

Never Enough: Examining Body Image in College-Age Males

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ABSTRACT

Body image issues are prevalent among college-age students. College-age males suffer from societal pressures of masculinity which manifest in different body image threats and coping strategies that focus on over-exercising and increased muscularity. This study aims to look at two distinct athletic populations of males in a college setting: yoga and weightlifting. An eleven-item survey investigated three types of coping strategies: avoidance, appearance fixing, and positive rational acceptance. Thirty males were surveyed and found that males participating in yoga reported rates of appearance fixing that were statistically significantly higher than those in the weightlifting groups. A qualitative analysis found that both groups participated in multiple workouts a day at the same rate and that both groups participated in similar athletic activities outside of their primary athletic group.

Keywords: Yoga; Weightlifting; Body Image; College Students; Body Dissatisfaction

INTRODUCTION

It has been established that college students experience higher-than-average levels of stress interpersonally, academically, and from the university environment [1-4]. Students cope with these stressors differently on a personal level based on several factors including level of academic stress, achievement and motivation scores, life satisfaction ratings, and the presence of an internal locus of control [2]. Locus of control is an important factor that was found to have variability from person to person where an internal locus of control acted as a positive and protecting factor against the effects of stress.

It is also noted that college students face significantly different stressors and situations than other groups, even other groups of the same age [3]. The high stress found in college students were linked to coping behaviors, both positive and negative [1]. These negative coping strategies include substance misuse, suicide ideation, and stress-related mental health issues, all of which impact academic success. [1] Argues these coping strategies should be viewed as a symptom of high rates of stress in college rather than isolated issues. Interestingly, it was found that there is a gender difference in how students respond and cope with stress indicating that different approaches should be taken to address stress in these unique groups in the college population [1-2]. It was found that college males deal with stress by behavioral disengagement while college females cope through denial [1].

Several studies have aimed to link yoga to stress relief and a reduction of many mental health indicators of stress including anxiety and depression [4, 5 & 6]. Specifically, a study by [5] found

that exercise-based yoga and mindfulness-based yoga provided different outcomes with the mindfulness group seeing much greater improvement in wellness related factors. From a biomechanical perspective, significant participation (5 weeks or more) in yoga has been shown to reduce adrenomedullin, a biomarker related to diseases like obesity as well as psychological problems like excess stress [6]. While many of these subjects focus on the adult post-college population or specific school-related populations like medical students, a few studies have been done with the college population in mind. One such study found that mindfulness-based activities have been linked to improvement with lower scores on measures of stress and higher scores on measures of resilience and self-efficacy [4]. These scores are interesting not only for their stress-mediating capacity but also for their impact on resilience and self-efficacy, two factors that are important for measuring and mediating a specific factor of stress: body image.

Despite the fact that pop culture and social programs like the “BeYOUtiful” movement on college campuses has turned national attention on body image issues, body image disturbance has been an issue present in the college population for years [7] investigated body image and found that rates of body image disturbance among college women had actually fallen in the 1990s. While the rates of women with body dissatisfaction were still relatively high, they found that male body image issues were relatively stable over the twenty-year study. This study was interesting in that it accepted that male body image issues were a difficult area to target because males did not focus on thinness but rather had a complex relationship with masculinity, stress, and muscularity. [7] Specifically used

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measures such as Overweight Preoccupation, Cognitive Investment in Appearance, and Body Areas Satisfaction as metrics to measure body image. This finding would be contrasted by research done in the future by [8] that concluded males were not as much at risk compared to other groups such as women and members of the LGBTQ community (although many of these members are also males). One major explanation for this may be the fact that many studies include weight preoccupation as a factor in body image evaluation, as well as the fact that, until recently, it was much more difficult for males to get a clinical diagnosis of an eating disorder [8-9].

