

Does Fitness Priming Influence Self- and Other-Judgments of Personal and Physical Characteristics?

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ABSTRACT. We examined how priming the potential benefits of moderate or extreme fitness in advice articles influenced self- and other-judgments of internal and external qualities. After reading articles to activate primes of hyperfitness, moderation in fitness, or pet ownership as a control, men and women participants ($N = 84$) provided personality ratings of self-esteem and perfectionism, provided their attitudes toward health, fitness, dieting, and the ideal appearance of men and women, and also indicated degree of preference for muscularity and slimness in men and women. Men's and women's preferences for slimness in women decreased after reading articles on moderation, both p s $< .046$, both $\eta^2 > .14$. Self-esteem increased as a function of article primes for hyperfitness, $p = .027$, $\eta^2 = .09$. Muscularity attractiveness and perfectionism were not influenced by article primes. Results suggested that certain types of media can be a constructive influence on self- and other-ideal appearance and personal qualities.

Is there danger to reading a simple fitness magazine article or surfing the latest Internet news on dieting? Engagement with media containing idealized content influences the way people view themselves and others by, for example, contributing to negative views of our bodies (Grabe, Ward, & Hyde, 2008; Tiggemann & Slater, 2004). Ideal body types for men and women are conveyed through the media and often provide unattainable body standards for comparison, which may ultimately lead people to maladaptive and potentially dangerous behavior in attempt to match unrealistic body-shape goals.

Media sources convey to the public what the perfect man's and woman's body should look like. The Western idealized man's body is lean, large, and strong with a V-shape from broad shoulders (Burlew & Shurts, 2013; Chia & Wen, 2010), defined chest, arm, and abdominal muscles (Bartlett, Vowels, & Saucier, 2008), and a lean waist (Ryan & Morrison, 2009). For women, body ideals prescribe they be exceptionally thin (Grabe et al., 2008; Nemeroff, Stein, Diehl, & Smilack, 1994; Stice, Maxfield, & Wells, 2002) and toned (Nemeroff et al., 1994; Pritchard & Cramblitt, 2014). Although people

may not believe that media sources affect how they view themselves, research has been clear that media influence is strong.

The mass media, parents, and peers together create body dissatisfaction by providing models for comparison (Galli, Reel, Petrie, Greenleaf, & Carter, 2011; Grabe et al., 2008; Hefner et al., 2014). For example, images in mass media and the opinions of girlfriends and peers negatively influence men's body images (Ryan & Morrison, 2009), and after watching television with thin woman actors or engaging in "thin talk" with friends, women often feel pressured to match thin body standards and are less happy with their own appearance (Hefner et al., 2014; Stice et al., 2002). Thus, self-approval is shaped by the opinions of what significant others consider an "ideal" physique, although the influence of mass media is also important (Soulierre & Blair, 2006).

Ideal bodies are portrayed via television, men's and women's magazines, print advertisements (Soulierre & Blair, 2006; Spitzer, Henderson, & Zivian, 1999), cartoon characters (Silverstein, Perdue, Peterson, & Kelly, 1986), and action figures (Soulierre & Blair, 2006). In turn, people respond

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to the emphases the media place on body shape. For example, Chia and Wen (2010) showed that men who perused ads with idealized models had greater levels of body dissatisfaction and negative body image, and expressed more intention to diet, exercise routinely, and have cosmetic surgery. Similar research results have been seen for women. Tiggemann and Slater (2004) found that women reported feeling more overweight and less self-assured, physically appealing, and pleased with their appearances after viewing music videos with highly attractive, slim models. Moreover, women had stringent standards for beauty and were less content with their own physical appearance and attractiveness after viewing ads with attractive models (Richins, 1991). Women also were more self-critical of their bodies after watching their favorite women-centered television shows (Hefner et al., 2014).

Given that people are exposed regularly to idealized body shapes in the media, such shapes may come to be seen as reasonable (Grabe et al., 2008), although these ideals are unrealistic for most people (Nemeroff et al., 1994). Moreover, such emphasis might lead to valuing appearance at the cost of health (Ryan & Morrison, 2009), and on some occasions, dangerous and potentially life-threatening behaviors (Galli et al., 2011). These assertions are supported by two meta-analyses involving direct exposure to ideals through the media.

A meta-analysis by Bartlett et al. (2008) showed that men who viewed idealized images had lower body esteem and body satisfaction, and higher rates of dysfunctional thoughts and behaviors (e.g., abuse of anabolic substances or steroids, increased muscle-enhancing supplement and diet pill use, excessive exercise, cosmetic surgery, cleansing, and extreme dieting). Such exposure also leads to greater self-consciousness, comparison, and negative self-images (Vigorito & Curry, 1998). In their meta-analysis of 77 articles including 15,047 participants reporting 141 effect sizes, Grabe et al. (2008) found that women participants who viewed thin ideals had more bulimic, purging, and anorexic tendencies, and women who viewed greater amounts of media had greater dislike of their bodies, more greatly valued the thin woman's body type, and presented higher levels of eating pathology than women who viewed less media. Additionally, women's endorsements of the thin-ideal woman's body became more pronounced as rates of viewing media with idealized female

models increased. Given that ideal body shapes are perceived as the norm and remain universal, messages about ideals may implicitly influence related behavior.

