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Desiring the Muscular Ideal: Men's Body Satisfaction in the United States, Ukraine, and Ghana

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Failure to achieve a lean and muscular build, a prominent characteristic of masculinity for many men, may lead to body dissatisfaction. In four studies the authors used silhouette measures to assess men's satisfaction with their muscularity and body fat. Across studies, many U.S. men (51–71%) were not satisfied with their body fat level. Further, over 90% of U.S. undergraduate men wanted to be more muscular, as did many Ukrainian (69%) and Ghanaian (49%) men. In the United States, men's ratings of their current and ideal muscularity were associated with endorsement of the male role, and many men desired increased muscularity for reasons related to increased dominance and attractiveness to women. These results suggest widespread desire for increased muscularity among men.

Keywords: men, muscularity, body image, masculinity, sexual selection

> The average man "feels like Clark Kent but longs to be like Superman."
> —Roberto Olivardia (2001, p. 254)

Men who have negative attitudes about their bodies and their appearance report a wide array of psychological and health issues (for reviews, see Cafri et al., 2005; Labre, 2002; McCabe & Ricciardelli, 2004). For example, compared to men who are satisfied with their bodies, men who are dissatisfied report higher levels of depression, eating pathology, and use of performance-enhancing substances, as well as lower self-esteem (Olivardia, Pope, Borowiecki, & Cohane, 2004). These associations of poorer psychological well-being with body dissatisfaction are of concern because poor body image among men may be more widespread than was once commonly assumed. In a recent survey of 52677 visitors to a popular U.S. news website (Frederick, Peplau, & Lever, 2006) many men reported that they felt dissatisfied with their weight (48%), physically unattractive (11%), and so uncomfortable with their bodies that they avoid wearing a bathing suit in public (16%).

Men and the Muscular Ideal

In contrast to women, who experience pressure to be slender, men may experience pressure to maintain athletic and muscular body types. For example, men represented as prestigious in popular magazines are often lean and muscular (e.g., Frederick, Fessler, & Haselton, 2005). For

some men upward social comparisons between their own bodies and the body types depicted in the media lead to body dissatisfaction and a desire for increased muscularity (e.g., Baird & Grieve, 2006).

Male Role Perspectives

Men's beliefs about the male role may also relate to their desires for increased muscularity. Pleck (1981, 1995) proposed that "gender role strain" is a form of distress that arises when a man believes that he fails to live up to his concept of "manhood." Many individuals consider a man's body type to be related to his masculinity. For example, in one study, participants nominated height and muscularity as two of the three most important features that describe a "masculine man" (Helgeson, 1994). Men who think that they do not embody these physical aspects of masculinity may become dissatisfied with their appearance. Further, men who more strongly endorse the traditional male role may report a stronger desire to be muscular. In support of this proposal, both qualitative and quantitative studies have found that men's desires to become more muscular are linked to increased endorsement of the traditional male gender role and a desire to feel or appear more masculine (Drummond, 2002; Grogan & Richards, 2002; Klein, 1993; Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986; Pope, Phillips, & Olivardia, 2000; Weinke, 1998).

Evolutionary Perspectives

From an evolutionary perspective, possessing a muscular body type may be desirable for several reasons. First, possessing a muscular body likely aids men in male-male intrasexual competitions, allowing men with muscular bodies to achieve higher status among males. Second, possessing a muscular body may be an important component of male attractiveness to women across a variety of cultures, although little research has examined this proposal empirically (for exceptions, see Cassidy, 1991; Dixson, Halliwell, East, Wignarajah, & Anderson, 2003).

Evolutionary scientists have proposed that women would be especially attracted to men who display exaggerated secondary sexual characteristics (e.g., facial masculinity, broad shoulders, etc.) including muscularity (Dixson et al., 2003; Frederick & Haselton, 2006). Research on sexual selection in human and nonhuman animals suggests that these characteristics are attractive because they serve as cues to females that a male must be in good condition in order to generate these metabolically expensive traits (e.g., Folstad & Karter, 1992; Frederick & Haselton, 2006; Johnston, Hagel, Franklin, Fink, & Grammer, 2001; Penton-Voak & Perrett, 2000; Penton-Voak et al., 1999). Further, muscularity may be attractive to women not only because it is a cue to heritable fitness and good condition, but also because women may derive direct benefits by mating with a muscular male. These benefits may include increased protection from other males as well as assistance with arduous physical tasks. Thus, men may desire increased muscularity in order to be more attractive to women.

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For additional papers on body image from this and other projects, please contact David Frederick. Further information is also available at the website dfred.bol.ucla.edu.

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Assessing Satisfaction With Muscularity and Body Fat Using Silhouette Forms

Multiple strategies have been used to investigate male body satisfaction, including large scale surveys, qualitative interviews, and validated Likert scale measures of men's attitudes toward their bodies and/or muscularity (e.g., Frederick, Peplau, & Lever, 2006; McCreary & Sasse, 2000; Ricciardelli, McCabe, & Ridge, 2006; Ridgeway & Tylka, 2005; Tylka, Bergeron, & Schwartz, 2005; for a review see Cafri & Thompson, 2004).

