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The Relationship Between Body Image and Exercise Type

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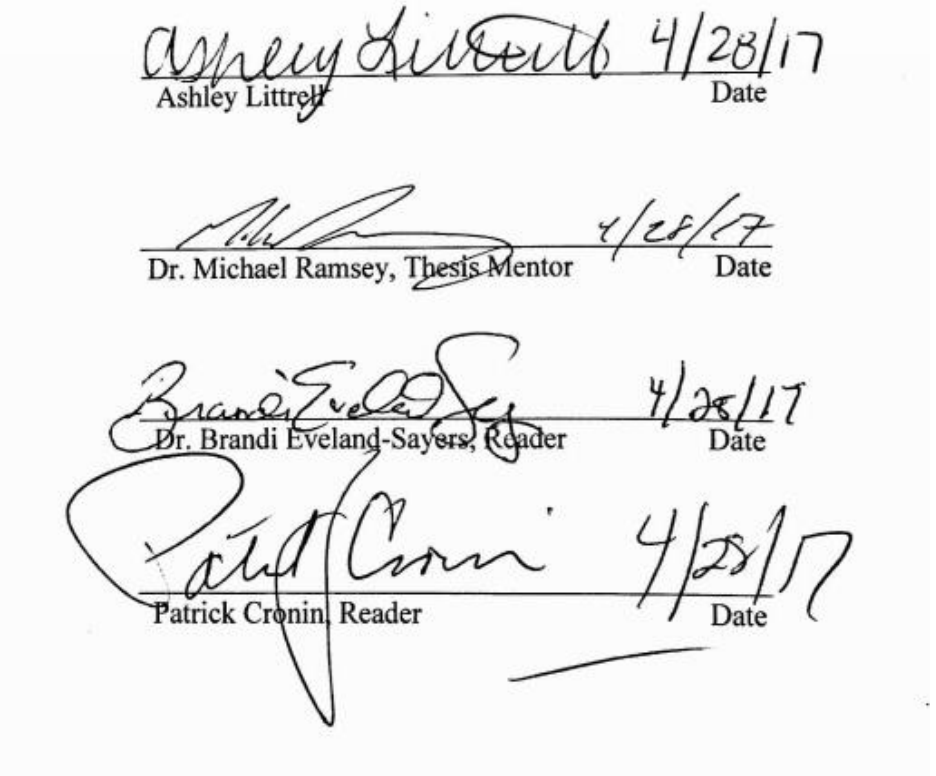

Abstract

Exercise can have very beneficial effects on health and body satisfaction, but sometimes a negative body image gets in the way of exercising. Modern society holds certain beauty ideals in high regard, and these standards are often unattainable and unrealistic. These outside pressures to look a certain way can have a very negative effect on an individual's body image, or the way that a person perceives his or her own appearance. There have been many studies done that have attempted to define the relationship between body image with exercise behaviors (Burger and Diony 2002, Hall and Pearson 2013). Some studies have shown that a negative body image is related with higher prevalence of exercise, while others have shown that a negative body image is a major barrier to participation in exercise at all (Berry, McHugh, and Pankratow 2013, Burger and Diony 2002, Gammage and Lamarche 2012, Hall and Pearson 2013). While the data from these studies has shown different relationships, there is an abundance of research on the topic. There is a lack of information, however, on the relationship between body image and exercise type. This study focused on this relationship in an attempt to determine if body image, positive or negative, had any effect on what type of exercise activities an individual chose to participate in. A total of 70 undergraduate college students were surveyed using a 9 question health and exercise questionnaire and a 6 question body image survey, written and published by Thomas Cash and previously utilized in other body image survey studies (Cash, et al. 2002). The data collected was analyzed using chi-square tests and a significant correlation between body image and exercise type, as well as body image and gender. Participants with a negative body image reported a preference for aerobic exercise while those with a positive body image preferred anaerobic exercise. The analysis also found that females were more likely to have a negative body image than males, which supports previous research trends (Burger and Diony 2002). This

study only surveyed 70 individuals, and so the results can not necessarily be generalized to the entire population. Further research could include a larger sample size so as to find a more generalizable relationship between body image and exercise type.

