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Perspiration and Motivation: An Examination of Body Image and Exercise

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PERSPIRATION AND MOTIVATION:
AN EXAMINATION OF BODY IMAGE AND EXERCISE

A Thesis

Presented to

The Faculty of the Department of Psychology

San José State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Melissa A. Luu

August 2014

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The Designated Thesis Committee Approves the Thesis Titled

PERSPIRATION AND MOTIVATION:

AN EXAMINATION OF BODY IMAGE AND EXERCISE

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ABSTRACT

PERSPIRATION AND MOTIVATION:

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by Melissa A. Luu

The purpose of this study was to examine the relationship between body image and exercise. The study examined reasons for exercise and level of exercise as potential moderators of the relationship between body appreciation and exercise. Three hypotheses were tested: there will be sex differences in level of body appreciation, there will be a positive relationship between body appreciation and level of exercise, and the relationship will be moderated by reason for exercise – either health or appearance reason and exercise level. Two-hundred-eighty-nine participants selected from an introductory psychology course pool responded to four questionnaires: the Body Appreciation Scale (BAS), the Reasons for Exercise Inventory (REI), the Exercise Motivations Inventory-2 (EMI-2), and an inquiry about physical activities.

The first two hypotheses were supported: males had higher levels of body appreciation than females, and the more males and females exercised, the higher the level of body appreciation. There was less support for the last hypothesis. Implications of the study are that males tended to feel better about themselves than females and that there was a definite relationship between exercise and positive body image. Exercising for health and appearance reasons and level of physical activity can affect how one feels about one's body.

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Introduction

Western societies have placed great emphasis on physical beauty, and such emphasis may be detrimental to an individual's body image. Body image is defined as a person's views, feelings, thoughts, sense of control, and perceptions of his or her own body (Daniels & Leaper, 2011). Positive body image is defined as a combination of appreciation, acceptance, and comfort in one's body. Negative body image entails the opposite effects, such as having a low sense of appreciation, low acceptance, and high discomfort in one's body.

Mass media such as television and magazines have become widely used tools to spread awareness of physical beauty. Thin, voluptuous females and lean, muscular males are depicted as having the "ideal" bodies (Agliata & Tantleff-Dunn, 2004; Morry & Staska, 2001). Children as young as 7-10 years old are exposed to such ideals, which may lead to a preoccupation with body image and weight. Such thoughts can result in potential eating disorders such as anorexia and bulimia and overall body image dissatisfaction (Mash & Wolfe, 2010). Preoccupation at a young age may lead to adverse consequences in the future. It becomes pertinent to instill a positive body image at a young age by teaching the importance of body appreciation and examining different methods to maintain a positive body image.

Perhaps the most troubling time for an individual and his or her sense of body image is adolescence. During this time, males and females start developing sexual characteristics such as breasts and muscles (Smith, Cowie, & Blades, 2011). Weight gain due to puberty may be one factor that leads to body image dissatisfaction, particularly in

females. Early-maturing females may appear heavier relative to their late-maturing peers, which may lead to preoccupation of thoughts of losing weight and being thin. Late-maturing males may be preoccupied with wanting a more athletic, muscular body. Early-maturing males, however, begin to gain muscle mass, giving them higher social status among peers and a more positive feeling about their body (Daniels & Leaper, 2011). These discrepancies that adolescents face relative to their peers may lead to a decrease in accepting their body and hence an increase in body image dissatisfaction.

Westernized ideals stress the importance of losing weight and being thin for females and maintaining muscles for males (Mäkinen, Puukko-Viertomies, Lindberg, Siimes, & Aalberg, 2012). But those ideals may be difficult to achieve. The ideals presented on television and in magazines do not encompass the variety of body shapes of all individuals (Fahey, Insel, & Roth, 2009). It becomes important to help individuals, specifically adolescents, develop cognitive strategies that enable them to critically view portrayals of physical beauty. Adolescents should not internalize the message that being thin or muscular is ideal, but that they should love and view their body in a more positive light.

Frisén and Holmqvist (2010) examined reasons adolescents had to maintain a positive body image. Participants were interviewed about appearance satisfaction, exercise views, and influence from family and friends. Results indicated that appearance satisfaction was associated with viewing the body in terms of functionality (i.e., ability) instead of physical appearance. Adolescents generally enjoyed exercise and found it to promote health. Although family members and friends made negative comments, such as

being too thin or too short, the adolescents in their study were not bothered by the comments and did not take them too seriously. Not internalizing such comments indicated that there was minimal social influence impacting the adolescents' positive body images. Viewing a body in terms of ability instead of appearance can improve body image perception (Frisén & Holmqvist, 2010).

Holmqvist and Frisé (2012) again examined reasons for maintenance of a positive body image in adolescents. Participants were interviewed, and different reasons appeared for maintenance of a positive body image. These adolescents were critical of the bodies shown in media, realizing the images in magazines were airbrushed or computerized to create an image of perfection. The adolescents also realized that not everyone can look like perfected images, which also helped them maintain their positive perception. Another factor helping maintain a positive body image was that adolescents focused on what they believed were attractive qualities instead of focusing on what media portrays as attractive. Having those cognitive tools helped these adolescents maintain a positive view of their body image.

Wood-Barcalow, Tylka, and Augustus-Horvath (2010) examined positive body image characteristics in young-adult women and found that most women indicated that negative body image feelings were established during adolescence. Participants were interviewed about their views on body image and the researchers found various characteristics that improved body image. For example, methods such as becoming more aware of media images, transitioning negative thought processes to positive thoughts of one's body, and receiving unconditional acceptance from others helped the women

reinforce more positive feelings about their bodies. By ignoring negative messages and attending to positive characteristics, these women were able to maintain a positive body image (Wood-Baracalow et al., 2010).