Silhouette Assessment Forms

Historically, however, some of the most popular measures of men's body dissatisfaction have been silhouette-based forms such as the Figure Rating Scale (FRS; Stunkard, Sorensen, & Schulsinger, 1983; see also Fallon & Rozin, 1985) and the Contour Drawing Rating Scale (CDRS; Thompson & Gray, 1995). These silhouette forms present participants with several body silhouettes of men ranging from very slender to obese. Body dissatisfaction is typically measured by examining the size of the discrepancy between individuals' ratings of their current body and the body they would most like to possess (i.e., their self vs. ideal discrepancy) or the body they think women find most attractive (i.e., their self vs. other-sex ideal discrepancy; e.g., Fallon & Rozin, 1985). This approach is motivated by self-discrepancy theory (Higgins, 1987), which holds that dissatisfaction with a trait is related to the discrepancy between one's current self, his ideal self, and what he believes others find ideal.

Despite the theoretical importance of male muscularity, most widely used silhouette forms, such as the FRS (Stunkard, Sorensen, & Schulsinger, 1983), attempt to manipulate only body fat level and may confound body fat level with muscularity (Frederick & Sadeghi-Azar, 2006). However, the psychological significance of these two sources of body size—body fat and muscularity—may be very different. Therefore, it is important that silhouette measures include images which allow for the independent assessment of body fat and muscularity (e.g., the Body Builder Image Grid; Hildebrandt, Lagenbucher, & Schlundt, 2004). Despite concerns over its low test– retest reliability (Cafri, Roehrig, & Thompson, 2004), the Somatomorphic Matrix has been become a frequently used silhouette form because it provides images of men that vary in both body fat and muscularity (Gruber, Pope, Borowiecki, & Cohane, 1999).

Satisfaction With Body Fat and Muscularity

Past research using fat-based silhouette scales has found that some men wish to be smaller and some men wish to be larger. For example, Drewnowksi and Yee (1987) found that many men selected an ideal body that was smaller/thinner than their current body, while other men selected an ideal body that was larger/heavier than their current body. Research using the Body Builder Image Grid has found that on average, undergraduate men would like to be thinner (Hildebrandt, Lagenbucher, & Schlundt, 2004), although research using the FRS has not found this pattern (Fallon & Rozin, 1985).

Research assessing men's concerns with their muscularity has been more consistent. Using a set of silhouettes images scaled by muscularity, Lynch and Zellner (1999) found that 84% of college men and 44% of older men indicated that their current bodies were less muscular than the bodies they would like to possess. Using the Somatomorphic Matrix (Gruber et al., 1999), past research has found that men in several societies desired bodies that were more muscular than their current bodies and generally believed that women prefer men who are more muscular than the male respondent. This was found among men from the United States (Olivardia, Pope, Borowiecki, & Cohane, 2004), Samoa (Lipinski & Pope, 2002), Austria, France (Pope et al., 2000), Kenya (Campbell, Pope, & Filliaut, 2005), and Taiwan (Yang, Gray, & Pope, 2005). In the United States, this positive evaluation of muscular (mesomorphic) bodies has demonstrated repeatedly since the 1950s (for a review, see Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986).

Present Research

In four studies we used silhouette measures of male bodies that varied systematically in muscularity or body fat to investigate several aspects of men's body image. First, we investi-

gated the reliability and validity of these silhouette measures in U.S. samples (Studies 1 and 2). Second, we examined men's general satisfaction with their current levels of muscularity and whether their concerns with muscularity differ from their concerns with body fat. These issues were studied in three different regions of the United States (Studies 1–3) and in two other regions of the world: Ghana and the Ukraine (Study 4). Third, we examined the reasons behind men's desires for increased muscularity, both through assessing their self-reported motivations (Study 2) as well as the association between their desires for increased muscularity and their attitudes toward the traditional male role (Study 3). Finally, we assessed men's beliefs about women's preferences for male muscularity (Studies 3–4).

Study 1: Satisfaction With Muscularity and Body Fat in the Midwestern United States

The first goal was to test the reliability of the new silhouette forms used in these studies and to compare the reliability of these new forms to past research on other silhouette forms. The second goal was to use these forms to assess men's satisfaction with their current levels of muscularity and body fat.

Method

Participants. A total of 68 college male volunteers were recruited from psychology classrooms and fraternities at a small liberal arts college in a small city in Wisconsin. All participants indicated that they were between 18 to 23 years old.

Materials. We created two new silhouette forms that separately manipulate muscularity (the Muscle Silhouette Measure; MSM) and body fat level (the Fat Silhouette Measure; FSM). In order to construct stimuli that reflect the fat and muscle distributions of real men, the silhouettes were based on photographs of adult males found in *The Atlas of Men* (Sheldon, Dupertuis, & McDermott, 1954). In these new measures, the level of body fat and of muscularity change systematically from one silhouette to the next, but care was taken to ensure that the frame, height, and head shape of the silhouettes remained constant.