Although body image concerns, regardless of their origins, influence diet and exercise behavior (Vohs, Bardone, Joiner, Abramson, & Heatherton, 1999), they are also related to several aspects of psychological functioning, particularly self-esteem and perfectionism. For example, women who tried to make their bodies match the "perfect" woman's body as depicted in most Western media experienced not only anxiety and depression, but also showed lower self-esteem (Schrick, Sharp, Zvonkovic, & Reifman, 2012), despite awareness that Western media presents a standard that may not be attainable (Abou-Rizk & Rail, 2014). Even women who were merely aware of ideal physiques presented in media showed more neuroticism and were less extraverted (Swami, Taylor, & Carvalho, 2011). Being overly concerned with muscularity was seen in girls with low self-esteem (Saling, Ricciardelli, & McCabe, 2005), and undue attention to physical appearance in men was associated with both reduced self-esteem (Bartlett et al., 2008) and greater negative affect (Ryan & Morrison, 2009; Soulierre & Blair, 2006). High levels of perfectionism have been seen in preadolescents who were overly concerned with food, dieting, and muscle-tone (Saling et al., 2005), among women who had body-image concerns (Schrick et al., 2012; Sheldon, 2010), and in women who demonstrated excessive dietary restraint and bulimic tendencies (Brannan & Petrie, 2008; Ferrand, Magnan, Rouvieux, & Filaire, 2007). Thus, an unhealthy concern with dieting, exercise, and media images of ideal bodies is common among both men and women who display certain psychological qualities (e.g., neuroticism, self-esteem, anxiety, perfectionism). However, it is not clear whether media itself can influence these qualities, or whether the unhealthy body-related concerns are found among those persons who already exhibit higher levels of perfectionism and lower levels of esteem.

In sum, messages about ideal body types conveyed through various sources, primarily the media, become the target of comparison and may lead people to develop maladaptive and potentially dangerous lifestyles in attempts to match unrealistic body-shape goals. At the same time, the media can also present images of healthy people who are fit but who have realistic, and more attainable, body presentation (Daniels, 2012). Thus,

our research question focused on how media may serve as a prime for more healthful thought. Priming is the recent contact with stimuli or cues that activate trait concepts and stereotypes, and lead to fresh activation of a schema to make relevant traits and stereotypes highly accessible (Bargh, Chen, & Burroughs, 1996). Priming exerts an unconscious, passive influence to lead people to behave in accordance to the schema (Chambon, 2009). So, for example, people actually saw hill slopes as steeper and walked more slowly after being primed to think about older adults. Thus, we believed that people primed by healthful, *moderate* fitness-related beliefs would judge ideal body shapes and their own behaviors in accordance. Because health and exercise can be performed in moderation or in excess, we examined the influence of each on perceptions of others, perfectionism, and self-esteem. We hypothesized that men and women primed for moderate fitness beliefs would show less perfectionism, greater self-esteem, report less extreme diet and exercise beliefs and behaviors, and show preference for larger silhouettes on The Body Image Assessment Scale-Body Dimensions (Gardner, Jappe, & Gardner, 2009) compared to those primed for extreme (or “hyperfit”) health beliefs and people primed for the health benefits of pet ownership as a control.

Method

Participants and Design

Participants were 44 men and 40 women who volunteered or received extra course credit in traditional day psychology and sociology classes. Their ages ranged from 17 to 22 ($M = 19.32$, $SD = 1.51$).¹ All read a blog-style article titled “How to Stay Healthy After College” that took the form of a magazine advice article about ways to boost health to improve job performance. Participants were assigned randomly to read an article about moderate health beliefs, hyperfitness, or health benefits of pet ownership (control). The manipulations resulted in a 2 x 3 (Participant Sex x Priming Condition: Moderate vs. Hyperfit vs. Control) between-participants design.

Stimulus Materials

There were three versions of an article for men

¹We did not ask participants to self-identify their ethnicity, but the sample was drawn from a College population that is 18% African-American, 1% Asian or Hawaiian/Pacific Islander, 5% Hispanic of any classification, 6% other (more than one ethnicity, unclassified, declined to answer), and 69% White.

and three for women. One group read an article to prime for concepts of hyperfitness (for men prompts for hypermuscularity and for women intense calorie burn spikes, lean muscle, flat abs). The moderate fitness group read an article prompting moderate exercise, positive body image, and improved wellness. The control group read an article about the psychological and physiological benefits of pet ownership on health. Each article was adapted from information given on magazine websites and blogs online, the sources from which are given in Appendix A. Three example articles, one advocating hyperfitness designed for women, one moderate fitness targeted toward men, and an article about pets can be found in Appendix B. Each article was approximately 500 words long and, excluding the control, included 20 primes for the emotional benefits of exercise and 23 primes for the physical benefits of exercise. Such primes include “250 minutes of cardio,” “lifting is the secret sauce to weight loss,” and “getting an image that commands attention” for hyperfitness and “success and satisfaction,” “lower risk of diseases,” and “regular physical activity in small amounts helps you live longer” for moderate fitness. The control article included primes such as “pets lower cortisol levels” and “help you keep routine and learn to take responsibility.”