Smith-Jackson, Reel, and Thackery (2011) examined strategies to cope with negative body image in college women. Participants were interviewed and seven different coping strategies appeared: exercising and eating healthier, changing appearance, socializing, religion, reclusion, getting out, and self-acceptance. Engaging in activities such as shopping, talking with friends, turning to religion, and being alone proved to be helpful for the women in their study. Another factor that emerged in their study was self-acceptance, which is the extent an individual feels comfortable in his or her own body. Self-acceptance may be a cognitively arduous maintenance strategy, but loving one's body and feeling comfortable by working hard is better than potentially developing an eating or body image disorder. These coping strategies, then, may be used as a foundation to build a better understanding of how to maintain a positive body image.

An easier method to maintain a positive body image may be exercise. Maintaining positive thoughts about body image is cognitively laborious, and exercise may be an easier way to deal with body image concerns. There are different types of exercise, including strength training, flexibility, and cardiorespiratory. Strength training trains the muscles and involves exercises such as weight training and anything using all major muscle groups. Flexibility exercises focus on stretching the muscles and joints, and includes exercises such as yoga and Pilates-type. Cardiorespiratory exercises increase heart rate and endurance, and include jogging, swimming, and other sports

(Fahey et al., 2009). Exercise can be done at different levels, ranging from light to vigorous. Light activity includes daily tasks such as walking to class or washing dishes. Moderate activity involves increasing heart rate but maintaining comfort such as walking briskly and dancing. Vigorous activity significantly increases heart rate and includes activities such as running and walking briskly uphill (Fahey et al., 2009).

Some physical benefits of exercise include: increased oxygen intake in older populations (Colcombe et al., 2006), increased cardiorespiratory functioning, decreased risk for chronic diseases, improved muscles and bones, and improved injury prevention (Fahey et al., 2009). Exercise not only provides physical benefits for the body, but also improves overall well-being, implying that exercise also has psychological benefits. To achieve physical benefits of exercise, as well as attain a more positive outlook on body image, moderate or intense exercise is required (Hausenblas & Fallon, 2006).

Hausenblas and Fallon (2006) conducted a meta-analysis of the literature on exercise and body image and found that exercise has a positive effect on both male and female body image. The effect sizes were found to be larger for the males than females, perhaps because men strive for a more muscular physique whereas women strive to lose weight to be thin. The results indicated a gender-moderated relationship between positive body image maintenance and exercise.

Prichard and Tiggemann (2008) examined the relationship between exercise, the exercise environment, and body image. Participants were given questionnaires assessing reasons for exercise and body esteem. The results indicated that cardiorespiratory exercises were associated with mood enhancement, and those who engaged in yoga-type

exercises were associated with having better feelings about themselves (Prichard & Tiggemann, 2008). Along the lines of mood enhancement, Appleton (2012) found that, over a two-week period, participants engaging in six 40-minute exercise sessions had improved body image feelings. Abbott and Barber (2011) examined sports and body image perception in adolescents and found that females engaging in sports viewed their body in terms of functionality instead of physical appearance, similar to Frisé and Holmqvist's (2010) findings. These studies demonstrated that exercise needs to be of moderate intensity – expending a fair amount of energy – in order to elevate mood. Engaging in exercise may be a buffer for maintaining a positive body image, thereby increasing positive feelings about one's body.

The U.S. Department of Health and Human Services (2008) recommends that individuals exercise for at least 150 minutes per week at a moderate intensity to gain health benefits. Exercise should be enjoyable and part of a lifestyle, not a requirement. Individuals tend to underestimate the impact of predictability: they believe that they will not enjoy something but later find that they do, a notion termed *affective forecast* (Ruby, Dunn, Perrino, Gillis, & Viel, 2011). With this mindset, individuals may believe they will not enjoy exercise because it will not be pleasant when first starting out. Maintaining a positive outlook may help to mediate the effects of affective forecast – viewing an event or activity more positively will subsequently make for a more positive experience (Ruby et al., 2011). Entering an exercise regime may be difficult, which may be why most do not exercise. But with time and perseverance, a healthy lifestyle as well as a more positive body image perception will ensue.

Past literature has examined exercise in different aspects such as predicted affect and duration. The body image literature focuses on negative body image, and there has been scarce research examining positive body image. More research examining individuals with a positive body image and a good sense of body appreciation can help clinicians come up with different intervention strategies to help those with a negative body image.

Relatively little research has examined specifically level of exercise and reasons for exercise that may help improve positive body image, namely body appreciation. Most research examining body image and exercise either places participants in an exercise condition or asks participants to respond to a questionnaire about general exercise routines. Examining different reasons for exercise would add more knowledge to the body image literature and help develop a better understanding about how to manage positive body image. Level of exercise may also have an impact on body image – those who exercise more may have a more positive body image than those who do not have as much experience with exercise. Exercise yields different effects for different individuals, and investigating different reasons for exercise may pinpoint the specific motivation for exercising. That awareness may help to maintain a positive body image. The relationship between exercise and body image may be affected by different variables; therefore it warrants research examining these different moderating variables. Moderating variables are those that affect or influence the strength of the relationship between an independent and dependent variable (Baron & Kenny, 1986).

The aim of the current study was to further explore the relationship between body image and exercise. Due to the vast amount of literature on negative body image, the current study examined body appreciation and exercise, and whether reasons for exercise and level of exercise acted as moderating variables. To examine the relationship, three hypotheses were tested. The first was that there would be sex differences in levels of body appreciation, specifically that males would have greater levels of body appreciation. The second hypothesis was that there would be a positive correlation between body appreciation and level of exercise. The third hypothesis was that there would be an interaction between level of exercise on body appreciation moderated by reasons for exercise, namely health and appearance, as well as level of exercise. Specifically, we predicted that exercising for health reasons and a greater level of exercise would be more indicative of higher body appreciation.