The MSM contains an array of eight hand-drawn silhouettes of men that increase linearly in muscularity (Figure 1). The first silhouette presents a slender and nonmuscular man, and the last silhouette presents a slender and very muscular man. These changes are portrayed through an increase in muscle definition and the size of the shoulders, chest, arms, and thighs. The MSM has previously been used to code representations of male bodies in women's magazines, men's magazines, and body builder magazines (Frederick, Fessler, & Haselton, 2005). In that project, five coders rated the muscularity level of men in four different magazines. There was high agreement across the five coders (Cronbach's alpha = .95), suggesting that the MSM can be used to identify individuals of differing levels of muscularity.

The FSM contains an array of eight hand-drawn silhouettes of men that increase linearly in body fat (Figure 2). The first silhouette presents a slender man with little body fat, and the last one presents an obese man. Using photos provided in the *Atlas of Men* as a guide, the silhouettes increase primarily in the overall

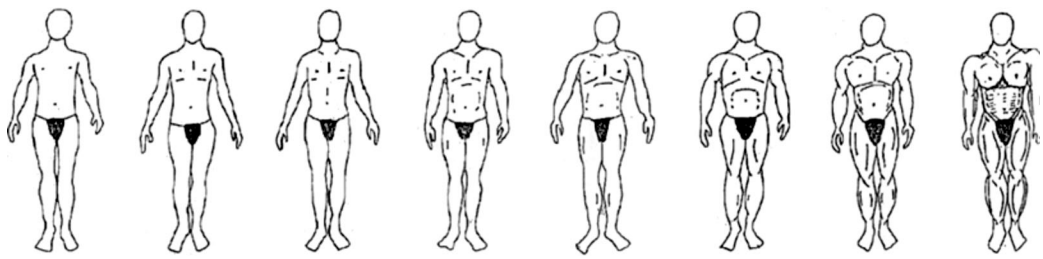

Figure 1. The Muscle Silhouette Measure (MSM).

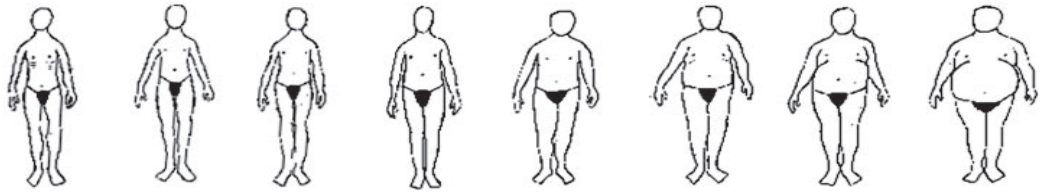

Figure 2. The Fat Silhouette Measure (FSM).

width of the body (particularly the abdomen) with a related increase in roundness in order to minimize the potential confound between increased body fat level and muscularity.

Procedure. Participants completed the same brief survey at Time 1 and then one month (28–31 days) later at Time 2. A total of 64 of the original 68 male participants completed both phases of the study. Participants were first shown both the FSM and MSM, and then they completed ratings related to the FSM followed by the MSM. At both times men indicated their current level and ideal level of body fat and muscularity by writing the letters "C" and "I" on a line placed underneath the forms. This allowed participants to record scores that were intermediate between silhouettes if they so desired. Participants' responses were coded in quarter unit increments (e.g., 1.0, 1.25, 1.5, etc.) by two coders. Whenever the ratings of the coders were discordant, the two scores were averaged. Most ratings were concordant (95.7%), and none differed by more than .25 units.

Results and Discussion

Test–retest reliability. Results are summarized in Table 1. To examine the test–retest reliability of the forms, correlation coefficients (Pearson's *r*) were calculated for each rating on the MSM and FSM: the current body, the ideal body, and the self-ideal discrepancy (calculated by subtracting the current from ideal body rating). Test–retest reliability across the 1-month period was good, especially since the correlations were based on one-item measures. Correlations exceeded $r = .70$ for five of the six ratings, including men's ratings of their current muscularity and body fat, their ideal muscularity and body fat, and their self-ideal discrepancy scores for muscularity. The only association that did not reach the .70 threshold was the test-retest correlation for the body fat self-ideal discrepancy. As shown in Table 1, this pattern of results was comparable to those of previous studies on the reliability of other silhouette measures. The one item related to the FSM that did not show high test–retest reliability was on the

Table 1
Comparisons of the Test-Retest Reliabilities of the MSM, FSM, and Somatomorphic Matrix

	Test-retest reliability (*r*)			
	Study 1: MSM and FSM	Somatomorphic matrix	BIG-O	BIG-S
Test-retest period	28 to 31 days	7 to 10 days	1 week	1 week
Muscularity ratings				
Current	.83	.78	.96	.76
Ideal	.89	.55	.81	.77
Discrepancy	.71	.35	.74	.70
Body fat ratings				
Current	.83	.64	.96	.72
Ideal	.90	.78	.77	.72
Discrepancy	.56	.57	.78	.65

Note. MSM = Muscle Silhouette Measure; FSM = Fat Silhouette Measure; BIG-O = Bodybuilder Image Grid—Original; BIG-S = Bodybuilder Image Grid—Scaled. The test-retest reliabilities for the Somatomorphic Matrix were reported by Cafri, Roehrig, and Thompson (2004) and reliabilities reported for the BIG-O and BIG-S were reported by Hildebrandt, Langenbucher, and Schlundt (2004) and Hildebrandt (personal communication, 2006).

measure of body fat self-ideal discrepancies, but the relatively low test–retest reliability that has been reported now across four different measures of body fat discrepancies raises interesting questions about whether or not body fat concerns are stable over time (see Table 1).