Dependent Measures

Rosenberg Self-Esteem Scale. Because self-esteem is affected by the media (Bartlett et al., 2008; Ryan & Morrison, 2009), and because media depictions of idealized bodies influence self-views (Schrack et al., 2012), we included the short version of the Rosenberg Self-Esteem Scale (Rosenberg, 1965) to measure activated features of the prime. Each question was measured on a 7-point Likert-type scale, with scale endpoints anchored from 1 (*disagree*) to 7 (*agree*). Sample questions from the 10-item scale include “At times I think I am no good at all” and “I am able to do things as well as most other people.” Cronbach’s alpha for this scale was .89. Responses were summed, and scores ranged from 10 to 70.

Hewitt and Flett Perfectionism Scale. Because perfectionism might have been increased by the content of our primes, we used the Hewitt and Flett (1990) Perfectionism Scale to measure responses to the blog-style articles. Each question was measured on a 7-point Likert-type scale, with scale endpoints ranging from 1 (*disagree*) to 7 (*agree*). Sample questions from the 45-item scale include “I am not likely to criticize someone for giving up too easily” and

“I find it difficult to meet others’ expectations of me.” Cronbach’s alpha for this scale was .79. We obtained a total after appropriate reverse scoring.

Personal behaviors and attitudes. We also assessed relevant self-reports related to diet, exercise, and fitness, using 7-point scales ranging from 1 (*disagree*) to 7 (*agree*). For men participants, these included judgments of the perfect woman’s body as slim, toned, and also whether voluptuousness and curves is appealing, if it is possible for women to be too slim, and if muscle-enhancing supplement use is an acceptable means to attain the ideal body for themselves. For women participants, these included judgments of the perfect man’s body as V-shaped, buff, muscular, and athletic, and also whether bulk without muscles is appealing, if it is possible to be too muscular, and if strict diets are acceptable means to attain the ideal body for themselves.

For all participants, we adapted measures of hyperfitness from Schulerr’s (2008) description of the exercise behaviors that accompany eating disorders and signal unhealthy adherence to fitness ideals. These included reports of doing exercise for enjoyment rather than improved physical appearance, if feeling wrung out post workout signals overexertion, if it is okay to ignore body signals while exercising, and the importance of body shape when evaluating potential dates.

Ideal body shape image. We used the Body Image Assessment Scale-Body Dimensions (Gardner et al., 2009) to assess participants’ views of the “ideal” body shape for women and men. The scale includes 17 body silhouettes for each sex, with each corresponding to a particular weight ranging from 60 percent below the average weight to 140 percent above the average weight, and scores (for both a target man and woman) were the percent of the average body weight.

Personal fitness-related behaviors and attitudes. Participants completed several diet, fitness, and exercise self-report questions, measured on 7-point Likert-type scales with scale endpoints anchored from 1 (*disagree*) to 7 (*agree*). These focused on whether participants considered themselves in good health, physically fit, as nutritious eaters, and as satisfied with their physical appearance compared to others of their age.

Procedure

Before we conducted our study, approval was sought and received by the Catawba College Institutional Review Board. After we explained the experiment to participants and obtained consent,

we provided them with an article to activate the prime according to condition. We removed the article and then presented scales of perfectionism and self-esteem, personal behaviors and attitudes, body silhouettes, and lastly personal background self-report. Scales of personal behaviors and attitudes were presented in two counterbalanced orders within sex. We debriefed participants at the conclusion of the experiment.

Results

Data Reduction

Self-report dependent measures were subjected to Principal Components Analysis (PCA) with varimax rotation, which we used to examine whether multiple dependent measures were measuring the same constructs and to combine those that did (see Briggs & Cheek, 1986, for rationale for factor analysis as a means to eliminate redundancy in measurement and for guidance on interpreting alpha indices from factor analyses).² Because men and women provided similar, but not identical, measures regarding preferences for various body builds in others, separate PCAs were conducted by sex for those measures. Full tables of the factor loadings for all three PCAs are available to the reader upon request from the corresponding author. The PCA for men produced two factors (from an original set of seven variables, Cronbach’s $\alpha = .72$) that accounted for 63% of the variance. Factor loadings are given with the measures. First, *muscularity attractiveness* (Cronbach’s $\alpha = .80$), which included measures of the perfect woman’s body as toned (.75) and the perfect man’s body as V-shaped (.90) and buff (.77); and second *attractiveness of slimness in women* (Cronbach’s $\alpha = .51$), which included measures of the perfect woman’s body as a slim size 2 (.77), whether “extra padding” is not appealing (.60), and that it is not possible for women to be too slim (.69). The second PCA on women’s measures yielded two factors (from an original set of six variables, Cronbach’s $\alpha = .76$) and accounted for 71% of the variance. Factor loadings are given with our measures. First, *muscularity attractiveness* (Cronbach’s $\alpha = .75$), which included measures of the perfect man’s body as buff (.66), “bigger is better” for muscles (.81), and how large muscles are attractive (.90). The second factor

²Briggs and Cheek (1996) noted that interitem correlations for scales with a small number of items (under 10) can be as low as .2 to .4, and that overall scale alphas can be as low as .5 in such cases because Cronbach’s alpha is sensitive to the number of measured items.

was attractiveness of slimness in women (Cronbach's $\alpha = .62$), which included measures of the perfect woman's body as slim (.81) and toned (.82). Thus, two factors tapping similar constructs emerged for men and women participants, and relevant dependent measures were summed and averaged.