Method

Participants

Sample. Utilizing G*Power, a power analysis with a one-tailed test and modest effect size ($d = 0.3$) suggested we would need 278 participants to have an 80% chance of detecting effects (Faul, Erdfelder, Lang, & Buchner, 2007). All participants were recruited from an Introductory Psychology course participant pool, using the SONA system. We conducted preliminary survey duration tests by asking five individuals to take the survey as fast as they could while still paying attention to the questions carefully (their data were not collected or analyzed). The purpose of this test was to examine the shortest possible duration time for the survey and to create a cutoff point for any

participant data that fell short of the time limit. Preliminary results indicated that four minutes was the fastest time individuals finished the entire survey. We reasoned that any participant taking less time to complete the survey was not reading the questions carefully, therein providing possible invalid data. Of the 350 participants who completed the survey, 295 participants (84%) fell within the time cutoff point. Six participants were discarded because they either did not provide information to calculate body mass index, or had extreme (impossible) body mass index scores (11.98 and 161.09). The final participant count therefore was 289. The 289 participants were between 18 and 38 years of age ($M = 18.87$, $SD = 1.75$), with 120 males (41.5%) and 169 females (58.5%). A frequency chart of demographic characteristics is presented in Table 1.

Table 1

Frequency Chart of Demographic Characteristics.

Variables	<i>n</i>	%
Gender		
Male	120	41.5
Female	169	58.5
Physical Activity		
Not at all	2	.7
Less than once a week	24	8.3
1-2 times a week	84	29.1
3 times a week	57	19.7
More than 3 times a week, but not every day	90	31.1
Everyday	27	9.3
Ethnicity		
American Indian	8	2.8
African American	22	7.6
Asian American	108	37.4
Pacific Islander	20	6.9
Hispanic	77	26.6
White	88	30.4
Other	12	4.2

N = 289

Procedure

Participants were recruited from the SONA system from San José State University. The SONA page provided the link to the survey once the participant had signed up for the study. Participants were directed to the study via the online service, Qualtrics. Participants had as long as four hours to complete the four measures, although pre-testing suggested that most should finish in about 30 minutes or less. The first page displayed the consent form, to which the participant must agree in order to participate in the study. The participant then went on to complete the questionnaires online. Once the participant completed the survey, the data were collected and stored with anonymous ID codes formed by Qualtrics, and the participant received course credit.

Materials

Body Appreciation Scale (BAS). The BAS is a 13 item scale that assesses body appreciation, which is defined as accepting and respecting one's body, and having an overall positive opinion of one's body (Avalos, Tylka, & Wood-Barcalow, 2005). All items were scored on a Likert scale ranging from 1 to 5, with 1 indicating "never" and 5 indicating "always." Examples of items include "I take a positive attitude towards my body," "My self-worth is independent of my body shape or weight," and "Despite its flaws, I accept my body for what it is" (Avalos et al., 2005) (see Appendix A). In particular, item 12 is aimed towards women, and so for males, the words "thin" and "women" simply need to be replaced with "muscular" and "men" (Avalos et al., 2005). In the current study, a male and female version of the BAS was created. The original format of the BAS was used for the female version, whereas a revision of item 12 was

used for the male version, with the only difference being the one gender-specific item.

Scores were summed to obtain an overall score, with higher scores indicating greater appreciation. The BAS has demonstrated good validity, as well as good reliability, with a Cronbach alpha of .93 (Avalos et al., 2005).

Reasons for Exercise Inventory (REI). The REI is a 24 item scale that reports reasons and motives for exercise (Silberstein, Striegel-Moore, Timko, & Rodin, 1988). The scale consists of seven different reasons for exercise scales. All items were rated on a scale of 1 to 7, with 1 indicating “not at all important” and 7 indicating “extremely important.” Some reasons include “to improve my overall health,” “to improve my appearance,” and “to have fun” (see Appendix B). The REI has demonstrated good validity and adequate reliability, with Cronbach’s alpha ranging from .67 to .81 (Cash, Novy, & Grant, 1994; Silberstein et al., 1988). For the purposes of the second hypothesis in the current study, only the health and appearance scales were examined.

The Exercise Motivations Inventory-2 (EMI-2). The EMI-2 is a 51 item scale that also assessed motivations for participating in exercise (Markland & Ingledew, 1997). The reasoning for including this second measure of exercise motivations was to increase the psychometric value of the scales. By having an additional measure, the overall construct of “reasons for exercise” increases in reliability as well as validity. The scale consists of 14 different subscales of motivations with each subscale containing three to four items (Markland & Ingledew, 1997). All items were rated on a scale of 0 to 5, with 0 indicating “not at all true for me” and 5 indicating “very true for me.” Examples of reasons include “to release tension,” “to stay slim,” and “because I enjoy competing” (see

Appendix C). The EMI-2 has demonstrated good validity and reliability, with Cronbach's alpha ranging from .69 to .92 for all fourteen subscales (Markland & Ingledew, 1997). Just as the REI, the current study examined items in the health and appearance categories only.

Physical Activity Measure. We used a modified version of Brown and Roberts' (2011) Physical Activity Measure. The original measure asked participants how often they engaged in physical activity on a scale of 1 to 6, with 1 indicating "not at all" and 6 indicating "every day." The modifications include changing the time frame of the question from "In general..." to "In the last 6 months..." (See Appendix D).

Because each of the two inventories (the REI and the EMI-2) had a multitude of reasons why individuals exercised, we decided to create two specific subscales (Health and Appearance) from existing inventory items on the REI and the EMI-2. This was done for two reasons. First, combining scales of highly related items increases overall internal reliability of the scales; and second, this allowed us to better test the moderator variable hypothesis that reason for exercise would moderate the relationship between body appreciation and exercise. From the REI, the health and fitness items were combined with the positive health, ill-health avoidance, and challenge items from the EMI-2 to create an 18-item Health Scale (See Appendix E). The Appearance subscale was created by summing REI items on attractiveness and tone with the EMI-2 items on appearance, weight management, strength and endurance, and social recognition items. Total Appearance Scale had 22 items (See Appendix F).

