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Emily N. Estes
University of Nebraska-Lincoln, emily.estes@huskers.unl.edu

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ATTITUDES OF COLLEGE STUDENTS IN RELATIONSHIP TO WEIGHT AND PHYSICAL ACTIVITY

By

Emily N. Estes

A THESIS

Presented to the Faculty of

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Major: Nutrition and Health Sciences

Under the Supervision of Professor Candace Kohnke

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ATTITUDES OF COLLEGE STUDENTS IN RELATIONSHIP TO

WEIGHT AND PHYSICAL ACTIVITY

Emily N. Estes, M.S.

University of Nebraska, 2012

Advisor: Candace Kohnke

BACKGROUND: This is a limited amount of knowledge of the impact current and goal weights of college students has on their attitudes surrounding weight and physical activity.

OBJECTIVE: To examine weight/body image and physical activity attitudes of students at the University of Nebraska—Lincoln and whether those attitudes correlate current and goal weights of students.

SETTING: The questionnaires utilized for analysis were completed between the years 2006-2011 at the University of Nebraska—Lincoln.

PARTICIPANTS: Male and female students who either completed a Nutrition 100 course at University of Nebraska—Lincoln or a nutrition consultation with Karen Miller, RD, LMNT at the UNL Campus Recreation Center.

RESULTS: The mean BMI of all participants (n=2255) was 23.8 ± 4.1; for females (n=1403) 23.0 ± 4.0; and for males (n=852) 24.9 ± 3.9. The BMI classifications overall were 3.1% (n=71) were underweight, 67.1% (n=1512) were normal weight, and 29.9%

(n=672) were overweight or obese; among the females, 4.6% (n=65) were underweight, 72.9% (n=1039) were normal weight, and 21% (n=299) were overweight or obese; within the male group, 0.7% (n=6) were underweight, 55.3% (n=473) were normal weight, and 43.5% (n=373) were overweight or obese. Significantly more females responded with a higher degree of negative responses about weight and body image attitudes and physical activity attitudes ($p = < 0.05$). Females wanted to lower their weight significantly more than males ($p = < 0.05$). Overall, as the self-reported current weight of participants increased, so too did the degree of risk (represented by a higher degree of negative responses) in their attitudes about weight and body image. Based on self-reported goal weights, males were more likely to have a higher degree of negative responses associated with physical activity attitudes than their female counterparts.

CONCLUSIONS AND IMPLICATIONS: The results of this study indicate that both genders are subject to some degree of dissatisfaction as they are report a higher degree of negative responses in relationship to weight, body image, and physical activity. The inventories utilized may provide insight to the necessary focus of program development for subgroups of males and females. Based on these results, females may need programming geared towards weight and body image issues while programming for males may be more effective if geared towards physical activity attitudes.

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CHAPTER 1

INTRODUCTION

Prevalence and Risk Associated With Overweight and Obesity:

In recent history, an increased amount of attention has been focused on the obesity epidemic across the United States (U.S.). In 2010, *every* state in the U.S. had a prevalence of obesity *more* than 20%.[1] Current statistics suggest that, in the U.S., more than 66% of adults are overweight/obese, with more than 32% being obese.[2] Due to the severity of health complications related to being overweight and obese, the government and health officials have honed in on establishing effective means of preventing and treating this condition.

Body mass index (BMI),expressed as weight in kilograms divided by height in meters squared (kg/m^2), is commonly used as a measurement tool in an effort to classify Underweight (BMI less than 18.5), Normal Weight (BMI 18.5-24.9), Overweight (BMI 25.0-29.9), Obesity Class I (BMI 30.0-34.9), Obesity Class II (BMI 35.0-39.9), and Extreme Obesity Class III (BMI greater than or equal to 40).[3] While not a diagnostic tool, BMI measurements can be utilized as a screening mechanism to gauge the risk for disease that can develop due to being overweight or obese.[4]

Between the years of 1976 and 2002, the percentage of overweight or obese adolescents more than tripled from 5% to 17%.[5] The greatest increase in the prevalence of obesity has most recently been reported in young adults 18 to 29 years.[6] These

statistics raise the concern regarding the college population of students, who, when they leave their parents' home, develop their own diet and exercise habits.