A third PCA was calculated on self-reports of the participants' own behavior, and included all participants because we included the 10 dependent measures (Cronbach's $\alpha = .61$) that all completed. The PCA accounted for 64% of the variance. Three factors emerged: *healthfulness* (Cronbach's $\alpha = .81$), which included self-reports of being in good health (.89), being physically fit (.86), satisfaction with appearance (.69), and eating nutritiously (.70); *moderate fitness adherence* (Cronbach's $\alpha = .42$), which included having annual checkups (.61), enjoying exercise (.61), and understanding that feeling wrung out after exercise is bad (.57); and *extreme fitness adherence* (Cronbach's $\alpha = .18$), which included agreement that it is okay to diet and use supplements (.78) and to ignore body signals when exercising (.55). Because this last reliability index was too low and the interitem correlations did not all reach an acceptable standard (2. to 4.; see Briggs & Cheek, 1986), we did not include the measure in any further analyses.

The Influence of Priming on Judgments of Self and Others

The factors that emerged from the PCAs were analyzed via Analysis of Variance (ANOVA); *dfs* varied because one or two data points were missing for some analyses. For men participants, we used a one-way ANOVA with three levels (conditions) with beliefs that attractiveness in women is a function of slimness; means and standard deviations are seen in Table 1. As seen in Figure 1, there was a significant effect of condition, $F(2, 41) = 3.35$, $MSE = 1.32$, $p = .045$, $\eta^2 = .140$, and pairwise *LSD* comparisons showed that men primed for moderate health beliefs had less preference for slim women than men primed for hyperfitness ($p = .016$, Cohen's $d = .97$), and those primed for the health benefits of pet ownership also had somewhat less preference for slimness ($p = .079$, Cohen's $d = .65$). However, men primed for moderate health beliefs and those primed for the health benefits of pet ownership were equal in their beliefs that women's attractiveness is a function of slimness ($p = .429$).

Means and standard deviations for a parallel analysis for women's belief that attractiveness in women is a function of slimness are located in

Table 1. As seen in Figure 1, there was a significant effect of condition, $F(2, 37) = 3.97$, $MSE = 1.91$, $p = .027$, $\eta^2 = .177$, and our post-hoc *LSD* comparisons showed that women primed for moderate health beliefs were less likely to see that slimness was a prime determinant of women's attractiveness compared to those primed for hyperfitness ($p = .019$, Cohen's $d = .92$) and for the health benefits of pet ownership ($p = .022$, Cohen's $d = .95$). No significant difference emerged in judgments of the attractiveness of slimness for women primed for hyperfitness and pet ownership ($p = .944$).

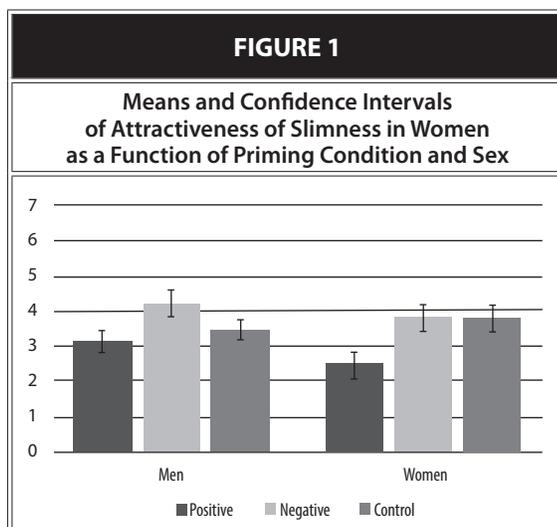
Two other separate ANOVAs (one for men,

TABLE 1

Ms and SDs for Muscularity Attractiveness and Preferences for Slimness in Women as Function of Priming Condition

	Priming Condition		
	Moderate (n = 28)	Hyperfit (n = 27)	Control (n = 29)
Preference for Slim Women			
Women (n = 40)	2.54 _a (1.41)	3.85 _b (1.46)	3.81 _b (1.21)
Men (n = 44)	3.14 _b (1.12)	4.24 _a (1.13)	3.48 _b (1.19)
Muscularity is Attractive			
Women (n = 40)	3.36 (1.71)	3.12 (1.03)	3.77 (1.05)
Men (n = 44)	3.55 (1.87)	3.90 (1.53)	4.06 (1.31)

Note. Means with different subscripts within sex are significantly different, $p < .05$. Higher numbers indicate more agreement for each measure.



one for women) addressed the attractiveness of muscularity. Means and standard deviations can be found in Table 1. Priming condition did not affect opinions that muscularity is attractive for women participants, $F(2, 40) = 0.80, p = .459$, or men participants, $F(2, 41) = 0.41, p = .665$.

