

Muscularity Beliefs of Female College Student-Athletes

Jesse A. Steinfeldt, Ph.D.

Hailee Carter, M. A.

Emily Benton, M. A.

Indiana University-Bloomington

Matthew Clint Steinfeldt, M. A.

Fort Lewis College

Correspondence should be directed to Jesse Steinfeldt, Department of Counseling and Educational Psychology, Indiana University, 201 N. Rose Avenue, Bloomington, IN, 47403; 812 856-8331 (phone); 812 856 8333 (fax); jesstein@indiana.edu (email).

**MANUSCRIPT ACCEPTED FOR PUBLICATON IN
SEX ROLES: A JOURNAL OF RESEARCH**

Date Submitted: January 3, 2011

Abstract

Female athletes in the United States face the paradoxical challenge of acquiring a degree of muscularity to be successful in their sport, yet they also endure pressure from societal expectations of femininity that often don't conform with the notion of muscularity. To address research questions about how female student-athletes balance muscularity and femininity, we conducted a mixed-methods study to examine muscularity beliefs among female student-athletes, female college students, and male college student-athletes. We quantitatively examined Drive for Muscularity Scale (DMS) scores from 221 participants attending college in the Midwestern US. Results indicated that female student-athletes reported significantly higher DMS scores than female students, but male student-athletes reported the highest DMS scores in the sample. Qualitative results indicated that female student-athletes wanted to be muscular for these reasons: functionality (45%), health (42%), external gratification (21%), internal gratification (18%). Only 16% of female student-athletes did not want to be muscular, whereas every male student-athlete reported a desire to be muscular. The results of this study can be used to better understand the unique drive for muscularity among athletes, particularly female college student-athletes who *live the paradox* of negotiating societal standards of femininity with this desire to be muscular. This enhanced understanding can help create more nuanced interventions for coaches, administrators, and mental health professionals to use to help female student-athletes create space to resist constraining societal gender ideologies. Doing so can help these student-athletes actualize their athletic potential on the field as well as their interpersonal and intrapersonal potential off the field.

Keywords: drive for muscularity scale (DMS), female student-athletes, gender norm expectations, college sports, femininity

Muscularity Beliefs of Female College Student-Athletes

Introduction

Participating in an intercollegiate sport requires a degree of functional muscularity, and in past research, female athletes in the United States have indicated that “developing a muscular body was imperative to achieve athletic success” (Ross & Shiner, 2008, p. 50). However, female student-athletes are concurrently constrained by social pressure to conform to American societal standards of femininity which are not in alignment with notions of muscularity that are often associated with masculinity (Boyle, 2005; Krane, Waldron, Michalenok, & Stiles-Shipley, 2001; Krane, Choi, Baird, Aimar, & Krauer, 2004; Mosewich, Vangool, Kowlaski, McHugh, 2009). In navigating between their need to be muscular for sport, and societal pressures to conform to feminine standards, female athletes in the United States may subsequently perceive themselves as being more masculine than female non-athletes (Miller & Levy, 1996). Thus, this study intended to investigate beliefs about muscularity within the athletic population in order to better understand the drive for muscularity among American intercollegiate student-athletes. Specifically, the goal of this study was to examine the unique experience of female student-athletes who *live the paradox* of negotiating femininity and muscularity (Krane et al., 2004).

This study had two purposes: a) to empirically assess the degree to which female student-athletes wanted to be muscular, and b) to discover reasons why they wanted to be muscular. The first purpose used quantitative methods to determine if differences exist in the desire to be muscular, as measured by the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000), between female college student-athletes, female college students, and male college student-athletes. The second purpose used qualitative methods (i.e., written interview protocol; Morrison, Morrison, & Hopkins, 2003) to directly collect and assess reasons why participants wanted to be

muscular, and if differences existed in the reasons participants in these three groups reported for wanting to be muscular. By using a mixed methodological approach to accomplish these goals, this study can provide a more nuanced understanding of the experience of female student-athletes as it relates to muscularity desires, beliefs, and behaviors. Because female athletes in the United States face the task of negotiating the interplay between cultural standards of femininity and the traditionally masculine notion of muscularity that is necessary for performance in sport (Krane, 2001), such an exploration can provide insight into this dynamic in efforts to provide programming and interventions that can help female student-athletes be successful on and off the fields of play.

Muscularity in American Society

According to American societal standards, the current ideal male body has a muscular mesomorphic build (Weinke, 1998). This ideal body type is characterized by a well-defined upper torso with muscular arms, pectorals, and shoulders, combined with a slim waist, hips, and buttocks (Morrison et al., 2003; McCreary & Sasse, 2000; Pope, Olivarida, Gruber, & Borowiecki, 1999; Spitzer, Henderson, & Zivian, 1999; Ridgeway & Tylka, 2005). Furthermore, this muscular build conforms to cultural ideals and social conceptions of appropriate expressions of masculinity (e.g., Connell, 1987). Over the past few decades, these standards of masculinity have been reflected in American mass media trends, with the ideal masculine presentation involving increased muscularity (Spitzer et al., 1999). Male action figures (e.g., GI Joe) have become more muscular with unattainable physiques (Pope et al., 1999), and there has been an increase in the use of muscular men's bodies in advertisements for products unrelated to the body (Pope, Olivarida, Borowiecki, & Cohane, 2001). In Helgeson's (1994) research on prototypes of masculinity and femininity, 71.4% of American respondents indicated that the

number one characteristic of a masculine male is being muscular, thus reflecting how popular culture representations can influence and reflect American society's equating of muscularity with masculinity.

Research on muscularity has focused largely on men's experience with desiring to obtain a sort of muscular ideal (e.g., McCreary & Sasse, 2000). Morrison et al. (2003) examined reasons that Canadian men want to be muscular, and reported that respondents indicated reasons such as social benefits (e.g., attracting women, increasing overall attractiveness, status, increased athletic performance), health benefits, sociocultural pressures, and because muscularity represents masculinity (e.g., Helgeson, 1994). While desiring to be muscular can have positive benefits (e.g., health), a majority of the research has focused on the negative psychological experiences associated with the drive for muscularity. To this point, Cafri et al. (2005) summarized the consequences and risk factors of the pursuit of the muscular ideal. One prominent consequence reported was the development of muscle dysmorphia, an unrealistic perception of the body combined with an excessive pursuit of muscularity (Cafri et al., 2005; Olivarida, 2001). Behaviors associated with muscle dysmorphia include dieting, using anabolic steroids, and excessive weight lifting. In addition to unhealthy behaviors, unhealthy cognitions accompany attempts to meet societal standards of muscularity. Harmatz, Gronendyke, and Thomas (1985) found that underweight men in the United States saw themselves as less handsome, less good natured, and as having less sex appeal than their normal weight and overweight peers. Increased drive for muscularity has also been correlated with lower levels of self-esteem, higher levels of depression, and higher levels of vanity (McCreary & Sasse, 2000; Morrison, Morrison & Rowan, 2004). The drive for muscularity has also been found to be related to higher levels of depression and lower levels of self-esteem among adolescent boys in the

United States (McCreary & Sasse, 2000).