Introduction

It is generally accepted that physical activity and exercise is beneficial for health. Regular exercise, when done properly, can reduce blood pressure, decrease the risk for cardiovascular diseases, and fight feelings of anxiety and depression (Hall and Pearson 2013). Exercise can also improve mood, self-esteem, and boost energy (Forrest and Stuhldreher 2007). With so many health benefits coming from regular exercise, it is surprising that many people still neglect incorporating exercise into their lifestyles. Some reasons that people have for not exercising include lack of time or inconvenience (Berry, McHugh, and Pankratow 2013). Many studies have also pointed towards body image perception as a common factor in determining exercise habits. There are many motivators that play a part in determining exercise habits, both external and internal, but body image, both positive and negative, can be an important factor. Today's society holds beauty and aesthetics in high regards causing many individuals to feel pressure to look a certain way. This often leads to many individuals using exercise as a method to attempt to achieve those modern beauty standards.

The difference between a positive and negative body image may not seem like much, but it can influence behavior in a significant way and have a large impact on exercise habits and overall well-being. There is currently a lack of information regarding how body image effects what type of exercise an individual may choose to participate in. Learning more about this relationship between body image and exercise type may help lead to creation of more positive exercise environments for people of all levels, with different interests and different goals.

Review of Literature

Body image has been defined as a mental construction that consists of a perceptual, cognitive, and behavioral aspect (Chacon-Araya and Jimenez 2013, Forrest and Stuhldreher 2007, Berry, McHugh, and Pankratow 2013). The perceptual component is the way an individual perceives his or her own figure, shape or size. This can include perceptions on build, height, proportionality, or body type. The cognitive component of body image includes the internal thoughts, beliefs, or feelings that an individual has about his or her body. This aspect of body image includes self-talk, or the internal dialogue that a person has regarding his or her body and body perceptions. The last aspect of body image is the behavioral component, or the behaviors that stem from an individual's thoughts, feelings, and beliefs about his or her body. The behavioral component is important to understand because it affects what actions an individual takes. If body perceptions, feelings, and self-talk are all negative, then it is likely that negative behaviors will result. On the contrary, if body image and perceptions are more positive, then behaviors resulting from these thoughts and feelings will be more positive and constructive.

Another important aspect of body image is the sociocultural influence. Research has shown that a common motivator for exercising is achieving a desired physical appearance (Hall and Pearson 2013). A large part of media today conveys a certain, specific body type as desirable (Chacon-Araya and Jimenez 2013). Individuals who encounter this bombardment of cultural stereotypes can feel pressured to look a certain way in order to feel worthy, attractive, or desirable. This can lead to comparisons with peers, obsession, and negative body perceptions (Hall and Pearson). Most research shows that these types of pressures can become external motivators to exercise in order to change appearance or to avoid exercise due to embarrassment or lack of confidence.

A combination of the sociocultural pressures and body image perceptions can be very impactful in determining exercise habits. Studies have been conducted regarding the relationship of body image and exercise. Burger and Diony (2002) examined relationships of BMI, body image, and exercise habits in collegiate females. Volunteers in the study completed a survey regarding physical activity habits and body image questionnaires. The study found that females who reported negative body image also reported a higher prevalence of exercise. An inverse relationship was noted between body image and BMI. Many of the participants also reported a fear of being fat. The authors discussed that females tend to be more preoccupied with appearance, therefore finding motivation in negative body perceptions to change their appearance. The authors of this study concluded that beginning an exercise program, in some cases, may result from negative body perceptions as a way to control weight and change physical appearance.