Those that develop obesity as a young adult, are at an increased risk of being obese through their adulthood.[5] This reality creates great concern for the future of the U.S. as medical costs associated with conditions related to obesity are at an all-time high. Obesity is related to a poor health status; has a negative impact on quality of life; and shortens lifespan.[6] According to the Center for Disease Control and Prevention (CDC), genetics (genes causing disorders such as Bardet-Biedl syndrome and Prader-Willi syndrome), disease (Cushing's disease, polycystic ovary syndrome, or other illnesses), or drugs (such as steroids or some antidepressants) can scientifically be related to the cause of being overweight or obese in some.[1] In addition, the environment an individual lives in can greatly impact their ability to maintain a healthy weight as their behaviors are altered by the physical environment they interact with. Environmental conditions can include the inability to walk to various destinations due to poor or unsafe conditions that exist. Communities, homes, and workplaces can all influence people's health behaviors.[1]

The higher one's BMI, the greater the risk for disease and other medical conditions such as heart disease, high blood pressure, type 2 diabetes, gallstones, breathing problems, and certain cancers.[4] Additionally, the CDC identifies dyslipidemia, stroke, liver and gallbladder disease, osteoarthritis, and gynecological problems as risk factors associated with being overweight or obese.[1] Psychosocial factors have also proved to be influential on obesity among children and through

adulthood. Those related to adult obesity were lack of childhood care, abuse and childhood anxiety disorders.[7] Also, among young girls, depression in adolescence tended to be related to adult obesity.[7]

Research has demonstrated the risks associated with being overweight and obese.[5] The college setting provides an opportune time to establish lasting lifestyle habits. Because of this, it is crucial to utilize previous research in an effort to develop programming that will meet the populations of different environments where they live. Additionally, effective, research-based interventions need to be developed that can be introduced at various points throughout an individual's college experience. By taking action to develop healthful college environments, health professionals have the opportunity to decrease the rate of obesity in an environment where our nation is currently seeing an alarming rate of increase.

Prevalence and Risks Associated With Eating Disorders:

Eating disorders are considered the third most prevalent chronic health condition among adolescent females.[8] Death is twelve times more likely for female students who have struggled with anorexia nervosa; it also has the highest mortality rate of any mental illness. [9,10] According to the World Health Organization, eating disorders are mental disorders involving physiological and psychological effects associated with a preoccupation with food and body image.[11]

The National Institute of Mental Health (NIMH) discusses the characteristics, signs and symptoms of anorexia nervosa, bulimia nervosa, and binge-eating disorder:

> Anorexia Nervosa is characterized by the NIMH as extreme thinness (emaciation), a relentless pursuit of thinness and unwillingness to maintain a normal or healthy weight, intense fear of gaining weight, distorted body image (a self-esteem that is heavily influenced by perceptions of body weight and shape, or a denial of the seriousness of low body weight), lack of menstruation among girls and women, and extremely restricted eating.
>
> Bulimia Nervosa is characterized by the recurrent and frequent episodes of eating unusually large amounts of food and feeling a lack of control over these episodes. This binge-eating is followed by behavior that compensates for the overeating such as forced vomiting, excessive use of laxatives or diuretics, fasting, excessive exercise, or a combination of the behaviors.
>
> With binge-eating disorder a person loses control over his or her eating. Unlike bulimia nervosa, periods of binge-eating are not followed by purging, excessive exercise, or fasting. As a result, people with binge-eating disorder often are over-weight or obese. People with binge-eating disorder who are obese are at higher risk for developing cardiovascular disease and high blood pressure. They also experience guilt, shame, and

> distress about their binge-eating, which can lead to more binge-eating.[12(p.2-4)]

A cross-sectional study, utilizing the Eating Attitudes Test-40, found the prevalence of eating disorders among a group of female college students to be an alarming 13.8%.[13] Prior research has suggested prevalence ranging from 6.6% to 13.4% among female college students in the U.S.[13] Overall, it is estimated that 95% of all eating disorders affect individuals between the ages of 12 and 25.[9] If we allow ourselves to look beyond the statistics of individuals who meet the criteria for various eating disorders, the prevalence would likely create an even greater degree of concern; many individuals utilize unhealthy, yet less extreme, methods of weight control such as meal skipping, fasting, and smoking.[14]

It is suggested that girls between the ages of 15 to 24 are the most vulnerable population for development of anorexia nervosa; the prevalence among students is higher than that of the general population.[15] While eating disorders in general have been found to be more prevalent among females, an increasing prevalence has been seen among males in recent research. In studies done among adolescents, girls are more likely to report body dissatisfaction; however, the more relevant issue here is that 5%-20% of boys reported restrained eating, vomiting, laxative abuse, or smoking cigarettes for weight control.[16] Consequently, disordered eating may be difficult to identify in males because they may not appear to be underweight.[16] Another limitation that exists in the male population is that, unless seeking treatment, knowledge of the problem is rare. The conclusion of the aforementioned study found that 20% of young college men

displayed eating attitudes and behaviors characteristic of eating disorders and disordered eating.[16] This result is quite similar to that found in college-aged females.[17]

It is important to note the variety of eating disorders that can exist among the male and female populations. In a study of 93 college males, who completed the Eating and Exercise Examination (EEE-C), a significant number were found to have a clinical exercise disorder as defined in the EEE-C.[16] Although none of these individuals identified having an issue with exercise, a number of them indicated feeling "annoyed, angry, or agitated if their exercise was changed or interrupted."[16(p.276)] The variance between the results of the EEE-C and no identification of an exercise related problem by the participants themselves raises a red flag of concern as to the norm developing among the college population.