Satisfaction with muscularity. As shown in Table 2, the vast majority of men wanted to be more muscular, both at Time 1 (90%) and Time 2 (91%). This percentage was calculated by identifying the number of participants who indicated that their current body type was less muscular than their ideal body type on the MSM. One-way within subjects analyses of variance (ANOVAs) comparing men's ratings of their current and ideal level of muscularity, conducted separately for Time 1 and Time 2, revealed that on average men reported that their current bodies were significantly less muscular than their ideal bodies at both times. To aid in the interpretation of these scores, effect sizes (Cohen's *d*) measuring the size of the difference between men's reported current and ideal bodies were computed. Cohen (1988) suggested that effect sizes of .20, .50, and .80 correspond roughly to small, medium, and large effect sizes, respectively. The size of the discrepancy between men's current and ideal bodies was quite large at both Time 1 ($d = -1.50$) and Time 2 ($d = -1.53$).

Satisfaction with body fat. As shown in Table 3, the pattern of findings for body fat was very different from the pattern of findings for muscularity. Although most men were not satisfied with their muscularity, almost half of the men were satisfied with their body fat level at both Time 1 (49%) and Time 2 (41%), which was calculated by identifying the number of participants who indicated that their current bodies did not differ from their ideal bodies on the FSM. Although some of the dissatisfied men wanted to be heavier, most of the dissatisfied

Table 2
Men's Ratings on the Muscle Silhouette Measure (MSM) for Studies 1–4

	Study 1				Study 2		Study 3		Study 4			
	Time 1		Time 2		NY		CA		Ukraine		Ghana	
	%		%		%		%		%		%	
Percentages												
Satisfied	10		9		9		4		26		43	
Desire less muscularity	0		0		0		0		5		8	
Desire greater muscularity	90		91		91		96		69		49	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Mean body ratings												
Current	3.16	(1.07)	3.27	(.98)	3.24	(1.32)	3.22	(1.65)	3.42	(1.33)	3.07	(1.13)
Ideal	4.72	(1.01)	4.73	(.93)	4.95	(1.10)	4.83	(1.35)	4.57	(1.22)	3.97	(1.43)
Average					2.83	(1.11)	2.77	(.91)	3.61	(1.02)	3.51	(1.16)
LT/attractive							4.21	(1.15)	4.76	(1.33)	4.06	(1.60)
ST							5.04	(1.17)				
	F	*d*	*F*	*d*	*F*	*d*	*F*	*d*	*F*	*d*	*F*	*d*
Statistical comparisons												
Current – ideal	176**	−1.50	170**	−1.53	221**	−1.41	126**	−1.07	55**	−.90	13**	−.69
Current – average					16**	.34	4.15*	.33	1.29	−.16	5.03*	−.34
Current – LT/attractive							28**	−.70	58**	−1.01	14**	−.71
Current – ST							67**	−1.27				
ST – LT							38**	−.72				

Note. In the top third of the table, the percentage of men who desired a more muscular, less muscular, or were satisfied with their muscularity based on their scores on the Muscularity Silhouette Measure are presented for each sample. Below these scores are men's mean ratings on the MSM. Finally, in the bottom third of the table, comparisons of men's mean ratings are presented. Because of space constraints, large *F* values are rounded to the nearest integer. LT = long term; ST = short-term.
* $p < .05$. ** $p < .01$.

Table 3
Men's Rating on the Fat Silhouette Measure (FSM) for Studies 1-3

	Study 1				Study 2		Study 3	
	Time 1		Time 2		NY		CA	
	%		%		%		%	
Percentages								
Satisfied	49		41		35		29	
Desire less body fat	36		43		38		39	
Desire greater body fat	15		16		27		32	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Mean body ratings								
Current	3.25	(1.07)	3.30	(1.14)	3.25	(1.20)	3.25	(1.16)
Ideal	3.01	(.75)	2.96	(.70)	3.14	(1.12)	3.08	(1.01)
Average					3.51	(.96)	3.80	(.88)
LT/attractive							3.28	(.80)
ST							3.14	(.99)
	F	*d*	*F*	*d*	*F*	*d*	*F*	*d*
Statistical comparisons								
Current – ideal	10*	.26	16*	.36	1.19	.09	1.33	.15
Current – average					4.13*	−.24	8.21**	−.53
Current – LT/attractive							0.03	−.03
Current – ST							0.59	.10
ST – LT ideal							2.41	−.16

Note. In the top third of the table, the percentage of men who are satisfied with their body fat, or who desire more or less body fat, are presented based on their scores on the FSM for each sample. Below these scores are men's mean ratings on the FSM. Finally, in the bottom third of the table, comparisons of men's mean ratings are presented. LT = long term; ST = short-term.
* $p < .05$. ** $p < .01$.

men wanted to be thinner. One-way within-subjects ANOVAs comparing men's ratings of their current and ideal level of body fat conducted at Time 1 and Time 2 revealed that, on average, men reported that their current bodies were significantly heavier than their ideal bodies at both times.