We then examined how priming of fitness beliefs influenced self-reports of health and exercise. Recall that the PCA provided two reliable factors across all participants. These factors (i.e., moderate fitness adherence and healthfulness) were analyzed in separate 2 x 3 (Sex x Priming Condition) ANOVAs. Means and standard deviations are located in Table 2. Priming condition did not influence self-reports of moderate fitness adherence, $F(1, 78) = 0.67, MSE = 1.74, p = .513$, nor healthfulness, $F(1, 78) = 1.86, MSE = 1.63, p = .163$.

Sex was not significant for either moderate fitness adherence $F(1, 78) = 0.01, p = .934$, or healthfulness $F(1, 78) = 0.285, p = .595$. The interaction did not approach significance for either variable, $F(1, 78) = 0.701, p = .499$ for moderate fitness adherence and $F(1, 78) = 0.09, p = .980$, for healthfulness.

Silhouettes reflecting the “ideal” look of men and women were selected by both men and women participants, and these selections were entered separately as dependent measures in two 2 x 3 (Sex x Priming Condition) ANOVAs; means and standard deviations can be found in Table 2. Sex was significant in judgments of the male silhouette, $F(1, 73) = 4.13, MSE = 177.15, p = .046, \eta^2 = .05$, because men judged the most appealing man’s body as slimmer than did women. Neither priming condition, $F(2, 73) = 0.18, p = .838$, nor the interaction, $F(2, 73) = 0.503, p = .601$, were significant. A similar analysis of the female silhouette also revealed no significant main effect of sex, $F(1, 72) = 1.06, MSE = 171.67, p = .307$, or condition, $F(1, 72) = 0.31, p = .736$. The interaction did not produce a significant effect, $F(2, 72) = 0.04, p = .963$.

We then examined how perfectionism and self-esteem were influenced by our manipulations via 2 x 3 (Sex x Priming Condition) ANOVAs. Means and standard deviations can be found in Table 3. There were no main effects of priming, $F(2, 78) = 0.01, MSE = 640.99, p = .989$, participant sex, $F(1, 78) = 0.363, p = .548$, nor an interaction of priming condition and participant sex, $F(2, 78) = 0.01, p = .986$. There was a main effect of priming condition on self-esteem, $F(2, 77) = 3.78, MSE = 114.01, p = .027, \eta^2 = .09$. Post-hoc *LSD* pairwise comparisons tests showed that people primed for hyperfitness had somewhat ($p = .08$, Cohen’s $d = .43$) higher levels of self-esteem than those primed for moderate health beliefs, but far more self-esteem than people primed for the health benefits of pet ownership ($p = .008$, Cohen’s $d = .77$). There was no significant effect of sex, $F(1, 77) = 1.72, p = .399$, nor an interaction, $F(2, 77) = 0.16, p = .852$.

Discussion

The results of this study revealed that articles advocating moderate diet and exercise behaviors led men and women to view super-slim body shapes in women as less appealing than a larger one, and also contributed to higher levels of self-esteem. On the other hand, individuals who read articles endorsing extreme exercise habits had even higher self-esteem. Men found slimmer men’s bodies appealing compared to women. However,

TABLE 2

Ms and SDs for Judgments of Self and Others as a Function of Priming Condition

	Moderate			Hyperfit			Control		
	Men (n = 14)	Women (n = 14)	Total (n = 28)	Men (n = 14)	Women (n = 13)	Total (n = 27)	Men (n = 16)	Women (n = 13)	Total (n = 29)
Moderate Fitness	3.29	3.74	3.51	4.02	3.82	3.93	3.83	3.51	3.69
Adherence	(1.06)	(3.51)	(1.54)	(0.87)	(1.37)	(1.12)	(1.25)	(1.20)	(1.22)
Healthfulness	4.80	4.63	4.71	4.72	4.65	4.69	4.23	4.04	4.15
	(1.57)	(1.31)	(1.42)	(0.91)	(1.27)	(1.08)	(1.46)	(0.93)	(1.23)
Men’s	93.64	101.15	97.71	90.71 _a	99.58	94.81	95.31	97.31	96.21 _b
Silhouette	(8.39)	(15.16)	(12.85)	(14.92)	(12.87)	(14.46)	(12.31)	(14.38)	(13.07)
Women’s	88.33	91.15	89.80	90.00	94.17	92.08	91.25	93.46	92.24
Silhouette	(10.30)	(14.46)	(12.46)	(16.65)	(9.49)	(13.43)	(12.58)	(13.75)	(12.93)

Note. Higher numbers signify greater agreement on the first two measures; for silhouettes, the number given represents a percentage, with 100 being the standard body size.