Muscularity in American Sport

Athletes represent a population for whom muscularity may serve a function, as opposed to simply representing an ideal body type. Although much of the empirical research on muscularity has focused on non-athletic populations, studies involving athletes has focused primarily on negative outcomes associated with the drive for muscularity (e.g., Davis, Karvinen, & McCreary, 2005; Harrison & Bond, 2007; Labre, 2002; McCreary, Saucier, & Courtenay, 2005; Morrison et al., 2003; Olivardia, Pope, Borowiecki & Cohane, 2004; Ridgeway & Tylka, 2005; Smolak & Stein, 2006). However, an exclusive focus on the negative aspects of muscularity may not fully reflect the unique context of sport because athletes often need to acquire a degree of muscularity to be competitive in their athletic endeavors. In a meta-analytic review of body image, Hausenblas and Downs (2001) found that athletes in the United States reported a more positive body image than nonathletes and hypothesized that this may be due to athletes having a closer resemblance to the current ideal for muscularity as a result of their increased physical activity levels. However, most of the literature here also focuses on negative aspects of the athlete experience, especially eating disorders (e.g. Byrne & McLean, 2001; Johnson, Powers, & Dick, 1999; Petrie, Greenleaf, Reel & Carter, 2008; Smolak, Murenen, & Ruble, 2000). Findings of other studies with athletes include American cross-country runners reporting a greater degree of body dissatisfaction, more disordered eating patterns, and more concern for weight control (Kiemann, Rodin, Brownell, Wilmore, & Camdall, 1992; Parks & Read, 1997); significant differences between American football players' current versus ideal weight, indicating that they want to be heavier than they are currently (Parks & Read, 1997); and American body-builders and weight-lifters being especially susceptible to muscle dysmorphia

(Olivarida, 2001).

In addition to sociocultural pressures, athletes also face sport-specific pressure from teammates, coaches, judges, and fans to have an ideal physique (Davis & Cowles, 1989; Petrie et al., 2008; Rao & Overman, 1986). Different sports have differential standards of muscularity requirements, which influence body image and contribute to negative outcomes. For example, performance outcome is directly related to weight and muscularity in sports where athletes must make specific weight limits to compete (e.g., wrestling); in sports where the aesthetic of the athlete's body is a strong component of performance outcome (e.g., diving); and in sports where a low body weight is thought to offer a performance advantage (e.g., cross-country; Petrie et al., 2008). Additionally, participants in contact sports (e.g., football, rugby) require a greater degree of muscularity to not only facilitate performance, but also to minimize the risk of injury (Baker & Newton, 2004; Matthews & Wagner, 2008).

Muscularity Among Female Athletes

In addition to sport type differences, emerging research has identified gender disparities in the desire to be muscular (Galli & Reel, 2009; McCreary, Sasse, Saucier, & Dorsch, 2004; McCreary & Saucier, 2009). To this end, Krane et al. (2004) argued that it is important to consider cultural and societal influences in order to fully comprehend the sporting experiences of female athletes. In contrast to societal standards for men, the ideal body shape for women in American society is very slender and thin (Grogan, Evans, Wright, & Hunter, 2004). However, current societal trends that value physical exercise as a desirable lifestyle create the expectation that a woman's body should not only be thin, but also firm and well toned (Choi, 2000).

Examples of this new ideal are omnipresent in the media, with contemporary actresses displaying well-defined muscles on screen (Gruber, 2007); an increase in magazine publications and articles

focusing on increased muscularity in women (Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999); and athletes posing for *Sports Illustrated* swimsuit issues instead of traditional thin models (Gruber, 2007).

In addition to these increased images in American popular culture, there are domains wherein female muscularity is being accepted and embraced. “Muscles are no longer automatically considered a threat to femininity” (Gruber, 2007, p. 217). Some domains that exemplify this perspective are the sports of body building (Grogan et al., 2004) and weightlifting (Brace-Jovan, 2004). Brace-Jovan (2004) examined the experiences of Australian female weightlifters, and found that activity in this domain provided women with a sense of empowerment and access to enhanced social status. Grogan et al. (2004) studied British body-builders and reported that participants, “presented discourses where they represented themselves as feeling good about their bodies, and about themselves generally, and more sensuous than in their pre-body building days” (p. 58).

In spite of the positive benefits and acceptance found within the body building and weightlifting domains, both studies reported that women still faced pressure to maintain societal standards of femininity if they choose to become muscular. Women often manage this paradox by desiring to acquire visible muscle tone, but not size or bulk (Choi 2003; Grogan et al., 2004; Gruber, 2007). Weight training is promoted as a mechanism to burn more calories and tone muscles, but is often accompanied by concerns about becoming too muscular: the assumption is that a muscular female body is generally unattractive because it becomes confounded with societal notions of masculinity (e.g., Choi, 2000; Krane, 2001). Contributing to this dynamic, athletic participation stresses the importance of muscularity for sport performance, even though American society has effectively labeled muscularity as a masculine trait. Because of these

societal and sport-specific constraints, female athletes are forced to incorporate societal standards of femininity within their desire for functional muscularity. The paradox becomes particularly difficult for female athletes, who exist in essentially two worlds (i.e., sport and social circles) that constantly collide.