The notion that males have different body image concerns than women have been upheld by several studies which present a similar picture of why men experience different body image pressures than women [9, 10 & 11]. One major factor in men and their relationships with their bodies is the cultural influence of gender [10-11]. Specifically, the masculine gender role was associated with the internalization of masculine ideals that lead to males reporting needing help and having problems at lower rates [10]. This finding was used to explain why males may be less likely to go to therapy while in crisis or even get medical help and suggests that many traditional measures and surveys that investigate males on their opinions of their body image may need to be changed to account for potential self-reporting issues [10]. The gender role stress was attributed to societal expectations of masculinity [10-11]. These expectations of gender roles were supported across cultures and found that masculinity presented increased stress in those that identified as male; however, this difference was also replicated with differing feminine ideals showing that societal pressures increase expectations and stress [11]. From a biological perspective, masculinity has been shown to increase mortality and morbidity among this gender group with a study showing that heart rate reactivity (vagal withdrawal) was directly related to threats toward subjects' masculinity [12].

The societal pressures on male body image often present themselves through an increased emphasis on muscularity; a main indicator of body image concerns in younger males [13]. Emphasis on increased muscularity is a subclinical measure that aims at targeting muscular dysmorphia: a clinical diagnosis wherein a preoccupation with increasing muscle mass occurs [13]. It is remarkable that the study also notes 95% of males presenting to college counseling centers have body dissatisfaction and that abnormal exercising behaviors, a trend that accompanies this body image disturbance, were found to be on the rise as well [13]. The study links body image issues to society and the cultural stereotype that masculine figures are muscular [13]. College age men are found to be at high risk as 19.4 years old was found to be the peak age for onset of muscular dysmorphia as well as other body dysmorphic issues [13]. Another finding notes that those with high scores in masculinity were found to be associated with higher forms of stress-coping mechanisms, providing the link of over-exercising and preoccupation with weight control to college age males and those with intense pressures of stereotypical masculinity [14].

Finally, a recent study [15] in French men (average age 22) found that muscularity and lean muscle mass had been internalized, and that the internalization had led to a direct increase in coping strategies that included muscularity enhancement activities. This study presents the link between masculine pressures and coping strategies like weightlifting and exercise that the current study aims to interrogate. Specifically, given the previously mentioned stress

reducing benefits found in yoga populations, the current study aims to determine if yoga acts as a protective factor in stress mediation in college age males or whether yoga is simply another setting in which college age males can increase their exercise regimen. The interplay between gender and yoga was discussed in a study which showed women who participated in yoga had body image coping strategy rates for activities like extreme exercise similar to women in the general population while males who participated in yoga had higher rates of extreme weight control behaviors indicating that yoga may not be serving the same purpose for men and women [16].

Because body image is well-established as a prevalent issue in the population of college-age males, the challenge is how to measure body image for a non-clinical survey that would be effective and produce accurate results. One factor that was found to reliably predict lower body image views was body image inflexibility [17]. Body image inflexibility describes preoccupation with internal body image concerns. Body image flexibility, on the other hand, is the ability for a person to experience a negative emotion or cognition while continuing with normal eating and exercise behaviors. Body image flexibility was shown to be a protective factor when studying women regardless of their BMI [18]. This finding suggests that having the cognitive ability to acknowledge body image threats while maintaining the ability to continue with normal life activities would indicate lower rates of eating disorders and disordered cognition about the body [18].

Body image inflexibility was operationalized and measured via the Body Image-Action and Acceptance Questionnaire (BI-AAQ) which was found to have high reliability and construct validity in measuring body image inflexibility and linking this variable decreased disordered eating and decreased body image dissatisfaction [19]. This questionnaire is important in providing a link between body image inflexibility and body image rather than simply identifying the presence of eating disorders. The BI-AAQ provided the starting point for creating a new assessment that would target body image dissatisfaction; however, it has been suggested that males would be unlikely to respond accurately to questions relating to eating disorders explicitly [10]. The BI-AAQ is a 12-item survey that uses a Likert scale ranging from 1 (never true) to 7 (always true) with all items being reverse-scored; this meant the questions asked about body image inflexibility, but the final score would report a level of body image flexibility [20]. Interestingly, it was determined that the 12-item BI-AAQ survey could reliably be shortened to a 5-item test that still used a Likert scale from 1 to 7 but allowed researchers to isolate body image dissatisfaction as a factor while maintaining high internal reliability ($\alpha = 0.96$ for the long form test and 0.93 for the short form test) [20].