There seems to be a correlation between the media's portrayal of a thin, toned, fit female image among the female population; this has led to an increase in dieting, use of weight-loss products, and eating disorder tendencies among adolescents, women, and men.[2] Due to the unrealistic standards suggested throughout the Western culture, white women have greater body dissatisfaction and therefore demonstrated more attempts to lose weight than African American women.[2] It was found that white women sought to achieve the cultural ideal which maintains a focus on thinness. The increased focus on this ideal caused an increase in anxiety, less self-efficacy, and less ability to rationally cope with their body weight resulting in body image dissatisfaction, which consequently led to greater weight gain.[2]

In a comparison study between Western and non-Western countries, the prevalence of anorexia nervosa among females in Western countries ranged from 0.1% to 5.7%.[15] Similarly, the prevalence of bulimia nervosa in females ranged from 0.3% to 7.3% and from 0% to 2.1% among males in Western countries.[15] The non-Western culture has a significantly lower proportion of eating disorders than does Western cultures. This suggests that the U.S. is at an increased risk resulting from the standards of female beauty imposed by the U.S.'s modern industrial society or Western culture.[15] Not only are females at risk; through the use of the Eating Attitudes Test-26 (EAT-26) it was found that 10% of males in the U.S. showed abnormal eating attitudes.[15] Although lower than the prevalence found in females, which was shown to be a much higher 26%, the significant finding in males demonstrates the reality of a presence of potential growth in disordered eating patterns and eating disorders. Additionally, in a population-based study of American households, Hudson et al. found a significant number of males with anorexia nervosa and bulimia nervosa; this represented one-fourth of cases of each of these disorders.[18]

In addition to anorexia nervosa and bulimia nervosa, another frequently diagnosed eating disorder is the Binge Eating Disorder (BED). BED actually appears more common than both anorexia nervosa and bulimia nervosa, exhibits substantial co-morbidity with other psychiatric disorders, and is, in many cases, linked to severe obesity.[18] These factors establish a significant association between eating disorders and obesity. As we see a strong correlation between obesity and psychological disorders, individuals who are overweight or obese have similar features with those who develop

eating disorders; this includes a link between concerns and self-esteem based on physical appearance.[13] As society has developed a great amount of anxiety about obtaining a smaller size through the use of diet and exercise, coincidently the rate of obesity has significantly increased.[19]

The prevalence of eating disorders among the general population may be rare. However, among adolescents and college-aged individuals, research demonstrates a greater prevalence.[20] According to a survey conducted by a partnership between Eating Recovery Center and Enrollment and Retention Services Division of Education Dynamics, 48% of college students with eating disorders do not know they have an eating disorder.[20] This suggests a limited knowledge base in regards to eating disorder behaviors. Due to varying definitions of eating disorders and screening methods utilized among the medical community inconsistent results are found throughout the research as to the prevalence of eating disorders in the U.S. and related populations.

The college environment has been suggested as a risk factor for the onset or exacerbation of disordered eating.[21] Many factors related to college, such as high levels of stress, achievement orientation, and role and identity changes are also correlates of disordered eating.[21] College presents new environmental, social, and academic shifts for students; thus causing challenges that may manifest themselves in disordered eating patterns which have the potential to develop into full-fledge eating disorders. It is reported that 80% of women diet and 50% binge eat during their first year of college; this, without a doubt, contributes to why the U.S. is currently seeing an increase in the development of eating disorders.[21] Vohs et al., concluded that there was no significant

change in eating patterns during the transition from high school to college.[21] However, the rates of disordered eating patterns as well as body dissatisfaction remained relatively similar to studies completed prior to this, indicating that there may still be a significant amount of disordered eating at the college level.[21]

Validity of Self-Reported Height and Weight Measurements:

A critical component of obesity and eating disorder research is the reliability of information obtained from participants. Many studies have that we must be cautious in using BMI as a standard tool for research. As the U.S. is experiencing an alarming rate of overweight and obesity cases, establishing an accurate method for assessing height, weight, and BMI is crucial. According to Larsen, Ouwens, Engels, Eisinga, & van Strien, self-report screening was highly specific (98.9%) in identifying cases of normal weight, but only moderately sensitive (48.3%) in identifying cases of overweight.[22(p.386)]

Larsen et al. states the following:

> Studies among both adults and (late) adolescents have shown that people generally overestimate height and underreport weight. Although the correlation between self-reported and measured height and weight is typically high, self-reported data, when used to screen for overweight, fail to detect a substantial proportion of morbid cases.[22]

