain a desired physique, as well as examine the validity and reliability of the questionnaire. From this research the researchers wish to learn more about behaviors that are relevant in the male population.

Participation: Your participation will consist essentially of completing a demographic questionnaire, the Male Behavior Questionnaire, the Drive for Thinness subscale of the Eating Disorders Inventory, the Rosenberg Self-esteem Scale, the Behavioral Closeness Subscale of the Friendship Closeness Inventory, the Drive for Muscularity Scale and the Body Image Avoidance Questionnaire. It will take approximately 15 to 20 minutes to complete the questionnaires. You may return the questionnaires, completed or not, to the researcher in a sealed envelope. If you prefer to complete the questionnaires in the sealed envelope at a later time, you may return the questionnaires to a box located next to the door of MNT 321. Two weeks from now you may be asked to complete the Male Behavior Questionnaire again to assess the reliability of the questionnaire.

Risks: This activity deals with very personal information and it may cause you psychological discomfort, which may, at times, be difficult. You may also find it inconvenient to complete the questionnaires. The researchers will make every effort to minimize these occurrences. You are free to withdraw from the project at any time, before or during completion of the questionnaires, refuse to participate and refuse to answer questions.

Benefits: You will not benefit directly from your participation in this research.

Although you will not benefit directly from your participation in this research, it is important to note that this research is extremely beneficial as the construction of an

appropriate tool to investigate the habits and practices that males may employ could broaden our understanding of the lengths males will go to attain the ideal body type. With this knowledge, measures that were developed for the purpose of identifying those who may be at risk for suffering from disorders related to the desire to be thin such as anorexia nervosa and bulimia nervosa, could broaden to include those behaviors that are indicative of the desire to gain size. Thus, the identification, prevention and treatment of health related consequences as well as our understanding of the psychosocial consequences that may result could ensue.

Confidentiality: The information you will share will remain strictly confidential and will be used solely for the validation and examination of the structure of the Male Behavior Questionnaire. Confidentiality will be assured in the following manner, all participants will be referred to by numbers. Any results published will be done in a pooled format and therefore only group information will be summarized for any presentation or publication of results. The only people who will have access to the data are Gina Bottamini and Dr. Diane Ste-Marie.

Anonymity: All of the information you will share will remain strictly anonymous. Personal identifying information will not be collected in this study and all participants shall remain anonymous. You will not write your name on the questionnaires or on the envelope that you return the questionnaires in.

Conservation of data: The questionnaires will be kept in a locked file cabinet located at the University of Ottawa. The data will be stored in the office of Dr. Ste-Marie for a period of 5 years at which time they will be destroyed.

Draw: A raffle ticket is stapled to the front of each envelope that contains the questionnaires. If you wish to be considered for a \$100.00 draw, please remove the ticket from the envelope, write your e-mail address or phone number on the back of the ticket and return it directly to the researcher at the same time you return your envelope. All tickets will be immediately placed in a separate envelope. If you prefer to return your questionnaires to the box located outside of Montpetit hall room 321, University of Ottawa, please place the ticket in the envelope that will be located next to box. The winning ticket holder will be contacted by September and notified that he can collect the money at the university, or if he prefers, it can be mailed directly to him. All tickets will be destroyed upon completion of the draw.

Voluntary Participation: You are under no obligation to participate and if you choose to participate, you may withdraw from the study at any time, for any reason, without consequence. Completion of the questionnaires implies that you consent to participate in the study.

Information About the Study Results: If you would like information on the results of this study, please forward your name and address to Gina Bottamini at gbott039@uottawa.ca.

If you have any other questions or require more information about the study itself, you may contact Gina Bottamini or Dr. Ste-Marie at the numbers mentioned hereinabove.

If you have any questions with regards to the ethical conduct of this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 159, Ottawa, ON K1N 6N5, tel.: (613) 562-5841 or ethics@uottawa.ca.

You may keep this form for your records.

Thank you for your time and consideration.

Appendix M

Summary Table for Convergent Validity Predictions

	MBI	MB	DT	RSE
MBIBQ	Prediction: Positive relationship Supported: $r = .42^{**}$	Prediction: Positive Relationship Supported: $r = .60^{**}$	Prediction: Positive Relationship Supported: $r = .34^{**}$	Prediction: Negative Relationship Not supported: $r = -.04$
WG	Prediction: Positive relationship Supported: $r = .48^{**}$			Prediction: Negative relationship Not supported: $r = .11$
WL	Prediction: Positive relationship Not supported: $r = .01$	Prediction: Positive relationship Supported: $r = .19^*$	Prediction: Positive Relationship Supported: $r = .34^{**}$	Prediction: Negative relationship Not supported: $r = .10$
AP	Prediction: Positive relationship Supported: $r = .38^{**}$	Prediction: Positive relationship Supported: $r = .46^{**}$		Prediction: Negative relationship Not supported: $r = .04$
AV				Prediction: Negative relationship Supported: $r = -.39^{**}$