Body image and weight often go hand in hand with external pressures from family, peers, and media influencing how an individual views him or herself. While research has shown that those with negative body perceptions engage in more regular exercise which can help improve overall health, their psychosocial functioning and quality of life can be negatively affected (Berry, McHugh, and Pankratow 2013, Chacon-Araya and Jimenez 2013, Sicilia et al. 2016). Some individuals who experience serious negative body perceptions can engage in maladaptive exercise habits because their motives for exercising are rooted in disgust or aversion to their own appearance and a desire to alter that appearance. This is called self-evaluative exercise investment (Gammage and Lamarche 2012). Self-evaluative investment refers to determining self-worth from physical appearance and exercising in order to change appearance into something that is deemed more desirable by others. This type of investment is often associated

with negative body image, perfectionism, and eating disorders. Investment in appearance often leads to obsessive and overdone exercise, which can actually cause health problems rather than improving health (Gammage and Lamarche). A desire to improve appearance is not always a bad thing, as a person could work to get stronger or to lose some unhealthy weight. The problem arises when an individual gets his or her self-worth from appearance and exercises to change a body that they hate. A large discrepancy between what an individual perceives as an ideal body size and shape and how they view their own body size and shape can lead to negative exercise habits, depression, excessive dieting, and decreased leisure activity (Gammage and Lamarche 2012).

It is difficult to predict whether a person with negative body perceptions will be more likely to exercise regularly or remain sedentary as there is research to support both sides. The type of motivation for exercise may be the most important determining factor. A study by Pearson and Hall (2013) examined various types of motivation for exercise and how that correlates to actual time spent exercising. According to the study, the self-determination theory outlines various motivations for exercise. The self-determination theory for motivation to exercise categorizes exercise motivation as either external or internal (Sicilia et al 2016, Hall and Pearson 2013). Amotivation describes a complete lack of intent to begin exercising. External regulation is engaging in a behavior in order to achieve some separable outcome, like a reward or prize. Introjected regulation is motivation to act in order to reduce or feel relief from an internal, self-imposed pressure. Identified regulation is motivation for an action that is valued but is not entirely enjoyable. This type of motivation is more focused on achieving a goal regardless of pleasure from the activity. Integrated regulation and intrinsic motivation are more positive. Both are internal, pleasurable, and satisfying forms of motivation. As individuals progressed through a

fitness program, their motivation tended to become more internal and positive. The authors found that through a cardiovascular exercise program, many participants in the study reported feeling more satisfied with their appearances, even though their fitness levels and athletic abilities were not changed significantly. According to this research, some individuals who are initially motivated to exercise due to a lack of self-esteem or a desire to change appearance may find that motivation can change and that exercising can in fact become more pleasurable and body image can improve.

While body image and motivation is the most common research topic, one study done by Chacon-Araya and Moncada-Jimenez (2013) focused on the effects of different types of exercise on current and desired body image among college students. Volunteers for this study registered for semester long exercise courses with a focus on different types of physical activity. Height, weight, and BMI measurements were taken at the beginning and end of the study. The study found that the type of exercise that the research volunteers participated in had no effect on body image perceptions. The volunteers' reported body perceptions did not improve after participating in the various types of exercise classes. However, participants who experienced increased weight and BMI during the study did report more negative body images at the end of the study (Chacon-Araya and Jimenez). Not much other research has examined how different types of exercise affects body perceptions. It has been found that those with negative body image do engage in more physical activity, but they also often have decreased confidence, which could deter them from exercising in group settings with peers (Forrest and Stuhldreher 2007). This study by Chacon-Araya and Jimenez found that the type of exercise did not affect body image, but if an individual with a negative body perception feels comfortable in an exercise setting, his or her

body image could be affected more than it would be from participation in a random physical activity course as in this study.

There is quite a bit of research that has been done to assess and analyze the relationship between body image and exercise. Research so far has not found a definitive correlation between body image and exercise habits; in some studies, those with negative body perceptions were more likely to exercise while in other studies, negative body perceptions were associated with a lack of activity and a sedentary lifestyle. While there has not been a conclusive correlation found between body image and exercise motivation, there is an abundance of research on the topic. There is limited information, however, regarding what type of exercise is chosen based on body image. Rather than focusing on body image as a motivator or barrier to exercise, this study will look at possible relationships between body image and exercise type. Based on previous research and observation, it is hypothesized that those with negative body image scores will prefer aerobic exercise and will spend more time exercising while those with positive body image scores will prefer anaerobic exercise and will spend less time exercising. It is also hypothesized that females will have lower body image scores than males.