College students have served as target population for obesity and weight-related research studies. These students are often a convenient population to sample; Larsen et al. states that over-weight college students may probably be more aware of, and eager to

adapt to, the current norms correlating to body weight by virtue of their high level of education and motivation to succeed in life.[22(p.387)] It has been found that persons who are unaware that they will be weighed following a self-reported weight often times underreport their weight.[22(p.387)] In a study completed by Larsen et al. the self-report screen for overweight failed to detect a substantial proportion of morbid obesity cases and the screening missed nearly half of all cases of overweight.[22(p.388)] The results of this study indicated that self-reported weight was lower than measured weight, $t(202) = -18.28$, $p<0.001$, and self-reported height was higher than measured height, $t(202) = 10.49$, $p<0.001$.[22] Similarly, in a study completed by Nawaz, Chan, Abdulrahman, Larson, & Katz, subjects underreported weight by an average of 2.07% (-3.75 lb) and their height by 0.56% (0.35 in) (p. 297).[23] Another factor indicated that with an underreporting of BMI there was an increase in measured BMI. Nawaz et al. concluded that underreporting of weight and over-reporting of height were greater among more-obese than less-obese women (p. 297).[23]

In a review of past literature by Lin, the data reviewed clearly showed that more men, women, male adolescents, and female adolescents were likely to underreport their body weight (p. 263).[24] Lin found that those most likely to underestimate their weight were heavy men, heavy women, or heavy adolescents (p. 263).[24] Contrary to the results found among weight measurements, body height has been found to be overestimated quite frequently. The frequency of overestimation of height by men was 82%; by women, 72%; by male adolescents, 54%; and by female adolescents, 73% (p. 264).[24]

As these articles have indicated, self-reported height and weight is often times unreliable and must be taken into consideration for clinical and research studies.

Merging Obesity and Eating Disorder Issues:

An equation of "calories in" versus "calories out" is often what defines programs of weight management. With such a simplistic concept, the rising prevalence of overweight and obesity often times goes misunderstood. Obesity prevention has focused primarily on improving the average American's diet and increasing physical activity and exercise, therefore attempting to reverse the presence of adverse health effects correlated to obesity. The obesity epidemic has only continued to increase in recent years, which raises the question of whether obesity prevention methods are effectively designed and implemented. Ironically, as we've seen the dramatic increase in obesity rates, the rate of media coverage on this same issue has nearly quadrupled between January 1999 and April 2005.[25] It seems the two are nearly parallel where one would assume an inverse response. Though good intentions may have been present to raise awareness in an effort to decrease the rate of obesity, the U.S. has experienced a negative setback partially related to the negative attention given to the obesity epidemic.

There is, however, considerable empirical and clinical evidence suggesting that campaigns framed as "obesity prevention" may actually *add to*, rather than diminish negative consequences.[19] A statistic shared by the Eating Disorder Foundation, indicates that the dieting industry is the only business in the world that has a 98% failure rate.[26] From this we raise the question of whether an individual who is not at the "ideal

weight"(an idea established by societal norms) and who also experiences a strong level of body dissatisfaction would become overweight or obese.

The dissatisfaction surrounding body size and shape is currently a strong predictor of future weight gain and obesity.[19] Kater suggests that, "instead of framing 'obesity' as the problem and 'prevention of obesity' as the goal, campaigns should emphasize increased health risks associated with poor eating and fitness habits without regard to size."[19(p.3)] Additionally, Kater encourages shifting the focus to the value of healthy eating and physical activity and use the platform to educate on the dangers of dieting.[19] The previous statements are supported by a study asking whether body satisfaction matters. Neumark-Sztainer et al. concluded that lower body satisfaction does not serve as a motivator for engaging in healthy weight management behaviors, but rather predicts the use of behaviors that may place adolescents at risk for weight gain and poorer overall health.[27] An article published by Neumark-Sztainer et al. suggests that dieting and unhealthful weight-control behaviors predict outcomes related to obesity and eating disorders 5 years later.[28] Based on the research presented here, it would seem likely that the prevalence obesity and eating disorders are more closely related than one might think.