Emerging research on female student-athletes has highlighted this phenomenon. Krane et al. (2001) qualitatively examined the experiences of female exercisers and athletes in the United States. Several of the participants reported discomfort with their bodies in relation to societal standards. Results pointed to a notion that the description of the culturally ideal feminine body represents a series of contradictions (e.g., firm but shapely, fit but sexy, strong but thin). Specifically, female athletes reported that they were constantly reminded that their body contradicts the contemporary cultural idea of femininity, particularly in sports such as softball, basketball, or bodybuilding. Similar results were reported in a series of qualitative studies, including Russell's (2002) examination of British female cricket, rugby, and netball players; Mosewich et al.'s (2009) study of American collegiate track and field student-athletes; and Krane et al.'s (2004) examination of American college student-athletes in a variety of sports (i.e., cross country, track, soccer, volleyball, gymnastics, basketball, softball, tennis, rugby, ice hockey). Despite interactions with differing sociocultural norms, the underlying message sent to female athletes is clear: you need muscles on the field to be successful in competition, but these same muscles can be a hindrance off the field in social settings.

Current Study

Despite the prevalence of this paradox for women in sport and in society, there is limited research that empirically examines muscularity among female student-athletes. Thus, this current study used a mixed methodological approach (i.e., quantitative and qualitative methods) to

examine muscularity beliefs of female student-athletes. The first purpose of the study, to determine the degree to which female student-athletes wanted to be muscular, was achieved by examining whether differences in desire for muscularity existed between female college student-athletes, female college students, and male college student-athletes, as measured by their scores on the DMS. Consistent with past research (e.g., McCreary et al., 2005; Smolak & Murnen, 2008), our first hypothesis was that men would have a higher drive for muscularity than women. However, because of student-athletes' need to be functionally muscular for successful sport participation, our second hypothesis was that female student-athletes would report higher DMS scores than female students. Additionally, we wanted to assess differences in drive for muscularity between sports. Although the *lean vs. nonlean* sports differentiation (e.g., Petrie, 1996) is a suitable categorization, we opted to use the conceptualization of contact sports in order to provide a more nuanced examination of sport-specific muscularity beliefs and behaviors. Consistent with past research (e.g., Baker & Newton, 2004), our third hypothesis was that student-athletes in high contact sports (i.e., football, rugby, basketball) would report more desire to be muscular than student-athletes in both medium contact sports (i.e., soccer, volleyball, baseball) and low contact sports (i.e., track, tennis, cross country).

The second purpose of the study was to answer the question why female student-athletes wanted to be muscular (if applicable). We used an established protocol (e.g., Morrison et al., 2003) to qualitatively ask participants why they wanted to be muscular in order to better understand beliefs about and desire for muscularity among female student-athletes, female college students, and male student-athletes. Based on the unique need for athletes to be muscular in order to perform in sport (e.g., Petrie et al., 2008), the study's fourth hypothesis was that female student-athletes would be more likely to report functionality (i.e., sport performance) as

their highest-cited reason for being muscular, in comparison to female students. Finally, in order to further determine differences between groups on reasons for being muscular, the study's fifth hypothesis was that female college students would report more reasons related to the codes within the category of external gratification (e.g., to look good, for sex appeal; see Appendix A for the study's codebook) than female student-athletes and male student-athletes. This hypothesis was based on societal standards for women to be thin, their perceptions of what men think is an ideal female body, and feeling as though they are judged and objectified by members of the opposite gender (Fallon & Rozin, 1985; Frederickson & Robert, 1997; Garner, Garfinkel, Schwartz, & Thompson, 1980).

Method

Participants

The participants in this study were 221 college students between 17 and 22 years of age who attended a National Collegiate Athletic Association (NCAA) Division III University in the Midwestern United States. Among the 150 female and 71 male participants, the sample included 65 female college students, 85 female student-athletes, and 71 male student-athletes from nine different sports: men's soccer ($n = 19$), women's soccer ($n = 23$), men's football ($n = 40$), women's cross country and track ($n = 18$), men's cross country and track ($n = 12$), women's volleyball ($n = 15$), women's field hockey ($n = 15$), women's basketball ($n = 7$), women's tennis ($n = 5$), and women's rugby ($n = 2$). The average age of participants was 19.56 ($SD = 1.34$), and the sample consisted of 70 freshmen, 49 sophomores, 49 juniors, and 53 seniors. The sample self-identified their race as White (73%), Black (12%), Multiracial (5%), Asian (3%), and "Other" (6%). Three participants did not report a racial identification. Ninety five percent of the participants reported their relationship status as single, 3% reported living with a partner, 1%

reported being married, and 1% reported being divorced. Results from our comparison of participants' year in school, race, and relationship status can be found in the results section. Finally, the sample self-reported an average overall Grade Point Average (GPA) of 3.20 ($SD = 0.59$), and an average Body Mass Index (BMI) of 24.98 ($SD = 4.78$), which we calculated based on self-report height and weight measures. Comparisons of participants' age, BMI, and GPA can be found in the results section and in Table 1.

Measures

Drive for Muscularity. The Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000) is a 15-item self-report instrument that uses a six-point Likert-type scale with possible responses ranging from 1 (*always*) to 6 (*never*) to assess attitudes and behaviors related to a muscular appearance. The entire scale is reverse-coded, and higher scores represent higher desires to be muscular. The DMS produces a single scale by asking participants to respond to items such as, "I think I would be more confident if I had more muscle mass" and "I feel guilty if I miss a weight training session." The DMS has been found to be appropriate for use with both male and female participants, and convergent validity support for the DMS can be found in its significant relationship to other measures of masculinity (McCreary, 2007). In support of the scale's reliability, Cafri and Thompson (2004) reported seven to ten day test-retest correlations of .93. Additionally, in his review of the literature on the DMS, McCreary (2007) reported internal consistency coefficients above .80 with use by female participants, and reliability estimates ranging between .85 and .91 with male participants. Consistent with those findings, the Cronbach's alpha coefficient for men in the current study was $\alpha = .91$, for women was $\alpha = .85$, and for the overall sample was $\alpha = .91$.

Reasons for Being Muscular. The qualitative portion of the study consisted of three

open-ended questions that were derived from a written interview protocol developed by Morrison et al. (2003). Participants were asked to write in their responses to these open-ended questions in the protocol. By permitting participants to provide their own unique perceptions about issues related to muscularity, these items assessed participants' individualized beliefs about muscularity that a quantitative scale might not allow. The Morrison et al. (2003) protocol used the following questions: (a) "Why do you think men want to be muscular?" (b) "If applicable, why do you want to be muscular?" and (c) "What are the benefits of being muscular?" For the purposes of this study, a gender-specific question (e.g., "Why do you think women want to be muscular?") was substituted for the question about benefits of muscularity in order to highlight the study's focus on the experience of female student-athletes. Because this qualitative format did not restrict the volume of responses that could be given on a particular question, participants could potentially report multiple reasons for being muscular.