The survey is based on determining the link between body image and coping as research has shown the link between negative body image and distorted coping strategies [21]. The coping strategies are divided into three categories including appearance fixing, avoidance, and positive rational acceptance [21]. Appearance fixing describes measures such as exercising for appearance benefits; avoidance describes actions taken to suppress body image concerns such as over-exercise; and finally, positive rational acceptance describes action undertaken for non-physical benefits and wellbeing [21]. Given this understanding, the Body Image Coping Strategies Inventory (BICSI) was selected as the basis for the survey. BICSI was initially tested on college students and, while the original inventory was 50 questions, it performed well and had

high reliability ($\alpha = 0.74$ for men and women for the avoidance factor, $\alpha = 0.91$ for men and 0.90 for women for the appearance-fixing factor, and $\alpha = 0.85$ for men and 0.80 for women for the rational acceptance factor) [21]. The initial results showed that men frequently did not engage in positive rational acceptance practices, suggesting that those with high scores on the other two coping strategies would have more negative body image perceptions while simultaneously not engaging in exercise for positive goals like relaxation and acceptance of one's flaws [21].

For this reason, the BICSI was administered as the basis of this study. Using the information of the success of the amended BI-AAQ survey, a survey was created which contained 11 questions with a Likert Scale ranging from 1 (strongly disagree) to 5 (strongly agree) [22]. Rather than asking about frequency of activity, the survey would be presented after an exercise type: either weightlifting or yoga. Participants would be asked whether they found themselves doing any of the coping strategies and to what extent. The survey included questions that could be measured quantitatively, but a major portion of the study included qualitative questions to examine this complex issue more thoroughly. The qualitative questions were intended to put context to the numerical data collected on body image and coping strategies in the context of an academic setting. This would, in turn, allow for more successfully targeted body image interventions based on activity type.

For the quantitative data, it was hypothesized that the yoga group would report scores that were statistically significantly lower than the weightlifting group on each of the three coping mechanisms tested by the body image survey created using the Body Image Coping Strategies Inventory. For the qualitative data, it was hypothesized that males participating in yoga would participate in multiple workouts a day at a higher rate than those in the weightlifting group. Furthermore, it was hypothesized that yoga participants and weightlifting participants would participate in notably different alternative exercise activities with yoga participants engaging in more group-focused workouts while weightlifting participants would participate in workouts that are more commonly carried out alone.

METHODS

Demographics and Study Design

The sample surveyed consisted of members who self-identified into two groups based on activity type and was successfully completed by 30 males evenly divided between both groups. Fifteen participants, self-selected into the activity group of "yoga" by attending group exercise classes at the University of South Carolina, were asked to participate in an anonymous survey after finishing either a 45 minute or hour-long yoga class. The other group self-selected into the activity group of "weightlifting" through their involvement in the Barbell Club, the University of South Carolina's weightlifting club.

By design, all participants were male-identifying. Self-identification of gender was an important aspect of this survey as body image in this survey was investigated in terms of masculine influences from society rather than genetics and biological foundations of sex. Therefore, biological sex was not as important as gender identity and the associated societal pressures of someone who identifies as male. The average age of those in the yoga group was 23.3 years while the average age in the weightlifting group was a somewhat younger 19.5 years old. Sixty percent of the yoga groups were

fourth year students in college; 20% were third year students; and 20% were graduate students. In the weightlifting group, 47% were second year students, 27% were first year students, 20% were in their third year, and only 6% were fourth year students. Eighty percent of the yoga group and 87% of the weightlifting group were white. In the yoga group, the most common majors were within the Colleges of Engineering and Business at 27% for each, whereas 40% of the weightlifting group had majors within the College of Arts and Sciences.

While it is important to note that the groups were self-selected based on participation in a specific activity or membership in an organization, this strategy aligns with the observational nature of this survey. The study design was developed with the assumption that participants would report more accurate and honest answers on body image based on activities that they performed on a regular basis and in which the locus of control for activity-type was internal. This runs counter to an experiment in which the group of thirty might be randomly assigned to an activity type to more accurately predict whether a certain activity type had a causal effect on body image. This strategy was an attempt to obtain a more accurate view on body image issues in college age males and to determine if there was a correlation between activity type and these potential differing views. Responses about the level of weekly participation in each activity are reported in Table 1.