Because two different exercise scales were used, health and appearance aspects of each scale (the REI and the EMI-2) were compiled and analyzed to create overall health and appearance reasons for exercise scales. The REI and EMI-2 Health scales correlated $r = .72$, whereas the REI and EMI-2 Appearance scales correlated $r = .71$. Because they significantly intercorrelated, we combined the REI and EMI-2 subscales to create an overall Total Health and Total Appearance Scale. Cronbach's alpha was used to assess the internal reliability of the newly created scales. The Health Scale had an internal reliability of $\alpha = .93$ ($N = 268$), with 18 total items. The Appearance Scale had an internal reliability of $\alpha = .92$ ($N = 269$), with 22 total items.

Demographic information. Participants were asked to provide their age and gender at the beginning of the questionnaires in order to provide the correct version of the first questionnaire (the BAS). After the three other questionnaires were completed, participants were inquired about their weight, height, ethnicity, major, and class level. For the purposes of this study, not all of the demographic information was included in further analysis.

Analyses

An independent samples t -test was conducted to assess for sex differences in levels of body appreciation. A Pearson correlational analysis was conducted to assess the existence of a positive relationship between exercise and body appreciation. Two scale reliability analyses were conducted to assess the formation of the health and appearance scores. Finally, a linear multiple regression was conducted to evaluate the moderating

effects of reasons for exercise (either health or appearance) and level of exercise on body appreciation and exercise.

Results

Descriptive Statistics

We calculated descriptive statistics for all questionnaire and some demographic items (see Table 2). The data for all questionnaire and several demographic items appear to be normally distributed, with slight skewness and kurtosis in several variables. Age is positively skewed, and has a very high peak, considering that most of the participants were either 18 or 19 years old. In the BAS masculine form and the two overall health and appearance scores, the data appear to be slightly negatively skewed. The BAS masculine form data also appear to be only very slightly peaked.

Table 2

Descriptive Statistics of the Questionnaire Items, Overall Health and Appearance Scores, and Participant Demographic Characteristics.

Variables	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>
Age	287	18	38	18.87	1.75	5.82	53.14
Body Mass Index (BMI)	289	16.28	39.32	23.59	4.09	1.25	1.75
Body Mass Index Category	289	1	4	2.30	.70	1.07	.94
Body Appreciation Scale							
Masculine form	120	1.54	5.00	3.78	.62	-.58	.78
Feminine form	169	1.85	5.00	3.57	.73	.03	-.80
Overall Health and Appearance Scores							
Health	289	2.50	12.00	9.02	2.10	-.75	-.13
Appearance	289	1.56	12.00	8.34	2.19	-.62	-.11

Physical Activity Measure	284	1.00	6.00	4.02	1.18	-.11	-.90
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As an index of how all variables related to one another, we calculated a correlation matrix that included all main variables: age, body mass index, body mass index category, the BAS masculine and the BAS feminine forms, the REI-Health subscale and the EMI-2 Health subscale, the REI-Appearance subscale and the EMI-2 Appearance subscale, the overall Health and Appearance scores, and physical activity within the last six months (see Table 3). Body mass index (BMI) was negatively correlated with both forms (masculine and feminine) of the BAS ($r = -.24, p = .007$; $r = -.25, p = .001$), indicating that the higher the BMI, the lower the appreciation score for both males and females. An interesting contrast is that age was negatively correlated with the overall appearance reason ($r = -.13, p < .05$), indicating that as one gets older, appearance may become less of a reason to exercise.

Body appreciation scores for both males and females were positively correlated with the health score ($r = .25, p < .01$ for both), implying that the more people exercised for health reasons, the higher the body appreciation scores. Interestingly, for females, body appreciation was negatively correlated with the appearance score ($r = -.24, p = .002$), suggesting that the more women exercised for appearance reasons, the lower the body appreciation scores. Body appreciation for females was also positively correlated with amount of physical activity ($r = .28, p < .001$), implying that the more women exercised, the higher the appreciation score. The two exercise reasons –overall (combined) health and appearance scores – were strongly correlated with each other ($r =$

.67, $p < .001$), signifying that there is moderately strong relationship between exercising for health reasons and for appearance reasons. The amount of physical activity, however, was weakly positively correlated with both the health and appearance motives ($r = .29$, $p < .001$; $r = .21$, $p < .001$). Although a somewhat weak correlation, this indicates that if health reasons drove exercise, the more one engaged in exercise.

Table 3

Correlation Matrix for all Variables.

	1	2	3	4	5	6	7
1. Age		.05	.03	-.03	-.07	-.04	-.04
2. BMI			.91**	-.24**	-.25**	-.11	-.03
3. BMI Category				-.26**	-.24**	-.11	-.02
4. BAS-Masculine						.29**	.23*
5. BAS-Feminine						.24**	.20*
6. REI-Health							.72**

Table 3 (continued)

	8	9	10	11	12
1. Age	.02	-.14*	-.05	-.13*	.02
2. BMI	-.01	.02	-.05	.09	-.01
3. BMI Category	-.03	-.01	-.04	.07	-.03
4. BAS-Masculine	-.02	.01	.25**	-.04	-.02
5. BAS-Feminine	.28**	-.13	.25**	-.24**	.28**

6. REI-Health	.29**	.56**	.93**	.53**	.24**
7. EMI-2 –Health	.21**	.73**	.85**	.57**	.25**
8. REI- Appearance		.71**	.47**	.95**	.14*
9. EMI-2 -Appearance			.63**	.84**	.20**
10. Health Score				.67**	.29**
11. Appearance Score					.21**
12. Physical Activity Level in the last 6 months					

$N = 289$

*Significant at the .05 level (2-tailed).

** Significant at the .01 level (2-tailed).

Planned Analyses

To test our first hypothesis that there would be sex differences in body appreciation, we conducted an independent samples *t*-test, with gender as the grouping variable and body appreciation score as the test variable. After correcting for a mild homogeneity of variance violation, there was a significant difference in body appreciation scores between males ($M = 3.78, SD = .62$) and females ($M = 3.57, SD = .73$); $t(277.41) = 2.69, p = .01$. These results state that males indeed have higher body appreciation scores relative to females in the present sample.