In the past twenty years, and more specifically the past ten years, research in the area of eating disorders has begun to develop.[29] Now, more than ever, we have a greater understanding of the development of eating disorders and related issues. Among female students attending American universities, 11-20% score in a range that indicates the presence of an eating disorder on the Eating Attitudes Test, thus demonstrating the

urgency for prevention programming on college campuses.[30] O'Dea and Abraham reported that 20% of college men displayed eating attitudes and behaviors characteristic of eating disorders and disordered eating.[16] These men also identified themselves as having a problem with disordered eating, weight control, and binge eating, although not one of these individuals sought treatment.[16] Because a great stigma is associated with eating disorders, men may be hesitant to seek treatment for their condition.[16]

College presents an opportune time to intervene on students' diet and exercise behaviors by educating them on proper nutrition and physical activity recommendations. It is important to recognize the value of healthy nutrition *and* physical activity behaviors through adolescence and adulthood. Although women aged 18 to 24 years may have normal BMIs, low physical activity levels and/or poor dietary habits can put them at risk as they age.[31] While diet and exercise are the keys to preventing and treating overweight and obesity, the medical community must be careful in their methods of treating overweight and obesity as research has shown that 95-98% of people who lose weight gain it back within five years.[32] A number of those suffering from an eating disorder identify that they were on a diet before the eating disorder developed.[26]

Furthermore, initiatives need to be taken to develop and encourage positive body image and self-esteem among the college population. While "information-based, cognitive behavioral therapy and psycho-educational interventions have had limited success and are not recommended for use at large universities; dissonance-, media-literacy- and self-esteem-based educational approaches using some computer-based

delivery to improve the body image and related health behaviors of male and female university students" are recommended.[30(p.182)] Colleges and universities offer an ideal setting for reaching a large population of students. "The university setting also provides an ideal opportunity for the prevention of these problems due to the access to students for screening and diagnosis of problems and the implementation of prevention programs into coursework, in small group programs or at residential colleges and on campus accommodation."[30(p.175)]

In light of all the previous information, it is well known that psychological disorders and health-related issues often parallel the presence of eating disorders.[29] Due to this realization, prevention programming may achieve greater success and be more widely accepted and supported by other health entities if combined efforts address work towards reducing the prevalence of all the aforementioned health issues.[29] As health professionals have increasing concern about "violence, depression, substance abuse, obesity, and poor nutrition, as well as the financial and time expense of multiple programs," an opportunity arises to collaborate efforts to reach a wider population in prevention programming.[29(p.270)]

It would seem ironic to some that in the United States there is a high rate of overweight and obesity as well as an increasing prevalence of eating disorders. The relevance of bringing these two issues together may be questioned, but might we consider the degree of correlation between the weight and physical activity attitudes of overweight and obese individuals based on their current body mass index (BMI) as an explanation of the rise in eating disorders? Current research among the obesity and

eating disorder issues is diverse, allowing room for speculation of causes of these issues and assumption of correlations between risk factors.

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CHAPTER II

MANUSCRIPT

PURPOSE

The purpose of this study was to examine weight, body image, and physical activity attitudes of Nutrition 100 students and individuals completing nutrition consultations at the University of Nebraska—Lincoln Campus Recreation Center. Results from this study revealed the degree of negative response participants faced based on the inter-relations between current self-reported weight, self-reported goal weight, and their weight, body image, and physical activity attitudes.

HYPOTHESIS

The researcher hypothesized that females would express attitudes of higher-risk than their male counterparts and as one's weight increases so too will their negative responses on the weight and body image inventory and physical activity inventory.

Additionally, it was hypothesized that a higher degree of risk in attitudes about weight, body image, and physical activity would be found based on self-reported goal weights of both male and female participants.

OBJECTIVES

1) Determine whether self-reported weight impacts attitudes as it relates to weight, body image, and physical activity of both male and female college-aged students.

2) To determine whether a correlation exists between self-reported goal weight of both male and female college-aged students and their weight, body image, and physical activity attitudes.

METHODOLOGY

The goal of this study was to assess the attitudes related to weight, body image, and physical activity of college students and to compare the degree of negative response in attitudes among male and female participants in relationship to current and goal weights of the participants. The data for this study was collected from previously administered weight history forms providing self-reported height, weight, and goal weight information, as well as responses to weight, body image, and physical activity attitude inventories. These inventories were administered to students attending the University of Nebraska—Lincoln (UNL).

Participants

Participants consisted of male and female students who attended UNL and completed the Weight History Form (Appendix A-2) containing demographic information (i.e. self-reported height, weight, and goal weight information), as well as responses to the weight and body image inventory (Appendix A-3) and physical activity attitude inventory (Appendix A-4). UNL students who were enrolled in a Nutrition 100 course and/or visited Karen Miller, MS, RD, LMNT for a nutrition consultation at the UNL Campus Recreation Center between the years 2006 and 2011 were asked to

complete a weight history form, weight and body image attitude inventory (Appendix-A-3), and a physical activity attitude inventory (Appendix A-4). These forms, completed as a class assignment or part of a nutrition consultation, were collected and stored in a secure location at the UNL Campus Recreation Center upon completion.