Study 2: Satisfaction With Muscularity and Body Fat in the Northeastern United States

The previous study found high test–retest reliability on five of the six scores derived from the MSM and FSM. Study 2 investigated the validity of these silhouette measures by testing the association of scores on the MSM and FSM to men's scores on the Body Mass Index (BMI), a widely used measure of body mass independent of height. BMI scores are frequently used as an estimation of a person's body fat level (Strain & Zumoff, 1992; Welborn, Knuiman, & Vu, 2000). We expected that men who rated themselves as heavier on the FSM would also have larger BMI scores. Further, since greater muscularity is also associated with greater body mass, we also expected a correlation between men's rating of their current bodies on the MSM and their BMI, provided that there was enough variation in muscularity in the sample to detect this association. Because Study 1 demonstrated that a majority of men desired increased muscularity, a second goal of this study was to examine men's reasons for desiring increased muscularity. In particular, do men desire increased muscularity in order to be attractive to women or in order to appear more dominant and more successful in male-male competitions?

Method

Participants. Participants were 100 undergraduate men from a large public university in a small city in New York (*M* age = 18.78,

SD = 1.72) who completed the survey in exchange for course credit in an introductory psychology class.

Materials. In order to eliminate the need for independent raters to code participant's responses (see Study 1), the images on the FSM and MSM were numbered (1–8), and the instructions were modified so that respondents could record their answers in intervals of .25 (e.g., 1, 1.25, 1.5, etc.).

Procedure. After completing a brief demographics survey assessing height, weight, and age, men were shown both the FSM and MSM. Participants completed the FSM, followed by the MSM. Specifically, they recorded their ratings of their current body (Current), the body they would most like to possess (Ideal), the body of the typical man their age (Typical), and the body that women their age find most attractive (Attractive).

After completing the FSM and MSM, participants were asked whether they would like to be more muscular (yes/no). Only one man said "no" and was excluded from subsequent analyses. The participants were then asked "Why would you like to be more muscular?" followed by a list of 13 potential reasons (see Table 4), including increased attractiveness to women ("Feel sexier," "Be more attractive to women") and increased success in intrasexual competitions ("Be better able to intimidate other males," "Be a better fighter," "Be better able to defend myself," "Be better at sports"). In order to control for positive response bias effects (i.e., participants simply checking "yes" to all reasons given), we also included the reasons "So I would feel smarter" and "So I would feel more intelligent," which should be unrelated to desires for muscularity among most individuals. Participants were asked to check all reasons that apply to them.

Table 4
Men's Reports About Why They Want to Be More Muscular (Study 2)

Why do you want to be more muscular?	% Yes
So I would. . .	
Feel stronger	98%
Feel sexier	95%
Feel more confident	93%
Feel healthier	93%
Be more attractive to women	90%
Be better able to defend myself	84%
Be better at sports	80%
Be better able to intimidate other males	79%
Feel more masculine	74%
Be a better fighter	65%
Feel more capable of getting things done	40%
Feel smarter	11%
Feel more intelligent	6%

Results and Discussion

Validity of measures. As predicted, men's ratings of their current body fat level were highly correlated with their BMI scores, $r = .69$, $p < .001$. Additionally, men who rated themselves as more muscular also had higher BMIs, $r = .22$, $p = .028$. These results provide confidence that individuals with greater body mass report greater levels of body fat on the FSM and, to a lesser degree, more muscularity on the MSM.

Satisfaction with muscularity. For a summary of results, refer to Table 2. Consistent with the previous study, almost all men (91%) wanted to have a more muscular body. To compare ratings of the Current, Average, and Ideal body, planned contrasts of all pairs were conducted within the context of a one-way within-subjects ANOVA. Men, on average, reported that their current bodies were significantly less muscular than their ideal bodies. On average, men also viewed themselves as more muscular than the typical man, suggesting either that some men may overestimate their muscularity or that the participants (young college men) may actually be more muscular than other men their age.

Reasons men desire muscularity. Table 4 summarizes men's reasons for wanting to be more muscular. A large majority endorsed reasons related to being more attractive to women and being more successful in male-male competitions, as well as reasons related to feeling healthier, stronger, and more confident. It is unlikely that these results are due to positive response bias effects because few men indicated that becoming more muscular would make them feel smarter or more intelligent (< 12%). These findings are consistent with the proposal that men perceive muscularity as beneficial in terms of being attractive to women and competing with other men.

Satisfaction with body fat. As shown in Table 3, a little over one third of men (35%) were satisfied with their body fat level, 38% wanted

to be thinner, and 27% wanted to be heavier. To compare ratings of the Current, Average, and Ideal Body, planned contrasts were conducted using a one-way within-subjects ANOVA. The planned contrasts revealed that, on average, participants' ratings of their current bodies were significantly thinner than the typical man and similar to their ideal bodies. In this sample, the finding of no significant difference between mean ratings of the self and ideal body was a product of some men wanting to be thinner offsetting the men who wanted to be heavier in the analysis. This suggests that when examining men's satisfaction with body fat, it is important to calculate the percentage desiring thinner or heavier bodies, rather than simply relying on mean self-ideal discrepancies (see also Drewnowski & Yee, 1987).