Methods

This study surveyed 70 undergraduate students at East Tennessee State University in various departments. Only 69 responses were used, however, because one respondent's survey was thrown out as he or she chose to skip the body image questions. All survey participants were over the age of 18 years. In accordance with the guidelines of East Tennessee State University's Institutional Review Board, participants in the study read and electronically signed an online written consent document pertaining to confidentiality and all testing and survey procedures. Participants were chosen through a convenient selection process in which professors familiar

with the researcher agreed to let the researcher come into the classroom on an agreed upon date to inform students about the study, answer questions, and provide students with the website link to the online survey. Inclusion criteria for participation in the study required that the participant must be over the age of 18 years and be present in class on the day that the researcher came in to give the online survey. Individuals who were absent on that particular day did not have the opportunity to participate in the survey. A summary of the research goal and a brief informed consent statement were read to the students and then the website link to the online survey was given. Students were given approximately 20 minutes to complete the online survey.

The online survey consisted of 15 multiple choice questions divided into two parts. The first part of the survey consisted of nine health and fitness questions. Participants were asked to report their current health status, how much time they spent exercising in a week, what type of exercise they preferred, and the number of people they preferred to work out with. The second part of the survey consisted of a six question body image survey created by Thomas Cash (Cash et al. 2002). These questions asked participants to rate how satisfied or dissatisfied they felt about their appearance and weight. The online survey platform Survey Monkey was used to create, collect, and store all survey responses.

After all responses were collected and organized, the data was analyzed using correlation tests and percentage comparisons. Each answer choice for a given question was assigned a numerical value for statistical analysis. Each respondent received a body image state score (BISS) based on his or her answers to the body image section of the survey. Body image state score values greater than 5.0 were considered a positive body image, BISS values below 5.0 were considered a negative body image, and BISS values of 5.0 are neither negative nor positive.

These scores were compared to other variables using chi square cross tabulations and correlation tests in order to find relationships between body image and exercise type.

Table 1: Correlation Coefficient Interpretation Ranges

Correlation Interpretation						
trivial	small	moderate	large	very large	nearly perfect	perfect
0	0.1	0.3	0.5	0.7	0.9	1

Results

The first section of the survey consisted of the general health and exercise questions, as well as age and gender questions. Out of 69 total respondents, 28 were male and 41 were female. In regards to age of the respondents, 43 were 18-20 years old, 22 were 21-25 years old, 2 were 26-30 years old, and one respondent was over 30 years of age. The majority of respondents reported that they considered themselves to be healthy (non-smoking, no drug use, low to normal stress levels, balanced diet, etc.) and only about one third reported that they considered themselves unhealthy (smoking, some drug use, higher stress levels, high blood pressure, etc.).

Percentage comparisons between BISS and other variables were also examined (Table 2). When comparing body image state scores and gender, 77.8% of individuals with a BISS value less than 5.0 were female and 22.2% were male. Respondents with high BISS values of 5.0 and greater were split more evenly at 47.6% female and 52.4% male. Weight loss was the most important exercise goal for 48.1% of individuals with a BISS lower than 5.0 while increasing strength and fitness was the top exercise goal for 57.1% of individuals with a BISS greater than 5.0. The majority of respondents with a BISS lower than 5.0 indicated that they spent 2-4 hours in the gym per week, on average, while for respondents with a BISS greater than 5.0, 6-8 hours in the gym per week was the most common answer. A high percentage of individuals with both

high and low BISS values indicated that exercising with 1-2 other people was the most preferred exercise group size. There was little difference in exercise type preference for individuals with high BISS values while aerobic exercise was by far the most commonly preferred exercise type for individuals with lower BISS values, with 77.8% of respondents preferring aerobic exercise and only 22.2% preferring anaerobic.