TABLE 3

Ms and SDs for Measures of Personality as a Function of Sex and Priming Condition

	Moderate			Hyperfit			Control		
	Men (n = 14)	Women (n = 14)	Total (n = 28)	Men (n = 14)	Women (n = 13)	Total (n = 27)	Men (n = 16)	Women (n = 13)	Total (n = 29)
Self-Esteem	55.57 _a	54.36 _a	54.96 _a	58.29 _a	57.38 _a	57.85 _a	51.93 _b	48.08 _b	50.14 _b
	(13.05)	(10.37)	(11.58)	(9.51)	(8.32)	(8.80)	(11.44)	(10.53)	(11.00)
Perfectionism	191.14	186.96	189.04	191.00	188.46	189.78	183.81	187.69	185.55
	(22.39)	(23.45)	(22.60)	(20.10)	(21.30)	(20.33)	(35.99)	(22.74)	(21.96)

Note. Means with different subscripts within sex are significantly different, $p < .05$. Higher numbers indicate more of the quality measured.

all preferences fell below the average weight man and woman. Desire for muscularity in opposite-sex others was not influenced by priming.

Men preferred slimmer male figures compared to women, and men who read about over-exercising preferred leaner men's bodies compared to those who read about moderation or pet ownership. Furthermore, all men, no matter the article they read, felt the most attractive man's body was slimmer than average. This pattern may support recent suggestions that the media are more greatly emphasizing being slim, in addition to toned, for men (Nemeroff et al., 1994; Pritchard & Cramblitt, 2014). The finding may also be a function of the types of silhouettes we used because the Gardner et al. (2009) silhouette scales display a spectrum of underweight to overweight, whereas we were interested in body shape on a spectrum of slim to muscular. Indeed, Lynch and Zellner (1999) noted that muscularity, rather than weight per se, is a more important factor in both men's and women's judgments of attractiveness in men's bodies.

Surprisingly, neither type of article nor sex influenced judgments of the female silhouette. Note, however, that the preferred silhouettes for women ranged from about 88% to 94% of the average weight woman *regardless* of priming, showing that our participants really found slimness in women to be attractive, and confirming research demonstrating that men and women have similar views of what constitutes an attractive woman's figure (Tovée & Cornelissen, 2001). However, preferences for slimness in women were a function of article content because men who read how moderation or pet ownership improve health viewed slim women as less desirable than men who read about hyperfitness. The latter finding is not surprising given research that has shown how *men's* focus on muscularity and fitness is associated with a preference for thin women (Hatoum & Belle, 2004). Moreover, women who read about moderate exercise also reported less liking for ultraslim women's figures. We also found that men and women who read articles condoning extreme exercise did not see muscularity as attractive compared to those who read about moderation or pet ownership.

The foregoing findings are supported by other research in several ways. Reading health and fitness magazines has been associated with drives for thinness (for women) or a more masculine physique (for men; Botta, 2003; Morry & Staska, 2001), but this relationship can be mediated by how much people use media as an information source on

ways to change the body (Pritchard & Cramblitt, 2014). Moreover, both men and women find a slim woman's figure as most attractive (Grabe et al., 2008; Pritchard & Cramblitt, 2014). However, this preference for slimness is more likely with consumption of general media than athletic media (Pritchard & Cramblitt, 2014), a finding that dovetails with our finding that women who read about the health benefits of moderation and pet ownership (i.e., general media) favored slimness more than those who read about excessive exercise (i.e., athletic media). Furthermore, our finding that preferences for muscularity were not influenced by the article has support in research that has shown that men's and women's drives for muscularity are not associated with their magazine reading habits (Cramblitt & Pritchard, 2013; Pritchard & Cramblitt, 2014). No priming of content affected people's judgments about their moderate fitness adherence or healthfulness, which we attribute to the measures themselves because they tapped *moderation* in fitness, and it is typically exposure to *unrealistic* ideal bodies that contributes to elevated body dissatisfaction (Bartlett et al., 2008; Chia & Wen, 2010; Richins, 1991).

Articles supporting the health benefits of pet ownership, hyperfitness, and moderation did not affect perfectionism, nor did perfectionism vary by participant sex. Although perfectionism is generally stable across sex (Flett, Blankstein, Hewitt, & Koledin, 1992), research has suggested that men may have higher levels of other-oriented perfectionism, or having high standards for others (Hewitt & Flett, 1991).³ One reason that the primes did not increase or decrease perfectionism may be that the measures in the scale did not relate to fitness and health. A second explanation may be connected to the scale length (45 questions) and its placement at the end of a long experiment. Our participants might have been motivated to finish their scales rather than take time to adequately consider all questions. One final explanation, and perhaps the most likely, is that most research on the relationship between perfectionism and body-image concerns (Schrack et al., 2012; Sheldon, 2010) have examined body image issues as a function of variations in perfectionism. In future research, measuring a baseline of perfectionism

³We also scored perfectionism according to three distinct subtypes: self-oriented, other-oriented, and socially prescribed, and calculated separate ANOVAs for each. Results were very much like the overall ANOVA, and no main or interactive effects emerged for any analysis, all *ps* > .16.

before the manipulation of the blog-style article might better allow an examination of how or whether this construct is influenced by the prime.