Note: MBIBQ = Male Body Image Behavior Questionnaire, WG = Weight Gain subscale, WL = Weight Loss subscale, AP = Appearance subscale, AV = Avoidance subscale, MBI = Muscularity-Oriented Body Image subscale, MB = Muscularity Behavior subscale, DT = Drive for Thinness subscale, RSE = Rosenberg Self-Esteem scale.

* $p < 0.05$, ** $p < 0.01$.

Appendix N

Summary Table for Discriminant Validity Predictions

	Behavioral Closeness Subscale
MBIBQ total scale score	Prediction: Non significant relationship Supported: $r = .04$
Weight Gain subscale	Prediction: Non significant relationship Not supported: $r = .16^*$
Weight Loss subscale	Prediction: Non significant relationship Supported: $r = .00$
Appearance subscale	Prediction: Non significant relationship Supported: $r = .07$
Avoidance subscale	Prediction: Non significant relationship Not supported: $r = .14^*$

* $p < .05$

Appendix O

Summary Tables for Concurrent Validity Predictions and Results

	MB	Weights	ER	Cardio
WG	Prediction: Positive relationship Supported: $r = .83^{**}$	Prediction: Positive relationship Supported: $r = .67^{**}$		
WL			Prediction: Positive relationship Supported: $r = .39^{**}$	Prediction: Positive relationship Supported: $r = .35^{**}$

Note: WG = Weight Gain subscale, WL = Weight Loss subscale, MB = Muscularity Behavior subscale, Weights = frequency of weightlifting involvement per week, ER = Eating Restraint, Cardio = Cardio involvement per week.

$** p < 0.01$.

	Grooming and Weighing subscale (BIAQ)	Clothing subscale (BIAQ)	Social Activities subscale (BIAQ)
Appearance subscale	Prediction: Positive relationship Supported: $r = .36^{**}$		
Avoidance subscale		Prediction: Positive relationship Supported: $r = .50^{**}$	Prediction: Positive relationship Supported: $r = .38^{**}$

$** p < 0.01$.

Appendix P

Ethics Approvals

HEALTH SCIENCES AND SCIENCE RESEARCH ETHICS BOARD

CERTIFICATION OF ETHICS APPROVAL

This is to certify that the University of Ottawa Health Sciences and Science Research Ethics Board (REB) examined the application for extension of ethics approval for the research project **Examining behaviors employed by males to gain size: The construction and validation of the male behavior questionnaire (file H 02-03-07)** submitted by Gina Bottamini, of the Faculty of Education, who is supervised by Diane Ste-Marie, of the School of Human Kinetics, Faculty of Health Sciences. The project received initial ethics approval on March 17, 2003 by the REB and renewal certification on August 30, 2004 (valid until March 17, 2005) as meeting appropriate ethical standards set out in the Tri-Council Policy Statement and in the Procedures of the University of Ottawa Research Ethics Boards. The University of Ottawa REB members accordingly gave it a one-year extension of ethics approval. This ethics renewal certification will take effect on March 17, 2005 and will expire on March 17, 2006.

Rita D'Alessandro
Protocol Officer for Ethics in Research
For Dr. Daniel Lagarec, Chair of the
Health Sciences and Science REB

March 9, 2005
Date

Brock University

Senate Research Ethics Board Extensions 3943/3035, Room AS 302

DATE: July 8, 2003

FROM: Joe Engemann, Chair

Senate Research Ethics Board (REB)

TO: Diane Ste-Marie, Health Sciences

Gina Bottamini

FILE: 02-336, Bottamini

**TITLE: Examining Behaviours Employed by Males to Gain Size: The
Construction and Validation of the Male Behavior Questionnaire**

The Brock University Research Ethics Board has reviewed the above research proposal.

DECISION:

This project has been approved for the period of **July 8, 2003 to June 17, 2004** subject to full REB ratification at the Research Ethics Board's next scheduled meeting. The approval may be extended upon request. *The study may now proceed.*

Please note that the Research Ethics Board (REB) requires that you adhere to the protocol as last reviewed and approved by the REB. The Board must approve any modifications before they can be implemented. If you wish to modify your research project, please refer to www.BrockU.CA/researchservices/forms.html to complete the appropriate form ***REB-03 (2001) Request for Clearance of a Revision or Modification to an Ongoing Application.***

Adverse or unexpected events must be reported to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants and the continuation of the protocol.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and approvals of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research protocols.