Survey Development

The survey was created using Google Forms. This allowed participants to easily respond on their phones while also allowing researchers to keep the survey truly anonymous, as Google Forms removes any identifying information like email. Before the survey could be completed, participants had to acknowledge the voluntary nature of the survey by completing the Informed Consent and accepting an Invitation to Participate section of the survey.

Examples of the full surveys, as participants viewed them, can be found in Appendix A. Each survey was created using an identical demographic section which asked about age, college major, year in school, race, and ethnicity. Average weekly participation in their respective activity did not appear in the demographic section but was included there for the purposes of analysis.

After the demographic section, each survey diverged into questions unique to the activity type; however, these questions mirrored each other. The surveys adapted the Body Image Coping Strategies Inventory (BICSI) assessment, using a Likert scale with 5 dimensions for nine of the eleven questions asked. These dimensions included strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). The other two questions allowed for qualitative responses. One was a "yes or no" question while the other asked participants to list other types of activities they participated in. The typical BICSI assessment has 28 questions; however, it was determined that the college population would benefit from a

Table 1: Weekly rates of participation based on group's activity type.

Yoga	
2-3 times per week	27%
Once a week	27%
Once a month or less frequently	46%
Weightlifting	
7 times a week	67%
2-3 times a week	33%

shorter survey length to increase response rates and decrease rates of people stopping the survey before completion. Eleven questions were used for analysis due to the ability to include four questions relating to two of the three coping elements interrogated by the BICSI and three questions relating to the third coping element. Four questions related to avoidance, four to appearance fixing, and three to positive rational acceptance.

Avoidance questions for this survey asked participants if they participated in the same activity multiple times a day, multiple times a week, or were involved in other athletic activities during the week. This was designed to determine whether or not college males coped with issues of body image by avoiding them through excessive exercising. Because these questions were more difficult to word in such a way to be reversed scored, it was decided to ask open-ended questions that could be analyzed using a more qualitative approach.

Appearance fixing questions for this survey focused on whether or not the activity type made participants more aware of their bodies and whether or not participants were motivated to choose this specific activity with appearance-based outcomes in mind. These questions, while not directly reverse scored, were presented in a random order so that participants would not be led in one direction or another.

Finally, positive rational acceptance questions focused on whether the activity type allowed participants to find non-body image and appearance-based benefits from the activity type. While appearance fixing questions also focused on positive benefits, the fact that positive rational acceptance questions focused on positive non-appearance factors allowed the random nature of how the questions were presented to disguise the nature of the survey and elicit more genuine responses. Having participants answer questions in which they have to respond positively to some questions while negatively to others prevents a mindless response style if they believed the survey was leading them toward a certain response. Because no eating habits or eating disorder questions appeared in the survey, it was decided that only three questions would be used for the positive rational acceptance section.

Statistical Analysis

Responses to the survey questions about coping mechanisms as an indicator of body image perception came in two forms. Nine of the 11 questions were Likert scale questions with five options. For questions that presented the five options verbally, the selections were coded after survey results were collected. The researcher coded strongly disagrees as 1, disagrees as 2, neither as 3, agrees as 4, and strongly agrees as 5. For questions that presented a more typical Likert scale, the disagree end of the scale was coded as 1 with the agree end of the scale taking the higher values up to a maximum value of 5. For the question that asked participants to report the number of workouts they participated in weekly, "1-2 workouts" was coded as a 1 on the Likert scale, "3-4 workouts" was coded as a 2, "5-6 workouts" was coded as a 3, "7-8 workouts" was coded as a 4, and "9+ workouts a week" was coded as a 5. A t-test was used to compare the questions that were mirrored between the yoga and weightlifting surveys. After the individual questions were compared in this manner, a t-test was conducted using responses from the questions that related to each of the three coping mechanisms mentioned above.

There were two qualitative questions presented. The first was: "Will this [weightlifting session or yoga practice] be your only

workout today?" Results were tabulated in qualitative terms as a way to analyze the data in non-numerical fashion. Answers to the first question were recorded in a yes-or-no fashion. This allowed "no" to be coded as 0 and "yes" as 1 and a t-test to be performed to determine if there was a difference between the two groups.