Study 3: Satisfaction With Muscularity and Body Fat in the Southwestern United States

This study had three main goals. The previous two studies showed that concerns with muscularity and body fat were prevalent in undergraduate men from Wisconsin and New York. The first goal of this study was to replicate these findings in a new geographic region of the United States, specifically Los Angeles. The second goal was to expand on the finding from Study 2 that men report desiring more muscular bodies in order to be more attractive to women. One source of men's body dissatisfaction is that they may believe that their body types are discrepant from the body types women find most attractive. We examined whether men report, on average, that their bodies are less muscular than the bodies they believe women desire in both long-term dating partners and short-term sexual partners. No predictions were made about men's perceptions of women's preferences for body fat. The third goal was to examine whether men's attitudes about the male role are related to their desires for muscular bodies. It has been suggested that one reason men would like to be more muscular is because men feel pressure to look masculine (e.g., Pope, Phillips, & Olivardia, 2000). Thus, we predicted that men who more strongly endorse attitudes supporting the traditional masculine male role would also report a larger ideal level of muscularity than men who less strongly endorse these attitudes. These men may also be more motivated to exercise and build muscles, and thus may report a larger current level of muscularity as well.

Method

Participants. Participants were 56 undergraduate men (M age = 21.98, SD = 6.80) from psychology classes at a large public university in Los Angeles who completed the survey in exchange for course credit.

Materials. The versions of the MSM and FSM described in Study 2 were used in this study. Also included was the Male Role Attitudes Scale (Pleck, Sonenstein, & Ku, 1994). This scale contains eight items assessing endorsement of the traditional male role, such as "A young man should be tough." Responses were scored on a 9-point Likert scale, 1 (*strongly disagree*), 3 (*disagree*), 5 (*neutral*), 7 (*agree*), 9 (*strongly disagree*), with higher scores indicating greater endorsement of the male role in this sample (Cronbach's alpha = .83).

Procedure. After completing a brief demographics survey, men completed the versions of the FSM and MSM described in Study 2. Participants were first shown both the FSM and MSM, and then completed ratings related to the FSM followed by the MSM. Specifically, participants recorded ratings of the silhouette image they though represented their own current body (Current), the average body (Average), their ideal body (Ideal), the body women find ideal for a long-term dating partner/husband (LT), and the body that women find ideal for a brief short-term sexual affair/one-night stand (ST). They then completed a brief measure on past dating history (reported in Frederick & Haselton, 2006) and the Male Role Attitudes Scale.

Results and Discussion

Satisfaction with muscularity. Results are summarized in Table 2. Consistent with Studies 1 and 2, nearly all men (96%) wanted to be more muscular. To compare ratings of the Current, Average, and Ideal bodies, as well as the bodies men perceived that women desire for Long-Term and Short-Term Partners, planned contrasts were conducted within the context of a one-way within-subjects ANOVA. Men rated their current bodies as significantly less muscular than their ideal bodies, and men viewed

themselves as slightly, but significantly, more muscular than the typical man. Men also rated their bodies as significantly less muscular than the bodies that women consider ideal for a long-term partner and a short-term partner. In parallel with past research on women's reported preferences (Frederick & Haselton, 2006), men believed that women prefer a significantly greater level of muscularity in a short-term partner than in a long-term partner. Men's perceptions that their bodies do not match what women desire, particularly in a sexual partner, may be an important source of body dissatisfaction.

Muscularity and endorsement of the male role. For a summary of results, refer to Table 5. On average, men endorsed less traditional views of masculinity on the Male Role Attitudes Scale, scoring below the midpoint of the 9-point rating scale ($M = 4.54$, $SD = 1.07$). As predicted, men who were more accepting of the male role desired a greater level of muscularity and reported that they actually were more muscular than did other men. These associations were strongest for aspects of the male role that emphasize male physical dominance and distinguish men from women, such as the importance of being tough and not acting like a girl. This provides evidence that endorsement of the traditional male role is related to men's desires to embody the muscular ideal. Scores on the Male Role Attitudes Scale were not significantly correlated with any of the self-ideal discrepancy scores (ideal scores minus self scores).

Satisfaction with body fat. For a summary of results, refer to Table 3. Consistent with the previous studies, dissatisfaction with body fat was widespread. A little under one third of men (29%) were satisfied with their body fat, 39% wanted to be thinner, and 32% wanted to be heavier. To compare ratings of the Current, Average, and Ideal bodies, as well as the bodies men perceived that women desire in Long-Term (LT) and Short-Term (ST) Partners, planned contrasts were conducted within the context of a one-way within-subjects ANOVA. Although men's ratings of their current bodies were similar to their ratings of their ideal bodies and the bodies that they perceived women to desire in both long-term and short-term partners, men thought they were thinner than the typical man. As in Study 2, the lack of mean difference between men's current and ideal body ratings in this sample was due to the large minority of men desiring less body fat offsetting the minority desiring more body fat. In contrast to the results for muscularity, where men believed women had different preferences in long-term and short-term partners, men did not believe that women had different preferences for body fat level in long-term and short-term partners.