In order to analyze the qualitative responses to the questions, the first author created a code book based on a synthesis of Morrison et al.'s (2003) original coding scheme and literature on muscularity relevant to the experiences of athletes (e.g., Gilchrist & Thoburn, 2008; Raudenbush & Meyer, 2003). In their original analysis of responses to their interview protocol, Morrison et al. (2003) identified patterns of responses across all questions that included such categories as *Health Benefits*, *Social Benefits*, *Sociocultural Pressures*, *Masculinity*, *Intimidation and Conformity*. Each category had subcategories (see Morrison et al., 2003). We analyzed these categories and subcategories and used them as a preliminary framework to adapt and create a coding scheme for use with an athlete population. Based on a review of the literature as it relates to muscularity among athletes, the coding scheme was amended to include a category for sport-specific *Functionality*. Additionally, the category of *Health Benefits* was retained, and the other

categories and subcategories were distilled and reclassified to be more representative of broad categories of direct and indirect benefits of being muscular (i.e., *Internal Gratification*, *External Gratification*).

Thus, the final synthesized coding scheme for the current study yielded five possible categories of responses: (a) *Internal Gratification* (e.g., self-esteem, confidence); (b) *External Gratification* (e.g., to look good, for sexual appeal, conformity); (c) *Health* (e.g., being fit, becoming healthy); (d) *Functionality* (e.g., lift heavy things, perform better at sport); and (e) *I Don't Want to Be Muscular*. (see Appendix A for the codebook used in this study). In addition, a category of *Other* was created for responses that didn't fit into this coding scheme. However, the number of *Other* responses written in by the coders was determined to be minimal and were thus excluded from subsequent analyses.

Once a valid coding scheme was established, the participants' qualitative responses were independently coded by the second and third authors. Because of the open-ended format, each response could contain content that could be coded within multiple categories. We calculated interrater reliability coefficients for the responses that were coded by both of the independent researchers. The Kappa coefficient of interrater reliability for the primary study question we analyzed (i.e., "If applicable, why do you want to be muscular?") was .74, with 94% agreement between the independent coders. The Kappas and agreement percentage between coders for each coded category were as follows: *Internal Gratification* = .76 (95% agreement); *External Gratification* = .64 (91% agreement); *Health* = .81 (95% agreement); and *Functionality* = .76 (91% agreement). The *I Don't Want to Be Muscular* registered a perfect 100% agreement between coders, which resulted in an incalculable Kappa coefficient for that coded category.

As we can see from these Kappa coefficients and agreement percentages, the two independent coders reached an acceptable level of agreement on their coding of the data. Differences were reconciled to produce a final coded data set of qualitative responses. Specifically, the coded responses to the question “If applicable, why do you want to be muscular?” were analyzed to determine if statistically significant differences between groups (see Table 2). Additionally, the coded responses to the other two questions (i.e., “Why do men want to be muscular?” and “Why do women want to be muscular?”) were compiled to provide supplemental information to the primary analysis of reasons participants beliefs about wanting to be muscular.

Procedures

Research was conducted in compliance with Institutional Review Board (IRB) approval from the first author’s institution and in compliance with the IRB of the institution of investigation. After receiving this approval, athletic administrators, coaches, and faculty members were contacted. Recruitment efforts intended to reach both male and female student-athletes--populations that are often difficult for researchers to access--while simultaneously recruiting a group of female students from the same university in an attempt to compare women who may share commonalities by way of attending the same academic institution. Participants were told that this study was an attempt to learn more about muscularity beliefs of college students. For data collection with student-athletes, the second author attended a team meeting and provided the opportunity for voluntary participation. In order to ensure voluntary participation, participants were informed that they could write in their playbooks or team notebooks and turn in a blank survey packet at the end if they did not want to participate in the study. For student data collection, the second author contacted professors who offered female

students in their classes the opportunity for participation in the research project in exchange for extra credit. Participants were provided with instructions about completing the survey packet. In addition to assurances of anonymity, participants were informed that all their data would be kept confidential and in a safe locked location. Participants took approximately 10 minutes to complete the questionnaire.

Results

Preliminary Differences Between Groups

We performed Chi Square analyses and a Multivariate Analysis of Variance (MANOVA) in order to determine if any differences on demographic variables existed between the groups (i.e., female students, female student-athletes, male student-athletes). Results of the Chi Square analyses indicated significant differences between groups on year in school $\chi^2(6, N = 221) = 16.397, p = .012$; but no significant differences on race $\chi^2(12, N = 218) = 14.368, p = .278$; or relationship status $\chi^2(6, N = 220) = 10.059, p = .122$. Results from the MANOVA indicated statistically significant differences between groups on BMI $F(2, 215) = 22.789, p < .001, \eta_p^2 = .09$; and GPA $F(2, 180) = 13.651, p < .001, \eta_p^2 = .10$. Means and standard deviations for the demographic variables can be found in Table 1.

Differences in Drive for Muscularity Scale (DMS) Scores Between Groups

In order to test the study's first three hypotheses, we ran a univariate analysis of variance (ANOVA) to test for differences in DMS scores based on group membership (i.e., female student-athletes, female students, male student-athlete) and type of sport (i.e., high contact, medium contact, low contact), while controlling for demographic variables on which the groups significantly differed (i.e., year in school, BMI, GPA). Results indicated statistically significant

differences on DMS scores for group $F(2, 166) = 20.896, p < .001, \eta_p^2 = .11$; and type of sport $F(2, 166) = 8.991, p < .001, \eta_p^2 = .10$. None of the demographic variables on which the groups significantly differed (i.e., year in school, BMI, GPA) were significant predictors of DMS.

In support of our first hypothesis, post hoc tukey analyses indicated significant differences between groups, with male student-athletes reporting higher DMS scores than both female student-athletes and female students. Additionally, our second hypothesis was supported by the finding that female student-athletes reported significantly higher scores than female students (see Table 1 for mean DMS scores of each of the three groups). Finally, in support for the study's third hypotheses concerning difference in DMS scores based on level of contact sport, post hoc tukey analyses also indicated that participants in high contact sports reported significantly higher DMS scores ($M = 49.88, SD = 14.39$) than participants in both medium contact sports ($M = 34.00, SD = 9.87$) and low contact sports ($M = 39.31, SD = 16.02$).