The second question was: "Please list other activities you do outside of [yoga or weightlifting]." Having this question open-ended and allowed anything to be typed into the response box. This put the impetus on the researcher to code responses into categories. The selected categories were: running, walking/cycling (low impact cardio), group exercise (non-yoga), weights (for the yoga questionnaire), yoga (for the weightlifting questionnaire), and an alternative category that, upon coding, represented sport participation at the club or intramural level. Data analysis on this question was truly subjective. Because there is no ideal or expected breakdown for other types of activities for college students, a Chi Squared test would be inappropriate. The researcher analyzed trends using his own interpretation and presented some thoughts as to why the responses occurred at the recorded rates.

Each survey had the non-demographic, qualitative and quantitative questions presented in a randomized manner. This also made it more likely that questions investigating the same coping mechanisms would not appear immediately after each other. For example, a person who has high body image satisfaction is hypothesized to likely respond high on positive rational acceptance while scoring lower on appearance fixing. Mixing these questions prevented "straight lining" or other effects of order response bias. However, since both surveys had questions that mirrored each other, connections between the two surveys can be drawn using the similar language. Table 2 includes a short description of the paired questions.

RESULTS

Two major hypotheses were created for the project. For the quantitative data, it was hypothesized that the yoga group and the weightlifting group would show differences in average scores that were statistically significant. Specifically, it would show that the yoga group would report lower average scores on each of the three coping mechanisms tested by the body image survey. For the qualitative data, it was hypothesized that males participating in yoga would participate in multiple workouts a day at a higher rate than those weightlifting. Furthermore, it was hypothesized that yoga participants and weightlifting participants would participate in observably different other activities with yoga participants partaking in more group-focused workouts while weightlifting participants would participate in workouts that are more commonly undertaken alone.

It is interesting to note the difference in participation levels between the groups. Only 27% of the group surveyed after a yoga class reported practicing yoga 2-3 times a week or more, whereas, 100% of the weightlifting group participated in weightlifting 2-3 times a week or more with 67% performing this activity daily (7 times per week) (Table 1).

Six of the nine quantitative questions were found to have significant p-values after performing a t-test comparing the two groups. Interestingly, two of the three questions that were not significant at the level $p = 0.05$ were significant at the level $p = 0.1$ (Table 2). The only question not significant at either the level $p = 0.05$ and $p = 0.1$ was the question that asked if the participant's activity type helped them accept their body's limitations (Table 2).

Table 2 shows an interesting trend where the average score for the yoga group was higher than the weightlifting group for questions 2, 3, 4, 6, 7, and 8 while the weightlifting group had higher averages for questions 1, 5, and 10 (Table 2).

Analyses of these questions are further analyzed in Table 3 with the questions grouped based on coping strategy. Questions 1, 9, 10, and 11 relate to the coping mechanism avoidance. Questions 2, 3, 4, and 8 relate to the mechanism of appearance fixing. Questions 5, 6, and 7 relate to positive rational acceptance.

A t-test was performed comparing average scores on the questions testing the coping mechanism avoidance between the yoga group and the weightlifting group (Table 3). Results of the t-test showed no significant difference between the yoga group ($M = 2.9$, $SD = 1.1$) and the weightlifting group ($M = 3.2$, $SD = 1.2$); $t(58) = 0.16$, $p > 0.05$ (Table 3). A t-test was also performed comparing average scores on the questions testing the coping mechanism appearance fixing between the yoga group and the weightlifting group. Results of the t-test showed a significant difference between the yoga group ($M = 3.1$, $SD = 1.2$) and the weightlifting group ($M = 1.3$, $SD = 0.8$); $t(118) = <0.001$, $p < 0.05$ (Table 3). Since the yoga group had a mean of 3.1 and the weightlifting group had a mean of 1.3, the yoga group showed statistically higher rates of appearance fixing (Table 3). Finally, a t-test was also performed comparing average scores on the questions testing the coping mechanism positive rational acceptance between the yoga group and the weightlifting group. Results of the t-test showed no significant difference between the yoga group ($M = 2.1$, $SD = 1.1$) and the weightlifting group ($M = 2.2$, $SD = 1.2$); $t(98) = 0.4$, $p > 0.05$ (Table 3).