Study 4: Satisfaction With Muscularity in the Ukraine and Ghana

The previous three studies found that most men in the United States view their current bodies as less muscular than their ideal bodies. Study 4 examined whether many men in countries other than the United States also wish to increase their muscularity. A review of cross-

Table 5
Correlations of Men's Ratings on the MSM to Scores on the Male Role Scale in Study 3

Male Role Attitudes Scale	MSM		
	Current	Ideal	Discrepancy
	r	*r*	*r*
A young man should be tough	.38	.43	.04
I admire a guy who is sure of himself	.30	.40	−.05
It bothers me when guys act like a girl	.29	.27	.11
A man deserves the respect of his wife	.27	.26	.08
It is essential that a guy get respect from others	.17	.20	.00
Men are always ready for sex	.06	.19	−.13
I don't think husbands should do housework	.01	.13	−.15
I don't respect guys who talk. . .about their problems	.03	.03	.00
Male Roles Attitudes total	.30	.39	−.03

Note. Discrepancy refers to the difference between a man's rating of his current and ideal body (ideal–current). MSM = Muscle Silhouette Measure.

cultural research on body type preferences suggests that large body builds are generally considered desirable across cultures (Cassidy, 1991). However, little research has examined men's satisfaction with their bodies in other regions of the world. We examined men's satisfaction with their muscularity and their beliefs regarding what women find attractive in two understudied geopolitical areas: Ukraine (Eastern Europe) and Ghana (northwestern sub-Saharan Africa).

Method

Participants. The Ukrainian participants were 86 undergraduate men (M age = 21.86, SD = 4.76) from a university in a large city in the Ukraine. They completed a brief survey after a class meeting. The Ghanaian participants were 37 men (M age = 24.03, SD = 6.94) from a village located near the industrial city of Ho consisting of about 1000 residents.

Materials. The version of the MSM described in Study 2 was used in this study. For the sample from Ukraine, where many people speak Russian, two translators first translated materials from English to Russian, and then a third translator back-translated the materials to English. Minor discrepancies involving proper grammar and word choice were then reconciled. Because Ghana is a former British colony, the national language is English, and most villagers learn to read and write English through formal schooling. Many individuals in Ghana also speak Ewe. Thus, in addition to the English version, an Ewe version was also created by a Ghanaian professor fluent in Ewe. The vast majority of participants chose the English version, and during the survey administration several Ghanaian men acted as translators to help address any questions that arose regarding the meaning of the questions in the survey.

Procedure. After completing a brief demographic form, the men were presented with the MSM and indicated their Current body, their Ideal body, the Average Body, and the body Most Attractive to Women.

Results and Discussion

Satisfaction with muscularity. For a summary of results, refer to Table 2. Many Ukrainian and Ghanaian men wanted to be more muscular, although the percentage of men desiring increased muscularity in these societies was less than in the U.S. samples. To compare ratings of the Current, Average, Ideal, and Most Attractive body, planned contrasts were conducted within the context of a one-way within-subjects ANOVA. Consistent with the preceding studies, there was a large and significant difference between men's mean current and ideal levels of muscularity in both the Ukraine ($d = -.90$) and Ghana ($d = -.69$), although the discrepancies were larger in the U.S. samples (ds = -1.07 to -1.53). In contrast to the American samples, Ukrainian men did not perceive that they were more muscular than the typical man, and the Ghanaian men reported they were less muscular than the typical man. Additionally, on average, men in both Ghana and the Ukraine believed that women were most attracted to men who were more muscular than themselves. These results provide support for the prediction that desires for increased muscularity, as well as the belief that women prefer muscular men, are prevalent not only in the United States, but in at least some portions of Eastern Europe and sub-Saharan Africa as well.

General Discussion

These four studies demonstrated the utility of the MSM and the FSM for assessing men's satisfaction with their muscularity and body fat. The results suggested that many men in several societies were not satisfied with their muscularity, and desires for muscularity were linked to endorsement of the traditional male role. These findings are consistent with the notion that men want to achieve the muscular ideal.

Findings Related to Muscularity

The results suggest that the MSM is a reliable measure of men's concerns with their muscularity. The results also indicate that dissatisfaction with muscularity was widespread among men in the United States, the Ukraine, and Ghana. Over 90% of U.S. men wanted to be more muscular, as did two thirds of Ukrainian men, and nearly half of Ghanaian men.

Future research is needed to understand why men's level of dissatisfaction with muscularity differs across cultures. One possibility is that men's actual level of muscle development may

account for cross-cultural differences. It is our impression that Ghanaian men were typically more muscular than most college students in the United States and so may already have achieved their desired level of muscularity. Alternatively, to the extent that Western media often foster the belief that muscularity is prestigious (e.g., Frederick et al., 2005), cultural patterns may reflect differences in exposure to Western ideals. This and other explanations for cross-cultural differences warrant examination.

In the United States, men who more strongly endorsed the traditional male role were also more likely to idealize muscular male bodies and to want to be more muscular themselves. This may indicate that some aspects of the male role, such as norms promoting masculine toughness, lead men to strive to achieve a muscular ideal. Alternatively, muscular men may see it as beneficial to endorse social norms emphasizing physical toughness for men.