Reasons for Being Muscular

In order to test the study's fourth and fifth hypotheses concerning reasons participants gave for wanting to be muscular, we analyzed the responses of all participants to the question, "If applicable, why do you want to be muscular?" These responses were coded by independent reviewers according to the coding categorization scheme described earlier in the manuscript. We then conducted five separate Chi-Square analyses to determine if differences existed between the three groups (i.e., female student-athletes, female students, male student-athletes) on the coded qualitative reasons they gave for why they wanted to be muscular. To control for familywise error rate issues (i.e., the increased probability of making a Type I error), the Bonferroni correction was applied to all p values. Thus, the significance level was set at $p < .01$ (.05/5 tests).

Results indicated statistically significant differences between groups on the following reasons: *External Gratification*, $\chi^2(2, N = 211) = 11.865, p = .003$; *Health*, $\chi^2(2, N = 211) = 27.826, p < .001$; and *I Don't Want to Be Muscular*, $\chi^2(2, N = 211) = 17.210, p < .001$. For the *External Gratification* category, male student-athletes reported the highest percentage (40.8%), followed by female-student athletes (21.2%) and female students (16.9%). For *Health* category, female students reported the highest percentage (49.2%), followed by female-student athletes (42.4%) and male student-athletes (9.9%). Finally, for the *I Don't Want to Be Muscular* category, 23.1% of female students, 16.5% of female-student athletes, and 0% of male student-athletes reported that they didn't want to be muscular. These results provided mixed support for the study's fourth and fifth hypothesis. Table 2 provides the frequencies and number of responses for each of the three groups on this question.

Discussion

Drive for Muscularity Between Groups

In addition to attending the same college in the Midwestern United States, initial analyses indicated that these three groups shared relatively similar demographic characteristics (e.g., race, relationship status), but in characteristics that they differed (e.g., year in school, BMI, GPA), these variables did not significantly contribute to differences in drive for muscularity scores. After controlling for these differences, the results of the study provided support for our first two hypotheses. Consistent with past research (e.g., Krane et al., 2001; Krane et al., 2004; McCreary & Saucier, 2009), the results demonstrated that male student-athletes have a higher desire to be muscular than either of the groups of women in this sample, and that female student-athletes reported a significantly higher drive for muscularity than their female classmates who did not play a college sport. McCreary and Saucier (2009) found a similar finding, and the authors

suggested that the difference in muscularity desires among women was based on the perceived utility of a muscular physique among female student-athletes. According to Ross and Shinenew (2008), the female college student-athletes in their study, “described gender as a dualistic notion that results in perceptions of sport appropriateness and constrains women seeking athletic competence” (p. 48). Thus, the results of this study suggest that, although this dualistic notion of gender may constrain women in sport, female-student athletes empirically reported a desire to be muscular that can facilitate their athletic competence.

In support of our study’s third hypothesis, type of sport impacted participants’ desire to be muscular. Student-athletes in high contact sports (i.e., football, rugby, basketball) reported significantly higher levels of drive for muscularity than student-athletes in both medium contact sports (i.e., soccer, volleyball, baseball) and those in low contact sports (i.e., cross country, tennis, track). This result is consistent with Raudenbush and Meyer’s (2003) finding that contact sport participants required a more massive and muscular physique for functional purposes, and also indicated that their ideal body image was more muscular when compared to athletes in other sports. Furthermore, Ross and Shinenew (2008) discussed sport appropriateness by noting that the female student-athletes in their study reported that sports that require bodily contact were more associated with masculinity. Thus, because female athletes may view contact sports as less appropriate for women to participate in, the higher drive for muscularity reported by participants in contact sports in this study suggests that women who play sports with bodily contact may endure increased societal pressures in negotiating femininity and muscularity. Future research on this dynamic is needed to determine if women who play different sports endure differential experiences in balancing their drive for muscularity with pressures to conform to societal gender role expectations.

Reasons for Being Muscular

Chi-square analyses indicated that statistically significant differences existed between groups on reasons for being muscular in the following categories: *External Gratification*, *Health*, and *I Don't Want To Be Muscular*. The results of the study provided support for the study's fourth hypothesis, that female student-athletes would report *Functionality* as their most oft-cited reason for being muscular. Overall, of the reasons female student-athletes gave for wanting to be muscular, 45% cited *Functionality*, 42% cited *Health*, 21% cited *External Gratification*, and 18% cited *Internal Gratification*. Only 16% of female student-athletes reported that they did not want to be muscular. However, even though female student-athletes cited *Functionality* as their top reason for being muscular, there were no statistically significant differences between groups (i.e., female student-athletes, male student-athletes, female students) on *Functionality*. This finding suggests that sport participation has an influence on the drive for muscularity among women, but that female non-athletes are also interested in functional reasons for being muscular. Interestingly, in looking at the coded responses to the question, "Why do women want to be muscular?" only 21% of male student-athletes believed that women would cite *Functional* reasons for wanting to be muscular. Consistent with societal expectations that women should avoid being perceived as muscular (e.g., Choi, 2000), male student-athletes underestimated the actual frequency of responses among both groups of women in this sample concerning why women wanted to be muscular. Common responses among male participants about why they thought women would want to be muscular (e.g., "Because they think it looks good," "Because being tone makes them feel more attractive") demonstrated this underestimation of the *Functionality* aspect that muscularity can represent for women, particularly female student-athletes.

Although female student-athletes reported that functioning in their sport provided a strong motivation to be muscular, the results indicated that female student-athletes also reported societal pressures they faced in attempting to balance notions of muscularity and femininity. To illustrate this point, one female student-athlete responded,

I want to be muscular to be the best I can be at my sport. It's something I tend to play down when I'm at class or out with my friends. I've learned over time that it's [muscularity] now something that's usually attractive to men.