All t-test results refute the hypothesis of the study. It was hypothesized that the yoga group would report lower average scores on each of the three coping mechanisms tested by the modified body image survey. The results of the t-test show that the yoga group had statistically higher averages on the coping mechanism appearance fixing. The results also show no statistically significant

difference between the two groups for the two coping mechanisms of avoidance and positive rational acceptance. While these results are not statistically significant, they are nonetheless noteworthy as the yoga group had lower average scores overall for these two factors.

Table 4 represents the first of two qualitative analyses of the data. This table reports participation in other physical activities that are not the activity asked about in other questions on the survey. Because there are no standard ratios of other activity participation for these groups that are established by other studies, a Chi Squared test could not be completed. However, observations in the trends provide an insight that relates to the hypotheses. One notable fact is that the yoga group has more responses than the weightlifting group with the yoga group having 28 responses while the weightlifting group has only 19 (Table 4). This shows a trend that those participating in yoga may participate in more other types of activity with each respondent participating in more, on average, other activities than the weightlifting group. Another observable trend was that participation of the activities of the opposite group was skewed in the direction of the yoga group. Nine of the responses of the yoga group were "weightlifting" while only one response from the weightlifting group was "yoga" (Table 4). This supports the hypothesis that, observationally, the yoga group and weightlifting group participate in different activities. As for the portion of the hypothesis that predicted that the yoga group would have greater participation in group-focused activity when compared to the weightlifting group, it can be seen that this is not supported. While none of the weightlifting group reported participating in group fitness classes while 4 of the yoga group reported this activity, the weightlifting group reported greater sport participation with 8 responses compared to the 5 of the yoga group (Table 4).

Participants were asked "is this [activity type] your only workout today?" Responses were tabulated qualitatively and then coded so that a t-test could be performed. This t-test compared the average percent of each group reporting that they would be participating

Table 2: Average score for each set of paired questions comparing yoga and weightlifting groups, with associated p-values (values with a "*" are significant at $p = 0.05$)

Question	Average Score		
	Yoga	Weightlifting	P-value
Consider activity type "a workout"	2.6	3.3	0.08
Focused on physical appearance	3.1	1.5	0.001*
Attractive to others	3	1.1	<0.001*
Comparing to others during workout	3.3	1.5	<0.001*
Mental health / stress relief	2	2.7	0.08
Reminding of good qualities	2.4	1.3	0.1*
Accept body's limitations	2	1.3	0.4
Look better physically	2.9	1.5	<0.001*
List of other activities		See Table 3	
Number of workouts per week	2.2	4.2	<0.001*
Multiple workouts a day		See Table 4	

Table 3: Average scores of each coping mechanism for each activity type, with associated p-values (values with a "*" are significant at $p = 0.05$)

Coping Mechanism	Average Scores		
	Yoga	Weightlifting	P-Value
Avoidance	2.9	3.2	0.16
Appearance Fixing	3.1	1.3	<0.001*
Positive Rational Acceptance	2.1	2.2	0.4

Table 4: Number of participants in each group participating in other activities by category (each participant could respond to more than one category).

Activity Category	Yoga	Weightlifting
Running	7	7
Cycling / Walking (low impact cardio)	3	3
Group Fitness	4	0
Alternative (sports)	5	8
Weightlifting (for yoga group)	9	N/A
Yoga (for weightlifting group)	N/A	1

Table 5: Percent of participants in each group reporting that this activity would not be their only workout that day.

	Activity Type		P-Value
Yoga	Weightlifting		
47%	53%		0.7

in another activity in the same day. Results of the t-test found no significant difference between the yoga group ($M = 0.47$, $SD = 0.5$) and the weightlifting group ($M = 0.53$, $SD = 0.5$); $t(28) = 0.7$, $p > 0.05$ (Table 5). This does not support the hypothesis that the yoga group participated in multiple workouts a day at a higher rate than the weightlifting group.

Overall, the quantitative hypothesis that suggested the yoga group would have lower averages was not supported, and in fact, the yoga group had a higher average score on the appearance fixing coping mechanism. The qualitative hypothesis that the yoga group was more likely to participate in more than one athletic activity a day was not supported as there was no difference between the two groups. Finally, the qualitative hypothesis that the two groups would participate in different activities outside of their surveyed activity type was supported observationally; however, there was no observable difference that showed yoga group participants were more likely to participate in group-focused activities.