Table 2: Percentages of Variables That Reported High and Low BISS Scores

	BISS <5.0	**BISS >5.0**
Gender		
Female	77.8%	47.6%
Male	22.2%	52.4%
Health Perception		
Unhealthy	40.7%	14.3%
Healthy	59.3%	85.7%
Appearance Satisfaction		
Unsatisfied	85.2%	16.7%
Satisfied	14.8%	83.3%
Exercise Goals		
Improve Health	11.1%	16.7%
Increase Fitness	14.8%	57.1%
Appearance Modification	22.2%	11.9%
Weight Loss	48.1%	7.10%
Other	3.70%	7.10%
Time Spent Exercising		
0-1 hours	29.6%	14.3%
2-4 hours	37.0%	23.8%
4-6 hours	18.5%	21.4%
6-8 hours	14.8%	26.2%
8-10 hours	0.00%	9.50%
10+ hours	0.00%	4.80%
Exercise Group Number		
Small Groups (1-2)	59.3%	64.3%
Large Groups	7.40%	4.80%
Alone	33.3%	30.9%
Exercise Type		
Aerobic	77.8%	40.5%
Anaerobic	22.2%	59.5%

The chi square cross tabulations were performed on body image data with exercise type, exercise group size, sport preference, time spent exercising, and gender. BISS scores of 5.0 and

above were considered high, positive body images and BISS scores below 5.0 were considered low, negative body images. The statistical analysis showed a significant relationship between body image and preferred exercise type with individuals with a lower body image preferring aerobic exercise and those with a higher body image preferring anaerobic exercise (Table 3). There was also a moderate, positive association between body image and exercise type preference with those having lower BISS scores preferring aerobic activities (Table 3). There was also a significant relationship between body image and gender with females being much more likely to have a negative body image than males (Table 3). Body image and gender also had a moderate, positive correlation with females being more likely to have low BISS scores and men more likely to have high BISS scores (Table 3). There was a moderate, positive correlation between body image and time spent exercising per week with respondents with low BISS scores spending less time in the gym than those with high BISS scores (Table 3). There was no significant relationship between body image and exercise group size or body image and sport preference.

Table 3: Phi Coefficient Correlation Values

	BISS
Exercise Type	0.336*
Gender	0.300*
Time Spent Exercise	0.336

Note: All three variables had a moderate, positive correlation in which respondents with low BISS scores preferred aerobic exercise, female respondents more likely to have low BISS scores, and as time spent exercising increased, BISS scores increased

*Statistically significant; $p<0.05$

Discussion

As previous research has indicated, women tend to be more likely to have negative body image perceptions than males. This could come from social pressures to look a certain way, pressures that are more commonly directed at women (Chacon-Araya and Jimenez 2013). The data collected in this study was consistent with past research as it showed the majority of

participants with a negative body image were female (Chacon-Araya and Jimenez 2013). Males are subjected to certain pressures regarding appearance as well, but the pressures are slightly different and are usually policed less. For example, men are encouraged to have large muscles and athletic builds, but smaller men are usually not as shamed if these features are not achieved. Women, on the other hand, are typically shamed or thought to be less desirable or traditionally attractive if they do not fit the mainstream standard of beauty. Because more pressure is usually put on women to look a certain way, it is understandable that women would be more susceptible to having a negative body image.

The study also found that individuals with a negative body image preferred to participate in aerobic exercises such as running, swimming, or biking and those with higher body images preferred to do anaerobic exercise, such as weightlifting. This could stem from the popular notion that cardio is the only way to lose fat. There is often an association between weightlifting and weight gain and increased body size, even though that increase in body mass or size may not be from fat. Those individuals with very low body images are less concerned with improving body composition—increasing muscle while decreasing fat mass—and more concerned with losing weight in general and reaching some arbitrary number on a scale that equals an attractive or acceptable weight. Those with a more positive body image may care less about the number on a scale and so they can focus on other physical aspects or goals, such as reaching a strength goal. These results are inconsistent with finding from a previous study in which various exercise programs did not have any significantly different effects on body images (Chacon-Araya and Jimenez 2013).