A Pearson correlation was conducted to assess the second hypothesis of whether a relationship exists between body appreciation and level of exercise. For the purposes of this analysis, the physical activity measure (physical activity in the last six months) was trichotomized, such that “Not at all” and “Less than once a week” were “low exercise,”

“1-2 times a week” and “3 times a week” were “medium exercise,” and “More than 3 times a week but not every day” and “Every day” were “high exercise.” These three categories received codes of 1, 2, and 3 respectively. The correlation was positive, with a coefficient of $r = .20$, $p < .01$, indicating that the more people exercised, the more they appreciated their body. The effect size, however, was relatively small.

To test our third hypothesis of whether the other three variables would predict variance in body appreciation above and beyond gender, we conducted a hierarchical linear multiple regression analysis with four variables as predictors. Gender (coded 1 = males, 2 = females) was entered in Step 1; health and appearance reasons and level of exercise were entered as a set in Step 2; the two-way interactions were entered in Step 3; and the three-way interaction was entered in Step 4. Body appreciation score was entered as the criterion variable. Table 4 displays correlations between body appreciation and all predictor variables, R^2 , change in R^2 (ΔR^2), and standardized regression coefficients (β), and squared semi-partial correlations.

Table 4

Correlations between Body Appreciation Score and Predictor Variables, R^2 , and change in R^2 (ΔR^2), standardized Regression Coefficients (β), and Squared Semi-partial Correlations.

Variables	r	β	R^2	ΔR^2	sr^2
<i>Step 1: Demographic</i>			.02*		
Gender	-.14*	-.14			.019
<i>Step 2: Exercise Variables</i>			.28**	.26**	
Health Score	.25**	.60			.186
Appearance Score	-.15**	-.59			.189
Level of Exercise	.20*	.13			.015
<i>Step 3: Two-Way Interactions</i>			.28	.01	
Health \times Appearance	.04	.36			.003
Health \times Level	.28	.34			.002
Appearance \times Level	.05	-.04			<.001
<i>Step 4: Three-Way Interaction</i>			.28	<.001	
Health \times Appearance \times Level	.14	.02			<.001

$N = 284$

*Significant at the .05 level (2-tailed).

**Significant at the .01 level (2-tailed).

Step 1: Demographic. To control for any demographic effect, gender was entered in the first step. Gender ($\beta = -.14$, $t = -2.32$, $p = .02$) accounted for less than 2%

($R^2 = .02\%$) of the total variance in body appreciation score and was significant ($F(1, 282) = 5.37, p = .02$), slightly contributing to variance in body appreciation. This suggests that men and women have small differences in level of body appreciation, with men's appreciation being somewhat higher than women's.

Step 2: Exercise Variables. Three exercise variables – health motivation, appearance motivation, and level of exercise – were entered in the second step. The three variables in the second step accounted for an additional 26% of the variance explained in body appreciation above and beyond gender ($R^2 \Delta = .26, F(3, 279) = 32.92, p < .001$). Individually, health and appearance each accounted for 19% of the variance, indicating that these two reasons are important to body appreciation. Health motivation and level of exercise were positively correlated with body appreciation score ($r = .25, r = .20$ respectively, $p < .001$ for both), indicating that the more people exercised and the more people were doing it for health, the higher their body appreciation. Appearance motivation was negatively correlated with appreciation score ($r = -.15, p = .01$), an interesting finding suggesting that there is a small relationship between how people felt about themselves and exercising to look good.

There was a main effect of reason for exercise: health and appearance reasons for exercising indicate higher body appreciation. There was also a main effect of level of exercise, suggesting that higher exercise levels indicate higher body appreciation. All three variables, health motivation ($\beta = .60, t = 8.47, p < .001$), appearance motivation ($\beta = -.59, t = -8.53, p < .001$), and level of exercise in the last six months ($\beta = .13, t = 2.44, p = .02$) explained unique variance in total body appreciation score. In sum, when all the

shared variance with gender is removed, these three exercise variables still explain the variance in body appreciation.

Step 3 and Step 4: Two-Way and Three-Way Interactions. In order to test for moderating effects in body appreciation by the three predictors, we conducted three two-way interactions (health \times appearance, health \times level, and appearance \times level) and a three-way interaction (health \times appearance \times level). None of the two-way interactions explained variance over and above Steps 1 and 2: health \times appearance ($\beta = .36, t = 1.13$), health \times level ($\beta = .34, t = .84$), and appearance \times level ($\beta = -.04, t = -.10$). The three-way interaction was also non-significant ($\beta = .02, t = .02$). Lack of significant interactions indicates that none of the three variables – health reason, appearance reason, or level of exercise – moderates the relationship between body appreciation and exercise. Not only does non-significance indicate a lack of moderation, we were also examining whether the interactions explained the variance over and above the four previous variables (gender, health, appearance, and level). They did not.

Post-Hoc Analysis

The hierarchical regression did not produce moderating effects for reason for exercise and level of exercise. Because of this, we decided to examine if gender could moderate the relationship between body image and exercise. We conducted a post-hoc analysis comparing correlational effect sizes of between body appreciation and level of exercise separated by gender. Interestingly, in males, there was barely a correlation at all ($r = .01, p = ns$). In females, however, there was a somewhat weak positive correlation ($r = .27, p < .01$). The correlations were positive, indicating a relationship between body

appreciation and level of exercise for both male and female samples. To test for a moderating relationship, we conducted r to z transformations on the two groups and discovered the difference in the correlations between males and females was significant ($z = -2.19, p = .03$) (Preacher, 2002). This difference indicates that there is a gender-moderated relationship between body appreciation and exercise levels, with the relationship being stronger in women than in men. This finding supports a previous meta-analysis of the impact of gender on exercise and body image. Hausenblas and Fallon (2006) found that gender moderated the relationship between exercise and body image, with the effect sizes for men being significantly larger than for women. However, in our current sample, the effect size was stronger for women than it was for men.