DISCUSSION

The results found did not support the hypothesis that the yoga group would have lower averages on the BICSI survey and found that the yoga group actually scored higher when looking at the coping mechanism of appearance fixing. This lends some support to previous research that males in yoga classes have more negative body image views than the general population.

One potential shortcoming of this study was that the yoga group was compared to another group that was of a different activity type rather than a group that would represent the population as a whole. While some of the conclusions could be theorized to have applications in the general population, an extension of this study would need to be undertaken to fully understand the differences between the population of college males that participate in yoga and those that do not by including a third "average activity" group.

The measure used to investigate body image perceptions could also be a potential shortcoming of the study. The results for the two coping mechanisms of avoidance and positive rational acceptance were not statistically significant; however, the yoga group had lower scores on average. This may suggest that the measure used was not sensitive enough to capture the group differences statistically. In a study where the measure was created by the combination of other measures, this could be a real possibility.

This study does have some serious applications for the field of group fitness and fitness departments at college. While it is easy to focus on the differences between the two groups, some major

takeaways can be gleaned from the big picture findings of the study. The fact that so many college males do multiple workouts a day and that many people report participating in over seven workouts a week is a disturbing realization for the fitness industry as a whole. Despite reports and surveys about body image, which suffer from the fact that people (specifically males) do not accurately report their feelings, the numbers are harder to lie about. Working out more than once a day and close to nine times a week can be undertaken safely; however, in college this could be seen as a symptom of above-average stress manifesting in over-exercise, a clear sign of psychological stress manifesting in negative body image perception.

From the perspective of a yoga instructor, this data presents a conundrum. Surveys have consistently shown that the mindfulness practices of yoga have positive mental and body image effects for females of different age groups. Previous studies and now this study suggest that males may not be benefiting from yoga in the same way. Males are apparently using yoga as a way to add a workout into their regiment that will burn calories but still obeys the traditional knowledge that they should not lift or go for a run twice in the same day. From the perspective of a group fitness instructor who teaches yoga or any other format, this suggests that the cues and the verbal motivation that we present may influence the genders present in class differently. Further studies should be completed to search for new language that will influence yoga-taking males to engage the same mindfulness and positive body image practices that present in higher rates among yoga-taking females.

On the qualitative side of the study, it was found that neither group was more likely to participate in more than one athletic activity a day. This is not surprising, and further supports the assertion that many active males engage in behaviors that can be seen as approaching over-exercising. Close to 50% of each group reported that they would participate in more than one athletic activity on the day they filled out the survey. This statistic also raises some concerns for survey inaccuracy. If participants in the study discovered that the researcher aimed to measure their body image perception, they may have responded with answers that would seem favorable to the researcher and less extreme rather than their true actions and perceptions.

On the observational side, there was some noticeable difference between the groups and their preferences for other athletic activities in which they participate. One noticeable aspect of this finding was that yoga participants were more likely to participate in group fitness classes like barre, high intensity interval training (HIIT), and cycling. This is likely not a trend but instead a finding

of circumstance. The yoga group was found through the Campus Recreation programs at Strom Thurmond Wellness and Fitness Center and Blatt Physical Education building. Because of this, it is likely that participants in yoga also participate in other group fitness classes put on by the gym as the purchase of a pass permits participants to take classes of any format and in any number per week. Furthermore, instructors tend to teach in many formats and advertise their other classes. While the weightlifting group did not participate in group fitness classes at high rates, they participated in sports at higher rates than those from the yoga group.

Another interesting source of error in the design of the study comes from the fact that members of each group are assumed to participate in this group as their primary activity. While it is likely that members of the Barbell Club at USC would consider their primary workouts weightlifting, simply participating in a group fitness yoga class does not necessarily assume that someone would be in the yoga group rather than the weightlifting group. While only one of the weightlifting groups reported yoga participation, nine of the yoga participants reported lifting weights. It may be the case that someone surveyed in the yoga group actually would report primarily being a weightlifter and therefore would have confounded the results to an extent.