Another interesting finding in this study was the relationship between body image and time spent exercising per week. While there was no significant relationship between those two

variables, it is interesting to note that as BISS scores increased, time spent in the gym also increased. It would make sense that individuals with negative body images would spend more time in the gym than those with positive body images, but the data trends showed otherwise. This could be an effect of the relationship between body image and exercise type. Individuals with negative body images were shown to prefer aerobic exercise, and while many people may be really motivated to get in the gym and work hard to lose weight, the reality is that most people only spend about 30-60 minutes in the gym doing cardio. Anaerobic exercise, however, takes more time. Weightlifting sessions often take up to two hours when accounting for warm up sets and rest intervals in between exercise sets. This may explain why time spent exercising increases as BISS scores increase, even though it might be expected that those with negative body images would spend more time in the gym.

The lack of significant statistical relationships between body image and exercise group size and sport preference shows that other factors, such as being introverted or extroverted, differing schedules, or other interests, may play a bigger role in determining how many people an individual decides to exercise with or what kind of sports an individual selects. For example, a person may have a great body image but still chooses to exercise alone because he or she wants some alone time. Another person may have a negative body image but choose to go to a group fitness class with friends to get some extra encouragement and have fun together. It might be expected that individuals with a negative body image may want to exercise alone, out of embarrassment or a lack of comfortability, while those with positive body images are comfortable exercising with and around other people. Previous research has found a relationship between negative body image and a preference of solo or small group exercising (Forrest and Stuhldreher 2007). The results of this survey, however, found that this is not necessarily the case.

While body image may play a role in whether or not an individual decides to begin an exercise program, body image seems to be less of a factor in determining exercise group sizes or sport participation preference.

A limitation of this study was the relatively small sample size. While the results are interesting and do give a look at what might be going on in regards to how body image affects exercise type preferences, the data is not necessarily generalizable to the entire student population. Future research could look at similar relationships but with a larger sample size to get a clearer, generalizable idea of the relationship between body image and exercise type.

Another limitation may be the major of several participants in the study. Students in four different classrooms in four different departments were surveyed, but the students in one class, an exercise science class, may have knowledge about body composition, exercise, and exercise adaptations that could affect their exercise preferences and attitudes.

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Apendix 1: Health and Exercise Survey Questions

Are you male, female, or prefer not to answer?		
Answer Options	**Response Percent**	**Response Count**
Male	40.6%	28
Female	59.4%	41
Prefer not to answer	0.0%	0

How old are you?		
Answer Options	**Response Percent**	**Response Count**
18-20	62.3%	43
21-25	31.9%	22
26-30	2.9%	2
Over 30	1.4%	1

Do you consider yourself to be healthy (don't smoke or use drugs, low to normal stress levels, balanced diet, etc.) or unhealthy (smoke, use drugs, high levels of stress, high blood pressure, poor eating habits, etc.)?		
Answer Options	**Response Percent**	**Response Count**
Healthy	75.4%	52
Unhealthy	24.6%	17

Are you generally satisfied with your appearance and level of fitness?		
Answer Options	**Response Percent**	**Response Count**
Yes	56.5%	39
No	43.5%	30

What are your general exercise goals?		
Answer Options	**Response Percent**	**Response Count**
Weight loss	23.2%	16
Appearance modification	15.9%	11
Increase fitness/strength	40.6%	28
Improve health	14.5%	10
Other	5.8%	4

How many times a week do you exercise currently, excluding activity for transportation?		
Answer Options	**Response Percent**	**Response Count**
0-1 hours	20.3%	14
2-4 hours	29.0%	20
4-6 hours	20.3%	14
6-8 hours	21.7%	15
8-10 hours	5.8%	4
Over 10 hours	2.9%	2

When you exercise, do you prefer to exercise alone or with other people?		
Answer Options	**Response Percent**	**Response Count**
Alone	31.9%	22
In small groups (1-2 people)	62.3%	43
In large groups (many people, like in a group fitness class)	5.8%	4

Do you prefer anaerobic (weight lifting, resistance training) or aerobic (running, biking, swimming) exercise?		
Answer Options	**Response Percent**	**Response Count**
Anaerobic exercise	44.9%	31
Aerobic exercise	55.1%	38

Do you prefer to participate in team sports or solo sports?		
Answer Options	**Response Percent**	**Response Count**
Team sports	63.8%	44
Solo sports	36.2%	25

Note: Tables represent responses for the nine health and exercise survey questions with percentage breakdowns of how many participants chose each question