Discussion

The current study examined the relationship between body appreciation and exercise, with reasons for exercise and level of exercise as potential moderators of the relationship. Among the main findings were a positive relationship between body appreciation and level of exercise, and that men had higher body appreciation than women. These two findings were consistent with our predictions. The predicted moderated relationship between body appreciation and reasons for exercise was not supported, however. A post-hoc analysis found a gender-moderated relationship between body appreciation and level of exercise.

In line with past research, there is a visible relationship between body appreciation and exercise (Appleton, 2012; Hausenblas & Fallon, 2006; Prichard & Tiggemann, 2008). The current study examined an aspect of positive body image – body

appreciation, and found that there was a rather weak correlation, but in the positive direction. This indicates that the more one exercises, the better one feels about one's body, and by extension, the higher one's body appreciation is.

We expected that reasons for exercise – health and appearance – and level of exercise would moderate the relationship between body appreciation and exercise. Contrary to a recent study (i.e. Homan & Tylka, 2014), we did not find moderating effects. It may have been that in our sample, individuals placed the same amount of importance for both health and appearance reasons, hence the individual contribution of the reason. This lack of moderating effects may also have been because we analyzed both health and appearance reasons for exercise in one step of our regression. Perhaps if we had followed Homan and Tylka (2014), who examined only one type of exercise reason with exercise frequency and found moderating effects, we might have also found moderating effects. Health, appearance, and level of physical activity did individually explain the relationship between body appreciation and exercise in the current study, but they did not moderate the relationship.

Because reasons for exercise and level of exercise did not moderate the relationship in a hierarchical regression, we decided to examine whether gender would moderate the relationship between body appreciation and exercise using Fischer's r to z transformations. Similar to Hausenblas and Fallon's (2006) findings that gender moderates the body image and exercise relationship, we also found that gender was a moderator. Hausenblas and Fallon examined experimental, correlational, and single group studies. In the correlational studies, the effect size was stronger for males, perhaps

because exercise was seen as a means to obtain a muscular physique for males. This need to gain a muscular physique may have driven males to be more concerned with their body image. But for experimental and single group studies, Hausenblas and Fallon reported effects similar to ours – that effect sizes were stronger in females than males. Although our study was also correlational, there may have been factors other than experimental design that accounted for the stronger effect in women than men.

It may have been that females in the current sample strongly identified with exercising to feel better about themselves more so than males. The males in the current sample may have not equated exercising with how they felt about their bodies, thereby producing the smaller effect. We found that males had significantly higher body appreciation scores than females ($M = 3.78$, $M = 3.57$, respectively). This difference may be indicative of the fact that males in the current sample do not exercise as a means to improve body appreciation. It may be that regardless of whether males exercised or not, the males in the current sample already had good body image feelings. The women, however, were more concerned with their body image, hence the greater effect size.

In Table 1, we provided a frequency chart of participant demographics and a breakdown of ethnicities. Although it would have been ideal to also examine differences in body appreciation scores and exercise by ethnicity, the results may not be comparable. One culture's values cannot be compared to another culture's values. There are cross-cultural differences when it comes to defining "beauty ideals." The current study focused on Western ideals of having a thin and fit body, whereas other cultures value different aspects of "beauty." Swami et al. (2010) examined female body dissatisfaction in 26

countries and found that in higher socioeconomic status (SES) countries, body dissatisfaction was prevalent and there was a high desire for thinness. The lower SES countries valued heavier bodies.

We addressed a limitation in Homan and Tylka's (2014) study in that they only used a single item to evaluate exercise motivations. We used two different exercise reason scales, and then compiled the items to come up with two overall reasons why individuals may exercise (either for health reasons or appearance reasons), increasing the psychometric properties of each scale. Health and level of exercise were positively associated with body appreciation, suggesting that exercising for health reasons and exercising a lot can contribute to having more positive feelings about one's body. Appearance was negatively associated with body appreciation score, possibly implying that exercising to look good may reduce positive feelings about one's body, in accordance with previous research (McDonald & Thompson, 1992).

Implications

Positive Body Image. The current study has important implications for the relatively under-researched positive body image literature. Maintaining a positive body image is not merely just ignoring what is presented in media; it involves conscious awareness and adopting positive thoughts (Wood-Barcalow et al., 2010). Smith-Jackson et al. (2011) for example, found that college women had different coping strategies to maintain a positive body image. The current study enriches the positive body image literature by examining how body appreciation and exercise are related. Body appreciation is an aspect of positive body image, and exercise can be not only a beneficial

health factor (e.g. Colcombe et al., 2006; Fahey et al., 2009), but it can also be a buffer against negative body image and help to maintain a positive body image.

Interventions. Understanding the relationship between positive body image and exercise could also aid clinicians with intervention strategies. For example, in individuals who face weight stigma – that is, those who are overweight and obese face negative attitudes – are more likely to be dissatisfied with their bodies and are more likely to avoid exercising (Vartanian & Shaprow, 2008). Exercise avoidance can develop out of a fear of being judged by others. Reasons for exercise, then, become important in helping individuals with negative body image or those struggling against weight stigma understand that exercise is not meant as a punishment. Not only can exercise help improve one's health, but it can also improve one's sense of self.

Exercise Reason. Exercising for the wrong reason may be detrimental to one's positive body image maintenance. Exercising for appearance reasons have been associated with lower body image (Homan & Tylka, 2014; Vartanian, Wharton, & Green, 2012), whereas exercising for health reasons have been a protective factor and positively associated with body image (Vartanian et al., 2012). Similar to Frisé and Holmqvist's (2010) findings, recognizing the body in terms of functionality as opposed to focusing on changing the look of one's body may be essential in maintaining a positive outlook on one's body. Clinicians can use this thinking strategy to help patients deal with negative body image. By encouraging exercising for health benefits and appreciating the body's functions, patients can slowly develop a different mindset when it comes to forming and maintaining a positive body image.