The findings also supported several predictions derived from evolutionary perspectives. As predicted, many men reported desiring increased muscularity for reasons related to being more effective in competition with other men. For instance, men wanted to be more muscular in order to be better fighters, to defend themselves, to be better at sports, and to intimidate other males. Also as expected, men desired increased muscularity in order to be attractive to women, and they believed that women prefer men who are more muscular than average. Further in line with evolutionary perspectives, men reported that women's preferred short-term sexual partners would be more muscular than their preferred long-term committed partners. This finding that men perceive that women have different preferences for short-term and long-term partners parallels other research, which finds that women prefer characteristics such as facial masculinity (Johnston et al., 2001) and muscularity (Frederick & Haselton, 2006) more strongly when considering men as short-term rather than long-term partners. This may indicate that men are sensitive to women's preferences and wish to embody the traits they believe are attractive to women.

One unexpected finding was a tendency for the U.S. college men in our three samples to believe that they were slightly more muscular than the typical man their age. This may suggest that some men have positive illusions (Taylor & Brown, 1988) about their level of muscularity, or men in our samples were actually more muscular than other men their age.

Findings With the Fat Silhouette Measure

The results suggest that the FSM is a useful measure of men's concerns with their body fat. Men's scores on this measure showed high convergent validity with their Body Mass Index scores. The one score from the FSM that did not show high test–retest reliability was the body fat self-ideal discrepancy. It is important to note that other studies using silhouette measures have also found low test–retest reliability for measures of body fat, especially body fat self-ideal discrepancy scores (Cafri, Roehrig, & Thompson, 2004; T. Hildebrandt, personal communication, February 9, 2006; Hildebrandt, Langenbucher, & Schlundt, 2004). This suggests that the degree to which individuals want to change their body fat level fluctuates over time. Overall, results from the three U.S. samples suggest that many men were dissatisfied with their body fat level, with a large minority desiring less body fat and a smaller minority desiring increased body fat.

Strengths and Limitations

Overall, these studies support the utility of the new silhouette measures. There are, however, several noteworthy limitations. First, the new measures were not presented in a counterbalanced order. Future research should assess if there are order effects created by first rating silhouette measures scaled by body fat before silhouette measures scaled by muscularity. Second, it is difficult to adequately represent all varieties of the male physique in 16 silhouettes. We believe our new measures provide a substantial improvement over the widely used Figure Rating Scale (Stunkard et al., 1983), which contains images varying only in body fat. However, a valuable future research direction would be to examine how responses on these new forms relate to actual body characteristics (waist-to-chest ratio, shoulder-to-hip ratio, or fat free mass index), existing Likert scale self-rating measures of body satisfaction, and existing matrices containing silhouettes varying in body fat and muscularity simultaneously.

In addition, interpreting the results of cross-cultural studies can be problematic, not only because participants might interpret items differently in different cultural contexts, but also because of differences in body build or morphological features across samples. Individuals inhabiting hotter regions of the world, such as Africa, tend to have relatively longer limb lengths and higher relative sitting heights in comparison to individuals inhabiting colder regions of the world, such as Europe (Katzmarzyk & Leonard, 1998). Thus, male silhouettes based on the bodies of primarily European Americans might have appeared squat and bulky to the Ghanaian participants, and this may have affected men's ratings. Future research should develop measures that vary more precisely according the variations in body type typical in the study population.

There are also several strengths of this research. Unlike most studies of male body satisfaction which are conducted within only one study population, we were able to assess body satisfaction in five geographic locations in three different continents. This enabled us to examine whether men's desires for increased muscularity are specific to the United States and Europe or are a more general phenomenon across several different societies with varying degrees of Westernization. Future research should examine men's body type preferences in societies with less exposure to Western media and examine whether men in different societies desire muscularity for varying reasons (e.g., to be attractive to women, to be more successful in intrasexual competitions, etc.).

Further research should also examine the extent of ethnic and sexual orientation differences in concerns with muscularity. Although a great deal of research has been conducted on ethnic differences in body satisfaction among women (for a review, see Grabe & Hyde, 2006), little research has been conducted on ethnic differences among men. One recent study of 2,206 undergraduates, however, found that Asian and Hispanic men report lower body satisfaction than White men (Frederick, Forbes, Grigorian, & Jarcho, 2006). Past research has also found a small but consistent difference in body satisfaction between gay and heterosexual men, with gay men feeling less satisfied (Morrisson, Morrisson, & Sager, 2004). Future research should examine whether differences in current or ideal levels of muscularity and body fat contribute to these ethnic differences in body satisfaction.

Conclusions

In contrast to past research using fat-based silhouette measures (e.g., Fallon & Rozin, 1985), this study included separate measures of fat and muscularity and found that many men perceive a discrepancy between their current and their ideal body. Although this series of studies found that many men are not satisfied with their bodies, future research is needed to examine the intensity of this dissatisfaction and the effect that body dissatisfaction has on men's daily lives. It is especially important to understand the extent to which these feelings may contribute to poorer psychological well-being, obsessive exercising and weight-lifting behaviors, and ingestion of potentially harmful substances such as steroids.

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