The Tri-Council Policy Statement requires that ongoing research be monitored. A Final Report is required for all projects, with the exception of undergraduate projects, upon completion of the project. Researchers with projects lasting more than one year are required to submit a Continuing Review Report annually. The Office of Research Services will contact you when this form **REB-02 (2001) Continuing Review/Final Report** is required.

Please quote your REB file number on all future correspondence.

Deborah Van Oosten
Research Ethics Officer
Brock University <http://www.brocku.ca/researchservices/>
St. Catharines, Ontario L2S 3A1
phone: (905)688-5550, ext. 3035 fax: (905)688-0748



Office of Research Services

5th Floor, Tory Building
1125 Colonel By Drive
Ottawa, ON K1S 5B6 Canada
Tel: (613) 520-2516
Fax: (613) 520-2521
www.carleton.ca/ors

Certificate of Ethics Approval

This is to certify that the Carleton University Research Ethics Board has examined the application for ethical approval for the research project **Examining Behaviors Employed by Males to Gain Size: The Construction and Validation of the Male Behavior Questionnaire** by Gina Bottamini of the Faculty of Education, University of Ottawa and under the supervision of Prof. Diane Ste-Marie, School of Kinetics, University of Ottawa.

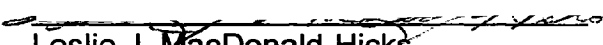
The committee found this project to meet appropriate ethical standards as outlined in the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*, the *Carleton University Policies and Procedures for the Ethical Conduct of Research*.

This certification is valid for one year from the date indicated below.

☒ **No conditions apply**

☐ Conditions apply (see attachment)

Date: 17 March 2005


Leslie J. MacDonald-Hicks
Research Ethics Committee Coordinator
For the Chair of the Carleton University Research Ethics Committee
Prof. Antonio Gualtieri

CERTIFICATE OF ETHICS CLEARANCE TO INVOLVE HUMAN PARTICIPANTS IN RESEARCH

Application Status: New ☐ Addendum ☐ Renewal ☐ REB File # U. of Ottawa H 02-03-07				
TITLE OF RESEARCH PROJECT: <i>Examining Behaviors employed by males to gain size: The construction and validation of the male behavior questionnaire</i>				
	NAME	DEPT./ADDRESS	# EXT	E - MAIL
Faculty Investigator(s)/Supervisor(s)	D. Ste-Maire	Health Sciences/Human Kinetics	613-562-5800	dstmarie@uottawa.ca
Student Investigator(s)	G. Bottamini	Education	613-237-5852	n

The application in support of the above research project has been reviewed by the MREB to ensure compliance with the Tri-Council Policy Statement and the McMaster University Policies and Guidelines for Research Involving Human Participants. The following ethics certification is provided by the MREB:

☒	The application protocol is approved as presented without questions or requests for modification.
☐	The application protocol is approved subject to clarification and/or modifications as appended or identified below.

COMMENTS & CONDITIONS:

--

Reporting Frequency:	Annual Date:	Other:
Date: June 26, 2003	Dr. C. Riach, Chair, REB:	n ireviewers\forms\certificate.fm

Appendix Q

Contributions of Collaborators

Dr. Diane Ste-Marie and I met as necessary to finalize the proposed research. I submitted drafts of the proposal to Dr. Ste-Marie for her comments and suggested revisions before presenting the proposal to the committee members: Dr.'s Raymond Leblanc, David Smith, and Gary Goldfield. Further comments from the committee crystallized the research project before it commenced.

I conducted all interviews, transcribed all interviews, and analyzed all qualitative data. With the exception of one or two instances where I was not able to distribute the questionnaires in the quantitative phases of the research, I distributed and collected all questionnaires, entered, analyzed and interpreted the data and wrote all aspects of the dissertation which were subsequently reviewed and edited by Dr. Ste-Marie.

I discussed the exploratory principal components analysis with Dr. Paul MacDonald and sought the expert advice of Dr. Donald McCreary on the wording of the items that comprise the weight gain subscale of the MBIBQ upon the exploratory examination. I also provided Dr. Diane Culver with an earlier draft of article 1 for her comments and suggestions. Dr. Raymond Leblanc planted the seed for the review of art and provided comments and editing suggestions on this particular chapter.