Bowker, Gadbois, and Cornock (2003) found that American athletes at higher levels of athletic competition reported higher levels of self-esteem and athletic competence, but only if they also reported lower levels of femininity. On the other hand, in their efforts to maintain femininity within their athletic role, female athletes have discussed engaging in compensatory behaviors (e.g., wearing makeup, ribbons, dresses)—both inside and outside of sporting contexts—to reinforce the notion that they are feminine (e.g., Krane et al., 2004; Ross & Shinen, 2008). In conjunction with these efforts and beliefs of female student-athletes, the results of this study speak to the power of gender stereotypes that create difficulties for women in sport to effectively resist societal gender ideologies that attempt to constrain them. However, “Different gender portrayals that are dependent upon environment may allow elite women athletes to manage the cultural contradiction of female athleticism” (Ross & Shinen, 2008, p. 53). Thus, it is important that research results be used to help female student-athletes understand this paradox and find contexts wherein they can appreciate their athletic prowess and enact their femininity in accordance with their own volition.

The results of the study did not provide support for our fifth hypothesis, even though the Chi Square analyses did indicate significant differences between groups on the *External Gratification* category. However, instead of female college students (only 17%) reporting the

highest levels of external gratification reasons for being muscular (as hypothesized), statistically significantly more male student-athletes (41%) cited *External Gratification* as a reason they wanted to be muscular. Consistent with previous research suggesting that college men in the United States tend to overestimate the level of muscle mass that they think women find attractive in men (Lynch & Zellner, 1999; Raudenbush & Meyer, 2003), this finding may be related to external sociocultural pressures men face in conforming to standards of masculinity that emphasize attaining the ideal male body. Past research has examined ways that these standards have been conveyed by popular culture representations, with respondents often identifying the muscular body as the most masculine, and associating it with stereotypical masculine attributes such as self-confidence, strength, competence, aggressiveness, dominance, tenacity, and sexual potency (Biller & Liebman, 1971; Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986).

To further illustrate this point, when asked the question, “Why do men want to be muscular?” 94% of female student-athletes and 91% of female college students responded that *External Gratification* was a reason that men wanted to be muscular. While the Chi Square analyses did indicate that men reported the most *External Gratification* responses as reasons for being muscular, the actual response rate of male student-athletes (41%) was well below these overestimated levels of *External Gratification* expectations cited by both groups of women in this study. The following quote from a female participant represents the societal pressures that women in this sample perceived were driving men to want to be muscular, “Muscles and strength make them look more masculine. Muscular men are seen as more confident and more likely to get women.” Another participant added that she believed that men wanted to be muscular for the following reasons: “To show off. To compete with other [men], be more muscular than others, possibly. To conform to the stereotype of maleness.” Thus, female participants acknowledged

the societal pressures men face in conforming to commonly perceived norms of masculinity (e.g., *muscularity equals masculinity*; Helgeson, 1994).

Although not hypothesized, the significant differences found in the *I Don't Want To Be Muscular* category were interesting, and also supported this point. Male student-athletes reported the lowest amount of responses (0%) indicating that they did not want to be muscular. Stated more clearly, every single male student-athlete reported that they desired to be muscular. This finding that 100% of the male student-athletes in this sample desired to be muscular was reflected in another area of the data. When asked why men want to be muscular, not a single female student-athlete, female student, or male student-athlete reported that men did not want to be muscular. Thus, there was agreement on not only perceptions by all participants that men desired to be muscular, but also by all of the men in this sample who confirmed this perception by unanimously reporting that they desired to be muscular. This agreement provided support for the aforementioned sociocultural pressure men face in negotiating the societal association of masculinity and muscularity. Thus, the results of this study suggest that both male and female athletes face societal pressures to be muscular, but men and women negotiate different sociocultural messages that stem from differing societal ideologies regarding gender roles and gender appropriate behavior in American society.

Limitations

This study has limitations to note. First, we examined the experiences of a group of college students from one particular institution. The results may not be generalizable to student-athlete experiences with muscularity at other institutions. While the muscularity beliefs and perceptions of students and student-athletes at this NCAA Division III is a valid area of inquiry, the experience of student-athletes—particularly female student-athletes—at higher levels of

competition may produce unique results that warrant investigation. Additionally, our participant population did not include male students who were non-athletes. Perhaps given their shared experience in sport and their awareness of the need for muscularity in sport, male student-athletes might actually have provided a potentially inflated estimate of *Functionality* (i.e., 21%) for female muscularity reasons, when compared to the potential responses of male students who do not play an intercollegiate sport. Regardless, results should be interpreted in light of these limitations.

Conclusion

In sum, the findings of study demonstrated the existence of sport differences as well as gender differences in the drive for muscularity. Taken together, the results of this study suggest that when compared to other women, female student-athletes reported a greater desire to be muscular, and *Functionality* (45% of female-student athletes) was their most oft-cited reason for wanting to be muscular. Additionally, female student-athletes and male student-athletes differed in their reasons for wanting to be muscular, suggesting that gender differences exist among athletes in relation to muscularity beliefs. The results of this study can be used to better understand the unique drive for muscularity among athletes, particularly female college student-athletes who *live the paradox* of negotiating societal standards of femininity with this drive for muscularity. This enhanced understanding can help create more nuanced and effective programming and interventions for coaches, administrators, and mental health professionals to use to help female student-athletes create space to resist constraining societal gender ideologies (e.g., Ross & Shiner, 2008). Doing so can help these student-athletes actualize their athletic potential on the field as well as their interpersonal and intrapersonal potential off the field.

References

- Baker, D. G., & Newton, R. U. (2004). An analysis of the ratio and relationship between upper body pressing and pulling strength. *Journal of Strength and Conditioning Research, 18*, 594-598. doi:10.1519/R-12382.1
- Biller, H. B., & Liebman, D. A. (1971). Body build, sex-role preference, and sex-role adoption in junior high school boys. *Journal of Genetic Psychology, 118*, 81-86. PMID:5549607
- Bowker, A., Gadbois, S., & Cornock, B. (2003). Sports participation and self-esteem: Variations as a function of gender and gender role orientations. *Sex Roles, 49*, 47-58. doi:10.1023/A:1023909619409
- Boyle, L. (2005). Flexing the tensions of female muscularity: How female bodybuilders negotiate normative femininity in competitive bodybuilding. *Women's Studies Quarterly, 33*, 134-149.
- Brace-Govan, J. (2004). Weighty matters: Control of women's access to physical strength. *The Sociological Review, 52*, 504-531. doi: 10.1111/j.1467-954X.2004.00493.x
- Byrne, S., & McLean, N. (2001). Eating disorders in athletes: A review of the literature. *Journal of Science and Medicine in Sport, 4*, 145-159. doi:10.1016/S1440-2440(01)80025-6
- Cafri, G., Thompson, K., Ricciardelli, L., McCabe, M., Smolak, L., & Yesalis, C. (2005). Pursuit of the muscular ideal: Physical and psychological consequences and putative risk factors. *Clinical Psychology Review, 25*, 215-239. doi:10.1016/j.cpr.2004.09.003
- Cafri, G., & Thompson, K., (2004). Evaluating the convergence of muscle appearance attitude measures. *Assessment, 11*, 224-229. doi:10.1177/1073191104267652
- Choi, P. Y. L. (2000). *Femininity and the Physically Active Woman*. London: Routledge.
- Choi, P. Y. L. (2003). Muscle matters: Maintaining visible differences between women and men.