This survey provides a good starting point for other surveys that measure rates between genders, rates among different activity types, and rates between the “active” population and the general population of college students.

CONCLUSION

While many of the hypotheses created for this study were rejected by the data gathered, it was supported that those participating in yoga are an at-risk group that may have negative body image perceptions due to their increased rates of coping strategies that include appearance fixing. On the observational side, while the groups did not have different rates of participating in multiple workouts a day, it was supported that college males, specifically active college males like those surveyed in this study, tend to over-exercise at high rates, participating in multiple workouts a day and participating in seven or more workouts a week. This study provides a new survey template by which coping strategies can be measured without introducing the variable of eating behaviors. The shorter format circumvents the need to have surveys with upwards of 30 Likert scale questions. This study suggests ways in which fitness programs in colleges as well as a yoga instruction could be changed to target different needs of college males. This study also suggests future directions of research that could be used to further interrogate the difference between male body image and female body image when it comes to the college-aged population.

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Appendix A

Demographic Section (present on both questionnaires)

Section 1 of 4

Voluntary Survey

Thank you for participating in Austin Coale's Senior Thesis study

This survey is being run by Austin Coale as a part of his Honor's Thesis project through the University of South Carolina. This survey is completely voluntary and 100% optional. Responses will be kept confidential and no personal identifiers will be collected by this study. If you do not wish to participate now or at any point, feel free to close the study and cease participation. If you have any questions about the study, please email me, Austin Coale, at acoale@email.sc.edu. If you agree to participate in this study, please click the check box below.

Yes

After section 1 Continue to next section

Biological Sex Multiple choice

- Male
- Female
- Prefer not to say
- Non-binary
- Add option or add "Other"

Required

Age

Short answer text

Major

Short answer text

Class Level

- Freshman
- Sophomore
- Junior
- Senior
- Graduate School

Race

- American Indian or Alaskan Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or other Pacific Islander
- White or Caucasian
- Multiple Races
- Other...

Ethnicity

- Latino/Hispanic
- Non-Latino/Hispanic

Section 4 of 4

Other activities

Description (optional)

Please list other athletic activities you routinely engage in on a weekly basis outside of yoga *

Long answer text

How many workouts other than yoga would you say you participate in weekly? *

- 1 - 2 workouts
- 3 - 4 workouts
- 5 - 6 workouts
- 7 - 8 workouts
- 9+ workouts

2. Yoga Survey

Will this yoga practice be your only workout today? Multiple choice

Yes ×

No ×

Add option or [add "Other"](#)

Required

"I don't consider yoga a workout and would consider doing another workout on the same day I attend yoga class." *

Strongly disagree

Disagree

Neutral

Agree

Strongly agree

When I leave a yoga class I feel more focused on my body's appearance. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

I believe that yoga will make me more attractive to others. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

...

I find myself comparing my body to others in the yoga class. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

I practice yoga for primarily personal mental health and stress relief. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

Practicing yoga helps remind me of my good qualities. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

Practicing yoga helps me strive toward accepting my body's limitations and appreciating its unique abilities. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

I find myself working out (including yoga) primarily to look better physically *

	1	2	3	4	5	
	<input type="radio"/>					

3.Weightlifting Survey

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How often would you say you weightlift? *

- This is my first time
- Once a month
- Once a week
- 2-3 times a week
- Every day

Is lifting your only workout each day? *

- Yes
- No

"I don't feel like lifting is enough, so I would consider doing another workout on the same day I lift" *

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

When I leave a weightlifting session I feel more focused on my body's appearance. *

- | | | | | | | |
|-------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
| | 1 | 2 | 3 | 4 | 5 | |
| Agree | <input type="radio"/> | Disagree |

I believe that weightlifting will make me more attractive to others. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

I find myself comparing my body to others on the gym floor. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

I lift weights for primarily personal mental health and stress relief. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

Lifting weights helps remind me of my good qualities. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

Weightlifting helps me strive toward accepting my body's limitations and rewarding its unique abilities. *

	1	2	3	4	5	
Agree	<input type="radio"/>	Disagree				

I find myself working out (including mind-body activities like yoga) primarily to look better physically *

	1	2	3	4	5	
	<input type="radio"/>					