The most unexpected finding concerned measures of self-esteem. People who read about overexertion had higher self-esteem than people who read how pets can improve health, and although readers of moderation and hyperfitness articles had nearly equal self-esteem, the measure was slightly higher among those who read extreme views (i.e., hyperfitness). After reading articles that made clear that wellness was a function of work in some form, people might have fended off negative affect and self-view by briefly boosting their self-esteem, particularly because few people could manage the degree of fitness noted in the articles. There are two types of self-esteem, and these are not related to each other. Implicit self-esteem is an unconscious, involuntary self-judgment (Hetts, Sakuma, & Pelham, 1999) that remains fairly stable across time, and explicit self-esteem is calculated and mindful (Bosson, Swann, & Pennebaker, 2000). Threats to explicit self-esteem lead people to interpret situations in a manner that allows them to uphold a positive self-image (Bosson et al., 2000). However, research by Shorek and Dunham (2012) has shown that explicit self-esteem in men was not affected by idealized media images (although implicit esteem was), which stands in contrast to our findings. Self-esteem levels were statistically equal for the participants who read about exercise (those both fairly reasonable and those unreasonable) in contrast to those who read about pets. Therefore, *any* priming about the need to diet and exercise might have led to negative views of students' own lifestyle and body, and they might in turn have temporarily elevated their explicit self-esteem to deflect negative self-views.

Some changes to our method could better address some of the research questions. One concern was our measurement of body image via silhouette scales because silhouettes measure body shape as a discrete variable rather than as the continuous variable that it truly is (Gardner, Friedman, & Jackson, 1998). Future research in this area should use a silhouette scale that more accurately measures muscular body types, and should also measure the continuum of under to overweight, as well as slim to muscular, in combination to investigate how priming influences judgments of both aspects of physical appearance. A second concern is the generalizability of our research results beyond our sample, which was drawn from a

student population that predominantly (69%) self-identifies as White. A more diverse sample might have yielded a different pattern of results and one that was reflective of differing body-image views.

Although our results countered some researchers' findings, they harmonized with the results of many other researchers, and they also reflected the mixed results on the topic of media influences on drives for muscularity and thinness. Future research should address the needs for greater understanding of if, and how, varied forms of media change men's and women's desires to build muscle or slim down. Furthermore, most research in this area focuses on women, but it is clear that men are also affected by media portrayals of the perfect body. Thus, research should also include investigation of how men's body ideals may be changing to incorporate slimness with muscle tone, and what factors are the most influential on men's desires for muscularity.

There are some positive implications of our findings. The higher levels of self-esteem seen in people who read articles endorsing extreme exercise counters notions that idealized media always erodes positive self-regard, and also displays how people may thwart negative self-views. Moreover, reading articles that promoted moderate exercise made both men and women—but especially women—more accepting of women who were not very thin. In turn, readers may become more forgiving of themselves because viewing fit, healthy athletic people can increase body self-acceptance (Daniels, 2012; Homan, McHugh, Wells, Watson, & King, 2012). The positive influence of the moderation article and the positive result on esteem for the article touting unrealistic views of fitness speak to the constructive potential of media campaigns for healthy body images. Media campaigns such as “The Dove Self-Esteem Project” (Dove, 2004) and Special K “Fight Fat Talk” (Special K, 2014) have been established to improve self-respect and acceptance of all body types, and such efforts to use models of all shapes and sizes may help people realize that beautiful comes in many sizes.

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APPENDIX A

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APPENDIX B

Blog-Style Articles for Hyperfitness (Women), Moderate Fitness (Men), and Control (Women)

Women's Health: How to Stay Healthy After College

While pursuing higher education, it is easy for students to stay in good physical condition. A large number of students perform in intramural athletics or do physical recreational activities with friends for fun. Many higher level institutions are also located in urban or suburban areas that include sidewalks, city parks, greenways, bike trails, and so forth. Furthermore, many campuses have gyms specifically for student use. However, upon leaving college and gaining adult responsibilities, finding time to keep active is quite challenging. Maintaining good health is critical if you want to begin your work life on the right foot and bring yourself the most success and satisfaction.

As a newcomer to the workplace, you will want your colleagues to take you seriously. But before you step foot into business, you will need to be hired, which means you will want an image that commands attention. Having a lean, streamlined physique shows you are dedicated to a workout routine and commitment to exercise is just another part of your day, done without second thought. Having a tight, trim, strong body signals you work it hard consistently, psych yourself up to get the job done, that you're proud of your body, and you have killer motivation. Being sexy and fit shows you're not afraid to challenge your flexibility and strength and you bring your maximum effort to the table. Your sizzling shape demands workouts that are innovative and make you move fast. So what does all that tell the employer? If a woman has that kind of willpower in the gym, it would be assumed that quality carries over into other aspects of her life, including work. It's a guarantee that a prospective employer will snag a lady who displays she's got the stuff to make the business it's absolute best.

So how do you achieve this goal? Professional fitness trainer Michelle Bridges advises you combine cardio, strength training, and flexibility. In using this get-fit trifecta, you'll raise your heart rate, muscle cells will break down sugar and fat, and the fat burn will increase, scoring you calorie-burn spikes. Lifting, the secret sauce to drop the pounds, will define muscle and boost your metabolism. Bridges also recommends using moves that recruit the glutes and thighs, as these are big muscles that burn big calories. Also work the deep abdominal muscles and obliques for a trim waist and flat middle. But why stop with your belly and butt? Use head-to-toe effort to target multiple muscles simultaneously for crazy fast results. By using Bridges' plan, you'll dissolve fat like magic on a biological level. But how much do you need to workout in a week? According to Bridges, 150 minutes of cardio is the bare minimum for general health, so bump it to 250 because we know you want to look good in those jeans. Heads will turn when you walk in for the interview, and your rockin' body will show you are the woman who has it all.