Male Body Image. There are also implications from the current study that can be extended into the male body image literature. Although a majority of the body image literature focuses on females, the male body image literature is slowly increasing (McCabe & Ricciardelli, 2004). Because the Body Appreciation Scale (Avalos et al., 2005) was created specifically for women, this study was one of the few (Swami & Jaafar, 2012; Swami, Hadji-Michael, & Furnham, 2008; Tylka, 2013) to utilize a male version to assess for body appreciation, extending the body image literature. The current study found that males had higher body appreciation than females, a finding that supports previous literature that females are less satisfied with their bodies than males (e.g. Mäkinen et al., 2012; Morry & Staska, 2001; Tylka, 2013). Tylka (2013) examined the BAS among Midwestern college students and found that certain items on the BAS differed between males and females, particularly items pertaining to body attitudes. This provided further evidence that males and females have different attitudes when it comes to body satisfaction. Following the notion that males may not be subject to physical bodily evaluations in comparison to women (Strelan, Mehaffey, & Tiggemann, 2003), males may not necessarily feel the same social pressures females do. Therein, males do not worry about their physical appearance as much, which allows for them to have a higher appreciation of their body.

Simply because males may not feel the same pressures as females does not mean males are invulnerable. Halliwell, Dittmar, and Orsborn (2007) examined male body image and found that males who do not exercise felt more pressure to have a muscular look compared to those who did exercise. This has implications for male body image

because it suggests that males are just as likely to have negative feelings about their bodies as well as females, albeit for different reasons. The sample utilized in the current study, however, found that males felt good about their bodies, in comparison to females.

Limitations and Future Directions

As with most research, this study had several limitations. We decided to only analyze health and appearance reasons for exercise. Being that the scales used had reasons for exercise other than health and appearance, follow-up studies could examine other reasons with the same scales (the REI and the EMI-2) more specifically to see why people may exercise and its relation to positive body image maintenance. It could be that health and appearance are not the main factors that can affect an individual's body appreciation. Other reasons such as mood enhancement or socializing could be important as well.

Cultural differences can also be considered a limitation. Because different cultures value body image differently, it warrants future research to examine these differences in body image views. As Swami et al. (2010) found, some cultures value heavier bodies while others value thinner bodies. It would add more knowledge to the body image literature by examining different cultures and how they view the relationship between body image and exercise. Future research would not simply be comparing cultural differences, but rather examining and understanding how different cultures view a Westernized phenomenon.

Another limitation is related to the directionality of the results. Being that it is correlational in nature, directionality cannot be determined, and so interpretation of the

data should be taken with caution. Although there was a positive correlation between health-based exercise and body appreciation, it does not mean that exercising causes an increase in body appreciation. The current study simply found that there is a relationship. Future research could employ experimental designs, such that participants would be assessed for body appreciation before and after an exercise regimen for a span of three weeks. Following the results of this study, the Total Health Scale and the Total Appearance Scale could be used to differentiate groups into high and low, and employ a control group to see if these specific reasons do increase and help maintain positive body image, or if there are other factors.

In discussing negative body image intervention strategies, future research warrants investigation in the clinical population. The current study utilized a convenience sample, namely college students; therefore, generalization about the effects of health-based exercise is limited to the general public. Even then, generalizability is still limited to individuals who attend San José State and who are about 18 to 19 years of age. Most research studies utilize a college population, and the body image field would benefit by having more diverse samples. Because negative body image is not necessarily age-specific, future studies could utilize different aged participants to examine if there are differences in positive body image maintenance and exercise with age. Having a negative body image can lead to eating disorders, so it warrants future research to examine how exercise can be an effective protective strategy to improve body image.

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Appendix A: Body Appreciation Scale

Items	1 = never	2 = seldom	3 = sometimes	4 = often	5 = always
1. I respect my body.					
2. I feel good about my body.					
3. On the whole, I am satisfied with my body.					
4. Despite its flaws, I accept my body for what it is.					
5. I feel that my body has at least some good qualities.					
6. I take a positive attitude towards my body.					
7. I am attentive to my body's needs.					
8. My self-worth is independent of my body shape or weight.					
9. I do not focus a lot of energy being concerned with my body shape or weight.					
10. My feelings toward my body are positive, for the most part.					
11. I engage in healthy behaviors to take care of my body.					
12. I do not allow unrealistically thin (muscular) images of women (men) presented in the media to affect my attitudes toward my body.					
13. Despite its imperfections, I still like my body.					

Appendix B: Reasons for Exercise Inventory

People exercise for a variety of reasons. When people are asked why they exercise, their answers are sometimes based on the reasons they believe they *should* have for exercising. What we want to know are the reasons people *actually* have for exercising. Please respond to the items below as honestly as possible. To what extent is each of the following an important reason that you have for exercising? Use the scale below, ranging from 1 to 7, in giving your answers. (If you never exercise, please skip this section.)

1 = not at all important 2 3 4 = moderately important 5 6 7 = extremely important

1. To be slim
2. To lose weight
3. To maintain my current weight
4. To improve my muscle tone
5. To improve my strength
6. To improve my endurance, stamina
7. To improve my flexibility, coordination
8. To cope with sadness, depression
9. To cope with stress, anxiety
10. To increase my energy level
11. To improve my mood
12. To improve my cardiovascular fitness
13. To improve my overall health
14. To increase my resistance to illness and disease
15. To maintain my physical well-being
16. To improve my appearance
17. To be attractive to members of the opposite sex
18. To be sexually desirable
19. To meet new people
20. To socialize with friends
21. To have fun
22. To redistribute my weight
23. To improve my overall body shape
24. To alter a specific area of my body

Appendix C: The Exercise Motivations Inventory-2

On the following pages are a number of statements concerning the reasons people often give when asked why they exercise. *Whether you currently exercise regularly or not*, please read each statement carefully and indicate, by circling the appropriate number, whether or not each statement *is true* for you personally, *or would be true* for you personally if you did exercise. If you do not consider a statement to be true for you at all, circle the '0'. If you think that a statement is very true for you indeed, circle the '5'. If you think that a statement is partly true for you, then circle the '1', '2', '3' or '4', according to how strongly you feel that it reflects why you exercise or might exercise.