- Sexualities, Evolution & Gender*, 5, 71-81.
- Connell, R. W. (1987). *Gender and power: Society, the person and sexual politics*. Stanford CA: Stanford University Press.
- Davis, C., & Cowles, M. (1989). A comparison of weight and diet concerns and personality factors among female athletes and non-athletes. *Journal of Psychomatic Research*, 33, 527-536. doi:10.1016/0022-3999(89)90060-3
- Davis, C., Karvinen, K., & McCreary, D. R. (2005). Personality correlates of a drive for muscularity in young men. *Personality and Individual Differences*, 39, 349-359. doi:10.1016/j.paid.2005.01.013
- Fallon, A. E., & Rozin, P. (1985). Sex differences in perceptions of desirable body shape. *Journal of Abnormal Psychology*, 94, 102-105. doi:10.1037/0021-843X.94.1.102
- Fredrickson, B. L., & Roberts, T. A. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly*, 21, 173-206. doi:10.1111/j.1471-6402.1997.tb00108.x
- Galli, N., & Reel, J. J. (2009). Adonis or Hephaestus? Exploring body image in male athletes. *Psychology of Men & Masculinity*, 10, 95-108. doi:10.1037/a0014005
- Garner, D. M., Garfinkel, P. E., Schwartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. *Psychological Reports*, 47, 483-491. PMID:7454902
- Gilchrist, G. A., & Thoburn, J. (2008, August). Drive for muscularity and reasons for exercise among bodybuilders. Symposium presented at the 116th annual meeting of the American Psychological Association, Boston, MA.
- Grogan, S., Evans, R., Wright, S., & Hunter, G. (2004). Femininity and muscularity: accounts of seven women body builders. *Journal of Gender Studies* 13, 49-61.

doi:10.1080/0958923032000184970

Gruber, A. (2007). A more muscular female body ideal. In J. K. Thompson & G. Cafri (Eds.), *The muscular ideal: Psychological, social, and medical perspectives* (pp. 217–234).

Washington, DC: American Psychological Association. doi:10.1037/11581-011

Harmatz, M. G., Gronendyke, J., & Thomas, T. (1985). The underweight male: The unrecognised problem group in body image research. *Journal of Obesity and Weight Regulation, 4*, 258–267.

Harrison, K., & Bond, B. (2007). Gaming magazines and the drive for muscularity in preadolescent boys: A longitudinal examination. *Body Image, 4*, 269–277.

doi:10.1016/j.bodyim.2007.03.003

Hausenblas, H. A., & Downs, D. S. (2001). Comparison of body image between athletes and nonathletes: A meta-analytic review. *Journal of Applied Sport Psychology, 13*, 323–339.

doi:10.1080/104132001753144437

Helgeson, V. S. (1994). Prototypes and dimensions of masculinity and femininity. *Sex Roles, 31*, 653–682. doi:10.1007/BF01544286

Johnson, C., Powers, P. S., & Dick, R. (1999). Athletes and eating disorders: The National Collegiate Athletic Association study. *International Journal of Eating Disorders, 26*, 179–188. doi:10.1002/(SICI)1098-108X(199909)26:2<179::AID-EAT7>3.0.CO;2-Z

Kieman, M., Rodin, J., Brownell, K.D., Wilmore, J.H., & Camdall, C. (1992). Relation of level of exercise, age, and weight-cycling history to weight and eating concerns in male and female runners. *Health Psychology, 11*, 418–421. doi:10.1037/0278-6133.11.6.418

Krane, V. (2001). We can be athletic and feminine, but do we want to? Challenging hegemonic femininity in women's sport. *Quest, 53*, 115–133.

- Krane, V., Choi, P., Baird, S., Aimar, C., & Kauer, K. (2004). Living the paradox: Female athletes negotiate femininity and muscularity. *Sex Roles, 50*, 315-329.
doi:10.1023/B:SERS.0000018888.48437.4f
- Krane, V., Waldron, J., Michalenok, J., & Stiles-ShIPLEY, J. (2001). Body image concerns in female exercisers and athletes: A feminist cultural studies perspective. *Women in Sport & Physical Activity Journal, 10*, 17-34.
- Labre, M. P. (2002). Adolescent boys and the muscular male body ideal. *Journal of Adolescent Health, 30*, 233-242. doi:10.1016/S1054-139X(01)00413-X
- Lynch, S. M., & Zellner, D. A. (1999). Figure preferences in two generations of men: The use of figure drawings illustrating differences in muscle mass. *Sex Roles, 40*, 833-843.
doi:10.1023/A:1018868904239
- Mathews, E. M., & Wagner, D. R. (2008). Prevalence of overweight and obesity in collegiate American football players, by position. *Journal of American College Health, 57*, 33-38.
doi:10.3200/JACH.57.1.33-38
- McCreary, D. R. (2007). The Drive for Muscularity Scale: Description, psychometrics, and research findings. In Thompson & Cafri (Eds.), *The muscular ideal* (pp. 87-106). Washington, DC: American Psychological Association. doi:10.1037/11581-004
- McCreary, D. R., & Sasse, D. K. (2000). An exploration of the drive for muscularity in adolescent boys and girls. *Journal of American College Health, 48*, 297-304.
doi:10.1080/07448480009596271
- McCreary, D. R., Sasse, D. K., Saucier, D. M., & Dorsch, K. D. (2004). Measuring the drive for muscularity: Factorial validity of the Drive for Muscularity Scale in men and women. *Psychology of Men and Masculinity, 5*, 49-58. doi:10.1037/1524-9220.5.1.49