Men's Health: How to Stay Healthy After You Leave College

While pursuing higher education, it is easy for students to stay in good physical condition. A large number of students perform in intramural athletics or do physical recreational activities with their friends just for fun. Many higher level institutions are also located in urban or suburban areas that include sidewalks, city parks, greenways, bike trails, and so forth. Furthermore, many campuses have gyms specifically for student use. However, upon leaving college and gaining adult responsibilities, finding time to keep active is quite challenging. Maintaining good health is critical if you want to begin your work life on the right foot and bring yourself the most success and satisfaction.

In order to make a good first impression, you'll need to be in your best frame of mind. An employee that has extra get-up-and-go, more self-esteem, and can go the extra mile is what employers are looking for, as these are the people who can persevere on the job. When you exercise, your body makes endorphins, or "feel good chemicals," that make you feel better overall. Recent research at Oklahoma State has shown that regular exercise creates positive changes in mood, both short and long term. Furthermore, energy is vastly improved from exercise, as well as sleep and confidence. It has also been found that with regular exercise, people are more productive and experience less stress. Workers who get moving in the middle of the day are more productive when they go back to work, and they also get along better with their coworkers. Raymond Smith, the

manager of a construction company, says "The bottom line to a profitable business is getting the job done, and getting it done right. If my employees aren't able to communicate and aren't able to keep up with the project, I'm not keeping them around."

Exercise also provides a host of physical benefits. Ada Brantley of Donnanhue College found that routine exercise builds stronger bones, stronger muscles, and a healthy heart. She also found that exercise lowers risk of cancer, obesity, stroke, type 2 diabetes, osteoporosis, and arthritis pain. Moreover, regular physical activity, even in small amounts, helps you live longer. Reaping these impressive benefits doesn't require major sacrifices to your life. The Department of Health and Human Services say 30 minutes a day is enough to reduce risk of chronic disease. The effects of exercise are cumulative. It doesn't have to be done all at once—it adds up at the end of the day and meets the threshold. Taking the stairs instead of the elevator, parking your car further away from the office, taking the dog for a walk, and even just getting up to change the TV channel are easy ways to incorporate movement into your life. By making small changes to your lifestyle, you will be on your way to overall success.

Women's Health: How to Stay Healthy After College

While pursuing higher education, it is easy for students to keep themselves socially and psychologically healthy. A large number of students participate in clubs and organizations, or spend time with friends routinely. Many higher level institutions are also located in urban or suburban areas that include movie theatres, city parks, strip malls, restaurants, and so forth. Furthermore, many campuses have entertainment specifically for the students. However, upon leaving college and gaining adult responsibilities, finding time to keep balance in life is quite challenging. Maintaining good health is critical if you want to begin your work life on the right foot and bring yourself the most success and satisfaction.

If you want to thrive in the workplace and impress your new employer, you'll need to be in your best frame of mind. New research from Virginia Commonwealth University shows pet owners have lower cortisol levels (a hormone related to stress,) higher job satisfaction, and better communication with coworkers compared to those without pets. Not only do pets help with stress, but a few minutes of cuddle-time can increase serotonin, a "feel good" chemical in the brain, improving overall mood. With less stress and greater happiness, the body is saved from wear and tear—literally! Recent research findings reveal pet owners have lower blood pressure, heart rate, levels of bad cholesterol and triglycerides, and are less likely to die from any cardiac disease than those sans-pets. Pets have also been shown to help prevent diabetes, as lower stress levels help to regulate blood sugar.

Pets are also wonderful for fighting depression. Animals provide unconditional love, they're great listeners that don't give unwanted advice, and give life a sense of meaning. Depression tends to isolate people as well, and research from Nebraska State University shows pet owners have more social interactions, as pets are a great conversation starter. Even more reason to brag about Fido and Fluffy! Additionally, pets can help you keep routine and learn to take responsibility, two qualities that will be very critical throughout life, especially upon entering the adult world. UCLA research on dog ownership demonstrated particular benefits, as dog owners have better sleep and fewer sick days than those without dogs. Cats offer their own host of unique benefits as well, as cat owners have lower levels of loneliness, higher morale, and higher levels of oxytocin, the body's "love" hormone. Cat owners have also been shown to have fewer strokes and better circulation, possibly because owners pay more attention to their fluff-muffin than their worries.

Becoming a pet owner may just be the single best choice you can make for your health. Since adopting a cat, Jessica Miller has lowered her bad cholesterol, increased her good cholesterol, lowered her blood pressure, reduced her risk for stroke, heart attack and diabetes, and her immune system is healthier. "My life is so much better. I have someone who is depending on me, so I started making better decisions, and I feel so much better with life."

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