Remember, we want to know why *you personally* choose to exercise or might choose to exercise, not whether you think the statements are good reasons for *anybody* to exercise.

It helps us to have basic personal information about those who complete this questionnaire. We would be grateful for the following information:

Your age years

Your gender male/female

		Not at all true for me					Very true for me
Personally, I exercise (or might exercise) ...							
1	To stay slim	0	1	2	3	4	5
2	To avoid ill-health	0	1	2	3	4	5
3	Because it makes me feel good	0	1	2	3	4	5
4	To help me look younger	0	1	2	3	4	5
5	To show my worth to others	0	1	2	3	4	5
6	To give me space to think	0	1	2	3	4	5
7	To have a healthy body	0	1	2	3	4	5
8	To build up my strength	0	1	2	3	4	5
9	Because I enjoy the feeling of	0	1	2	3	4	5

exerting myself							
10	To spend time with friends	0	1	2	3	4	5
11	Because my doctor advised me to exercise	0	1	2	3	4	5
12	Because I like trying to win in physical activities	0	1	2	3	4	5
13	To stay/become more agile	0	1	2	3	4	5
14	To give me goals to work towards	0	1	2	3	4	5
15	To lose weight	0	1	2	3	4	5
16	To prevent health problems	0	1	2	3	4	5
17	Because I find exercise invigorating	0	1	2	3	4	5
18	To have a good body	0	1	2	3	4	5
19	To compare my abilities with other peoples'	0	1	2	3	4	5
20	Because it helps to reduce tension	0	1	2	3	4	5
21	Because I want to maintain good health	0	1	2	3	4	5
22	To increase my endurance	0	1	2	3	4	5
23	Because I find exercising satisfying in and of itself	0	1	2	3	4	5
24	To enjoy the social aspects of exercising	0	1	2	3	4	5
25	To help prevent an illness that runs in my family	0	1	2	3	4	5
26	Because I enjoy competing	0	1	2	3	4	5
27	To maintain flexibility	0	1	2	3	4	5
28	To give me personal challenges to face	0	1	2	3	4	5

29	To help control my weight	0	1	2	3	4	5
30	To avoid heart disease	0	1	2	3	4	5
31	To recharge my batteries	0	1	2	3	4	5
32	To improve my appearance	0	1	2	3	4	5
33	To gain recognition for my accomplishments	0	1	2	3	4	5
34	To help manage stress	0	1	2	3	4	5
35	To feel more healthy	0	1	2	3	4	5
36	To get stronger	0	1	2	3	4	5
37	For enjoyment of the experience of exercising	0	1	2	3	4	5
38	To have fun being active with other people	0	1	2	3	4	5
39	To help recover from an illness/injury	0	1	2	3	4	5
40	Because I enjoy physical competition	0	1	2	3	4	5
41	To stay/become flexible	0	1	2	3	4	5
42	To develop personal skills	0	1	2	3	4	5
43	Because exercise helps me to burn calories	0	1	2	3	4	5
44	To look more attractive	0	1	2	3	4	5
45	To accomplish things that others are incapable of	0	1	2	3	4	5
46	To release tension	0	1	2	3	4	5
47	To develop my muscles	0	1	2	3	4	5

48	Because I feel at my best when exercising	0	1	2	3	4	5
49	To make new friends	0	1	2	3	4	5
50	Because I find physical activities fun, especially when competition is involved	0	1	2	3	4	5
51	To measure myself against personal standards	0	1	2	3	4	5

Appendix D: Physical Activity Measure

In the last 6 months, how often did you participate in moderate or intense physical activity for at least 30 min? Moderate physical activity will cause a slight increase in breathing and heart rate such as brisk walking.

1. Not at all
2. Less than once a week
3. 1-2 times a week
4. 3 times a week
5. More than three times a week but not every day
6. Every day

Appendix E: Total Health Exercise Reason Scale

Reasons for Exercise items (Scale and number)

- 1) Health
 - a) To improve my cardiovascular fitness (12)
 - b) To improve my overall health (13)
 - c) To increase my resistance to illness and disease (14)
 - d) To maintain my physical well-being (15)

- 2) Fitness
 - a) To improve my muscle tone (4)
 - b) To improve my strength (5)
 - c) To improve my endurance, stamina (6)
 - d) To improve my flexibility, coordination (7)

Exercise Motivation Inventory-2 items (Scale and number)

- 1) Positive Health
 - a) To have a healthy body (7)
 - b) Because I want to maintain good health (21)
 - c) To feel more healthy (35)

- 2) Ill-Health Avoidance
 - a) To avoid ill-health (2)
 - b) To prevent health problems (16)
 - c) To avoid heart disease (30)

- 3) Challenge
 - a) To give me goals to work towards (14)
 - b) To give me personal challenges to face (28)
 - c) To develop personal skills (42)
 - d) To measure myself against personal standards (51)

Appendix F: Total Appearance Exercise Reason Scale

Reasons for Exercise items (Scale and number)

- 1) Attractiveness
 - a) To improve my appearance (16)
 - b) To be attractive to members of the opposite sex (17)
 - c) To be sexually desirable (18)

- 2) Tone
 - a) To redistribute my weight (22)
 - b) To improve my overall body shape (23)
 - c) To alter a specific area of my body (24)

Exercise Motivation Inventory-2 items (Scale and number)

- 1) Appearance
 - a) To help me look younger (4)
 - b) To have a good body (18)
 - c) To improve my appearance (32)
 - d) To look more attractive (44)

- 2) Weight Management
 - a) To stay slim (1)
 - b) To lose weight (15)
 - c) To help control my weight (29)
 - d) Because exercise helps me to burn calories (43)

- 3) Strength and Endurance
 - a) To build up my strength (8)
 - b) To increase my endurance (22)
 - c) To get stronger (36)
 - d) To develop my muscles (47)

- 4) Social Recognition
 - a) To show my worth to others (5)
 - b) To compare my abilities with other peoples' (19)
 - c) To gain recognition for my accomplishments (33)
 - d) To accomplish things that others are incapable of (45)