- McCreary, D. R., & Saucier, D. M. (2009). Drive for muscularity, body comparison, and social physique anxiety in men and women. *Body Image, 6*, 24-30.
doi:10.1080/07448480009596271
- McCreary, D. R., Saucier, D. M., & Courtenay, W. H. (2005). The drive for muscularity and masculinity: Testing the associations among gender-role traits, behaviors, attitudes, and conflict. *Psychology of Men & Masculinity, 6*, 83-94. doi:10.1037/1524-9220.6.2.83
- Miller, J. L., & Levy, G. D. (1996). Gender role conflict, gender-typed characteristics, self-concepts, and sport socialization in female athletes and non-athletes. *Sex Roles, 35*, 111-122. doi:10.1007/BF01548178
- Mishkind, M. E., Rodin, J., Silberstein, L. R., & Striegel-Moore, R. H. (1986). The embodiment of masculinity: Cultural, psychological and behavioral dimensions. *American Behavioral Scientist, 29*, 545-562. doi:10.1177/000276486029005004
- Morrison, T. G., Morrison, M. A., & Hopkins, C. (2003). Striving for bodily perfection? An Exploration of the drive for muscularity in Canadian men. *Psychology of Men & Masculinity, 4*, 111–120. doi:10.1037/1524-9220.4.2.111
- Morrison, T. G., Morrison, M. A., Hopkins, C., & Rowan, E. T. (2004). Muscle mania: Development of a new scale examining the drive for muscularity in Canadian males. *Psychology of Men & Masculinity, 5*, 30–39. doi:10.1037/1524-9220.5.1.30
- Mosewich, A. D., Vangool, A. B., Kowalski, K. C., & McHugh, T. L. F. (2009). Exploring women track and field athletes' meanings of muscularity. *Journal of Applied Sport Psychology, 21*, 99-115. doi:10.1080/10413200802575742
- Olivarida, R. (2001). Mirror, mirror on the wall, who's the largest of them all? The features and phenomenology of muscle dysmorphia. *Harvard Review of Psychiatry, 9*, 254–259.

doi:10.1080/hrp.9.5.254.259

- Olivardia, R., Pope, H. G., Borowiecki, J. J., & Cohane, G. H. (2004). Biceps and body image: The relationship between muscularity and self-esteem, depression, and eating disordered symptoms. *Psychology of Men & Masculinity, 5*, 112-120. doi:10.1037/1524-9220.5.2.112
- Parks, P. S., & Read, M. H. (1997). Adolescent male athletes: Body image, diet and exercise. *Adolescence, 32*, 593-602. PMID:9360733
- Petrie, T. A. (1996). Differences between male and female college lean sport athletes, nonlean sport athletes, and nonathletes on behavioral and psychological indices of eating disorders. *Journal of Applied Sport Psychology, 8*, 218-230. doi:10.1080/10413209608406478
- Petrie, T. A., Greenleaf, C., Reel, J., & Cater, J. (2008). Prevalence of eating disorders and disordered eating behaviors among male collegiate athletes. *Psychology of Men & Masculinity, 9*, 267-277. doi:10.1037/a0013178
- Pope, H. G., Olivardia, R., Borowiecki, J., & Cohane, G. (2001). The growing commercial value of the male body: A longitudinal survey of advertising in women's magazines. *Psychotherapy and Psychosomatics, 70*, 189-192. doi:10.1159/000056252
- Pope, H. G., Olivardia, R., Gruber, A., & Borowiecki, J. (1999). Evolving ideals of male body image as seen through action toys. *International Journal of Eating Disorders, 26*, 65-72. doi:10.1002/(SICI)1098-108X(199907)26:1<65::AID-EAT8>3.0.CO;2-D
- Rao, P. V., & Overman, S. J. (1986). Psychological well-being and body image: A comparison of black women athletes and nonathletes. *Journal of Sport Behavior, 9*, 79-91.
- Raudenbush, B., & Meyer, B. (2003). Muscular dissatisfaction and supplement use among male

- intercollegiate athletes. *Journal of Sport & Exercise Psychology*, *25*, 161-170.
- Ridgeway, R. T., & Tylka, T. L. (2005). College men's perceptions of ideal body composition and shape. *Psychology of Men & Masculinity*, *6*, 209–220. doi:10.1037/1524-9220.6.3.209
- Ross, S. R., & Shiner, K. J. (2008). Perspectives of women college athletes on sport and gender. *Sex Roles*, *58*, 40–57. doi:10.1007/s11199-007-9275-4
- Russell, K. (2002). Women's participation motivation in rugby, cricket, and netball: Body satisfaction and self identity. *Unpublished doctoral dissertation*, Coventry University, Coventry, UK. As cited in Krane, V., Choi, P., Baird, S., Aymar, C., & Kauer, K. (2004). Living the paradox: Female athletes negotiate femininity and muscularity. *Sex Roles*, *50*, 315-329. doi:10.1023/B:SERS.0000018888.48437.4f
- Smolak, L., & Murnen, S. K. (2008). Drive for leanness: Assessment and relationship in gender, gender role and objectification. *Body Image*, *5*, 251-260. doi:10.1016/j.bodyim.2008.03.004
- Smolak, L., Murnen, S. K., & Ruble, A. E. (2000). Female athletes and eating problems: A meta-analysis. *International Journal of Eating Disorders*, *27*, 371-380. doi:10.1002/(SICI)1098-108X(200005)27:4<371::AID-EAT1>3.0.CO;2-Y
- Smolak, L., & Stein, J. A. (2006). The relationship of drive for muscularity to sociocultural factors, self-esteem, physical attributes gender role, and social comparison in middle school boys. *Body Image*, *3*, 121-129. doi:10.1016/j.bodyim.2006.03.002
- Spitzer, B. A., Henderson, K. A., & Zivian, M. T. (1999). Gender differences in population versus media body sizes: A comparison over four decades. *Sex Roles*, *40*, 545–565. doi:10.1023/A:1018836029738

Thompson, J. K., Heinberg, L. J., Altabe, M. N., & Tantleff-Dunn, S. (1999). *Exacting beauty:*

Theory, assessment, and treatment of body image disturbance. Washington, DC:

American Psychological Association. doi:10.1037/10312-000

Weinke, C. (1998). Negotiating the male body: Men, masculinity, and cultural ideals. *Journal of*

Men's Studies, 6, 255–282.