These previously administered inventories were examined with non-identifying data from the weight history form, weight and body image attitudes inventory (Appendix A-3), and exercise attitudes inventory (Appendix A-4) being entered into an excel spread sheet. Participants were sorted based on gender. A statistical analysis program, Statistical Package for the Social Sciences (SPSS), was utilized and a statistician was consulted to interpret the data and define any existing correlations among variables. Variables being utilized are self-reported findings related to self-reported current weight, self-reported goal weight, and ideal body weight.

Additionally, using the SPSS analysis program, results from the weight and body image attitudes inventory and physical activity attitudes inventory were screened for negative responses related to weight and body image dissatisfaction and negative physical activity attitudes. Statistics from the inventories were analyzed in relationship to self-reported current weight and self-reported goal weight. All results are relevant to each participant's individual answers.

Data Collection Tools

Body Mass Index (BMI):

The Weight History form (Appendix A-1) from UNL Campus Recreation Fitness and Wellness Services Department was previously administered to students enrolled in a Nutrition 100 course or who had visited Karen Miller, MS, RD, LMNT for a nutrition consultation between the years 2006 and 2011. Self-reported heights and weights from this document were utilized in an excel document to calculate each participant's current and goal BMI based on self-reported height and weight information. The formula utilized in the excel document is as follows:

$$BMI = (ht(in)/wt(lbs)^2)*704.5$$

Weight and Body Image Inventory:

A weight and body image inventory (Appendix A-3), adapted from The University of Florida Counseling Services, was previously administered to students enrolled in a Nutrition 100 course or who had visited Karen Miller, MS, RD, LMNT for a nutrition consultation between the years 2006 and 2011. This inventory was comprised of 10 true/false statements addressing attitudes related to weight and body image. The responses were analyzed, with five or more negative responses representing a higher degree of risk, to determine the degree of weight and body image dissatisfaction in relationship to self-reported current and goal weights among college-aged students.

Physical Activity Inventory:

A physical activity inventory (Appendix A-4), from *Appearance Obsession: Learning to Love the Way You Look* by Joni E. Johnston, Psy.D., was previously administered to students enrolled in a Nutrition 100 course or who had visited Karen Miller, MS, RD, LMNT for a nutrition consultation between the years of 2006 and 2011. This inventory was comprised of 10 true/false statements addressing attitudes and behaviors related to physical activity. The responses were analyzed, with five or more negative responses representing a higher degree of risk to determine the degree of risk for disordered exercise attitudes and behavior in relationship to self-reported current and goal weights among college-aged students.

Data Analysis

Data from previously administered weight history forms, weight and body image attitudes inventories, and physical activity attitudes inventories was retrieved and entered into an excel spreadsheet. The SPSS statistical analysis program was utilized for this study. The means and standard deviations were found for age and BMI of participants who provided information. The differences between self-reported current weight and goal weight was analyzed using a one-way ANOVA and t-tests with results being significantly different at $p = < 0.05$. Correlations between self-reported current weight and weight and body image attitudes and physical activity attitudes, as well as correlations between self-reported goal weight and weight and body image attitudes and

physical activity attitudes was also analyzed using a chi-square analysis with a significance point set at $p = < 0.05$.

RESULTS

Description of Participants

This research study was based on the review of data collected between the years of 2006 and 2011. Throughout this time, 2280 students attending the University of Nebraska – Lincoln who were enrolled in a Nutrition 100 course and/or visited Karen Miller, MS, RD, LMNT for a nutrition consultation at the Campus Recreation Center, completed a weight history form, weight and body image attitude inventory, and a physical activity attitude inventory. As shown in Table 1, of the total participants (n=2280), approximately 62.5% (n=1425) were female and 37.5% (n=855) were male. The mean age of male participants was 19.8 ± 1.9 and the mean age of female participants was 19.6 ± 1.9. Overall, the mean age of all participants was 19.7 ± 1.9 with a range between 17 to 30 years of age, as seen in Table 1.

The variables considered for this study were age, height, self-reported current weight, and self-reported goal weight. The height and weight measurements utilized to calculate body mass index (BMI) were self-reported by the participants. The mean BMI for those participants who provided information (n=2255) was 23.8 ± 4.1 as shown in Table 2. The data obtained from female participants (n=1403) indicated a mean BMI of 23.0 ± 4.0. Data from the male participants (n=852) indicated a mean BMI of 24.9 ± 3.9.