The committee members received a draft of the thesis before its deposition to the Faculty of Graduate and Postdoctoral Studies and the Faculty of Education. As per the suggestions of the committee, several modifications were made to the thesis before its submission for the defense. Upon the defense of the dissertation, minor revisions were made in accordance with the requests of the committee and external examiner (Dr. Diane

Mack). Please note, all articles stemming from this research are co-authored by Dr. Ste-Marie.



gbottamini@hotmail.com

Appendix R

Figure Permissions

From : Johnson, Michelle <Michelle.Johnson@PearsonEd.com>
Sent : May 9, 2006 7:58:29 PM
To : 'gina bottamini'
Subject : RE: Permission to use figures

Dear Ms. Bottamini:

Permission is granted to include the requested material in your doctoral dissertation.

Sincerely,
 Michelle Johnson
 Permissions Administrator
 Pearson Education, Inc.
 1 Lake Street
 Upper Saddle River, NJ 07458
 phone 201-236-3281
 fax 201-236-3290

-----Original Message

From: gina bottamini
 Sent: Monday, May 08, 2006 12:39 PM
 To: Johnson, Michelle
 Subject: RE: Permission to use figures

Hello Michelle,

here is the information you requested. I can fax this on to you as well if need be:

Title 1: Roman Art; Romulus to Constantine... by N.H. Ramage and A. Ramage (1991) - Prentice Hall, NJ. The figure that I would like to include in my thesis is on Page 263, figure 11-17 of the "Tetrachs". ISBN: 0-13-782947-7

Title 2: Art past, Art present.... by D.G. Wilkins, B. Schultz, & K.M. Linduff (1994). The figure that I would like to include in my thesis is on page 166, figure 167 of the "transformation of Christ". ISBN: 0-13-062084-X

I will be using the figures in my doctoral dissertation to provide the reader with the image of the art work that I have discussed in my thesis. The thesis will not be published. A copy of the thesis will, however, be placed in the library at the University of Ottawa (the institution from which I am obtaining my doctoral degree located in Ottawa, Ontario, Canada) and the National library of Canada.

My home address is:

Gina Bottamini

Home phone and fax:
 Cell phone:

Thank you in advance Michelle,

Gina Bottamini

>From: "Johnson, Michelle" <Michelle.Johnson@PearsonEd.com>
 >To: ""
 >Subject
 >Date: Mon, 08 May 2006 09:58:47 -0400
 >
 >Dear Ms. Bottamini:
 >
 >Thank you for your phone call.
 >
 >For permission to use material from our texts we must have a request from
 >you first. Please provide the following information:
 >1. The titles, authors, and ISBNs of the texts.
 >2. The page numbers of the material you need.
 >3. How you are using the material.
 >4. Your full mailing address
 >5. Your phone and fax numbers.
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 >
 >Sincerely,
 >Michelle Johnson
 >Permissions Administrator
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 >fax 201-236-3290
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gbottamini@hotmail.com

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From : Rondinelli Massimo <M.Rondinelli@giunti.it>
Sent : April 27, 2006 7:14:31 AM
To : "gina bottamini"
Subject : R: copyright permission

Dear Ms. Bottamini,

the way we work for permissions is based on the due credit of original title and relevant details, such as:

Pages x,y,z.....

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English edition: ART IN WORLD HISTORY - by Mary Hollingsworth – 2004 Giunti Editore Milan-Firenze. Italy

Pls, confirm and proceed.

Best regards

Massimo Rondinelli

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<http://internationaldivision.giunti.it>

Please contact us to the following address:

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20121 MILANO

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e-mail: m.rondinelli@giunti.it

Da: gina bottamini
Inviato: giovedì 27 aprile 2006 5.17
A: Rondinelli Massimo
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Hello,

I would like to inquire about obtaining permission to include several pictures from one of your publications in my doctoral thesis. The pictures are from : "Art in World History" (2003) by Mary Hollingsworth. My thesis, and thus the pictures, would not be published, however, a copy of my thesis would be placed in the University of Ottawa library as well as the National library of Canada.

The pictures are:

Kouros: figure 5, page 55

Hermes with the infant dionysos at Olympia: page 63

Laocoon and his sons: figure 18, page 71

Napoleon: figure 3, page 410

Thank you in advance for your consideration of this request,

Gina Bottamini

(Ph.D. Candidate)

University of Ottawa

Ottawa, Ontario, Canada



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Gina Bottamini

Thank you in advance for your time,

Gina Bottamini

(Ph.D. candidate)



gbottamini@hotmail.com

Printed: May 9, 2006 9:35:43 PM

From : Kren Emil <kren@sunserv.kfki.hu>
Sent : March 28, 2006 6:53:47 AM
To : gina bottamini
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Regards,

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On Thu, 23 Mar 2006, gina bottamini wrote:

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Thank you,

Gina Bottamini
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gbott039@uottawa.ca wrote:

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