Table 1: Mean Age of Participants

	Male		Female		Total	
	M	σ	M	σ	M	σ
Age	19.8	1.9	19.6	1.9	19.7	1.9
(n)	855		1425		2280	

Table 2: Mean BMI of Participants

	Male		Female		Total	
	M	σ	M	σ	M	σ
BMI	24.9	3.9	23.0	4	23.4	4.1
(n)	852		1403		2255	

Participant's Body Mass Index Classification

The self-reported figures for height and weight were utilized to calculate the BMI of participants. Among female participants (n=1403), the calculated BMI measurements indicated that 4.6% (n=65) were underweight, 72.9% (n=1039) were within the normal classification of BMI standards, and 21% (n=299) were overweight or obese. The self-reported height and current weight utilized in BMI calculations from male participants (n=852) indicated that 0.7% (n=6) were underweight, 55.3% (n=473) were within the normal classification of BMI standards, and 43.5% (n=373) were overweight or obese. Overall, 3.1% (n=71) of the participants were underweight, 67.1% (n=1512) were within the normal classification of BMI standards, and 29.9% (n=672) were overweight or obese. Of the total participants that responded (n=2255) 1.5% (n=22) of the females and 0.4% (n=3) males did not provide the necessary information to compute a BMI measurement. Table 3 demonstrates the number of participants that fall into each BMI classification.

Table 3: Participant BMI Classification

	Male		Female		Total	
	f	%	*f*	%	*f*	%
Underweight	6	0.7	65	4.6	71	3.1
Normal	473	55.3	1039	72.9	1512	67.1
Overweight	297	34.7	207	14.5	504	22.4
Obese Class I	56	6.5	63	4.4	119	5.3
Obese Class II	12	1.4	21	1.5	33	1.5
Extreme Obesity	8	0.9	8	0.6	16	0.7
(n)	852		1403		2255	

*Missing Height and/or Weight Information from 22 Females and 3 Males

Weight and Body Image Attitudes and Physical Activity Attitudes Inventories

Participants were categorized as either presenting *normal* or *at-risk* attitudes based on their negative responses to the weight and body image attitudes inventory (see Appendix A-3) and the physical activity attitudes inventory (see Appendix A-4). These classifications were created by the researcher as a method of categorizing the degree of negative response about weight, body image, and physical activity attitudes among the participants.

The weight and body image attitudes inventory was comprised of 10 true/false statements addressing attitudes related to weight status and body image (see Appendix A-3). The physical activity attitudes inventory was comprised of 10 true/false statements addressing attitudes and behaviors related to exercise (see Appendix A-4).

The degrees of risk created and utilized by the researcher are defined as:

- *Normal*: participants in this category had less than five indicators of risk in the questionnaire being reviewed.
- *At-Risk*: participants in this category had five or more indicators of risk in the questionnaire being reviewed.

The degree of negative response was defined separately for the weight and body image attitudes inventory and the physical activity attitudes inventory.

Degree of Negative Response in Weight and Body Image Related Attitudes

Of the 855 male participants, 98.2% (n=840) completed the weight and body image attitudes inventory (see Appendix A-3). Significantly fewer males responded with *at-risk* attitudes (a higher degree of negative response) in regards to weight and body image compared to the female participants (p = <.05). On the contrary, as seen in Table 4 and in support of the hypothesis of this study, a significantly higher proportion of females (approximately 18%) compared to males, revealed *at-risk* attitudes, a higher degree in negative response, in regards to weight and body image than would be expected by chance utilizing an SPSS Pearson Chi-Square analysis (p = <.05).

Table 4: Weight and Body Image Attitudes Inventory (n=2250)

		Normal		At-Risk	
Male	Count	736	32.7%	104*	4.6%
	Expected Count	650	28.9%	190	8.4%
	Std. Residual	3.4		-6.2	
Female	Count	1005	44.7%	405*	18.0%
	Expected Count	1091	48.5%	319	14.2%
	Std. Residual	-2.6		4.8	

*Based on chi-square analysis, percent response differed significantly at p < 0.05

Degree of Negative Response in Physical Activity Attitudes

To examine the distribution of *normal* versus *at-risk* attitudes of participants, a Pearson Chi Square analysis was conducted. As Table 5 shows, responses to the physical activity attitudes inventory (see Appendix A-4) presented a statistically significant difference between male and female participants who demonstrated *at-risk* attitudes, compared to those who demonstrated *normal* attitudes. This difference presented a smaller degree of significance than that shown among the weight and body image inventory results. A Pearson Chi Square analysis revealed that significantly more females presented *at-risk* attitudes (a higher degree of negative response) about physical activity than their male counterparts $x^2(1)=15.02$, $p < .01$.

Table 5: Physical Activity Attitudes Inventory (n=2250)

		Normal		At-Risk	
Male	Count	673	29.9%	167*	7.4%
	Expected Count	705.6	31.4%	134.4	6.0%
	Std. Residual	-1.2		2.8	
Female	Count	1217	54.1%	193*	8.6%
	Expected Count	1184.4	52.6%	225.6	10.0%
	Std. Residual	0.9		-2.2	

*Based on chi-square analysis, percent response differed significantly at $p < 0.05$

Current Weight, Goal Weight, and Gender Comparison

Analysis of Variance (ANOVA) were conducted to examine if males' self-reported current weight was significantly different from their self-reported goal weight. Results suggest no significant difference, $F(1, 820)=1.6$, $MSe=206.43$, $p<.05$. Analysis of Variance (ANOVA) were also conducted to examine whether females' self-reported current weight was significantly different from their self-reported goal weight. Results suggest significant difference $F(1,1391)=1077.3$, $MSe=93280.6$, $p<.05$). The self-reported goal weight of females was significantly lower than the self-reported current weight of female participants.

Additionally, ANOVA were also conducted to compare mean differences. Results showed significant difference $F(1,2211)=MSe=102.03$, $p<.05$.As Table 7 shows, both genders wanted to lose weight; however, collectively, females wanted to lower their weight significantly more than males. As seen in Table 6, approximately 92% (n=789) of males provided desired goal weights; of those participants the average desired change in weight was -0.77 pounds (Table 7). Among the 93% (n=1327) of female participants who provided desired goal weights, the average desired weight change was -11.58 pounds (Table 7). Overall, nearly 7% (n=164) did not provide desired goal weights in their information.

Table 6: Participant's Mean Current and Goal Weight

	Mean Current Weight	Mean Goal Weight
Males	180.95	180.24
N	852	789
Females	140.77	129.19*
N	1403	1327

*Significant at p = < 0.05

Table 7: Average Desired Weight Change Among Participants

	Average Desired Weight Change
Males (n=789)	-0.77
Females (n=1327)	-11.58*

*Significant at p = < 0.05

Self-Reported Current Weight and Weight and Body Image Attitudes

A Pearson Correlation was completed looking at the correlation between the participant's self-reported current weight and their attitudes about weight and body image (see Appendix A-3). Results showed a small but statistically significant positive correlation, $r=.21$, $n=840$, $p<.01$. Strength of association is measured as the following: when $r \leq .3$ the strength is small, from .31 to .5 there is a medium strength of association and anything greater than .5 represents a large strength of association.

As the current weight of males increased there was a higher degree of risk and negative response found among their attitudes. On the contrary, there was no significance found among the self-reported current weight of female participants who completed the weight and body image inventory ($r=.01$, $n=1410$, $p<.01$).

The difference in the correlation of self-reported current weight and the weight and body image attitudes inventory between the two genders was also analyzed. In the test between males and females and their weight and body image attitudes, the standard deviation ($z = 4.17$) showed significant difference. Overall, as the self-reported current weight of participants increased, so too did the degree of risk (a higher degree of negative response) in their attitudes about weight and body image. Additionally, based on self-reported current weight, males were found to have a higher degree of risk, a higher degree of negative responses, in regard to attitudes about weight and body image than the female participants.

Table 8: Correlation Between Male's Current Weight and Weight and Body Image Attitudes

		Current Weight
Weight and Body Image Attitudes	Pearson Correlation	0.207
	Sig. (2-tailed)	.000*
	N	840

*Based on chi-square analysis, percent response differed significantly at $p < 0.05$

Table 9: Correlation Between Female's Current Weight and Weight and Body Image Attitudes

		Current Weight
Weight and Body Image Attitudes	Pearson Correlation	0.028
	Sig. (2-tailed)	0.29
	N	1410

Self-Reported Current Weight and Physical Activity Attitudes

A Pearson Correlation was completed looking at the correlation between the male participants' self-reported current weight and their attitudes about physical activity (see Appendix A-4). Results showed no significant correlation, r=.05, n=840, p<.01. Strength of association is measured as the following: when r $\leq$ .3 the strength is small, from .31 to .5 there is a medium strength of association and anything greater than .5 represents a large strength of association.

A Pearson Correlation was also completed looking at the correlation between the female participants' self-reported current weight and their attitudes about physical activity (see Appendix A-4). Results showed a small but statistically significant positive correlation, r=-0.01, n=1410, *p*<.01. As female's current weight increased so too did their degree of risk (a higher degree of negative responses) in attitudes about physical activity.

The difference in the correlation of self-reported current weight and physical activity attitudes between males and females was also analyzed. In the test between the two genders and their physical activity attitudes, the standard deviation (z = 2.385) showed significant difference (p < 0.05). Overall, based on self-reported current weight, females were found to have a higher degree of risk, a higher degree of negative responses) in regard to their attitudes about physical activity.

Table 10: Correlation Between Male's Current Weight and Physical Activity Attitudes

		Current Weight
Physical Activity Attitudes	Pearson Correlation	0.048
	Sig. (2-tailed)	0.169
	N	840

Table 11: Correlation Between Female's Current Weight and Physical Activity Attitudes

		Current Weight
Physical Activity Attitudes	Pearson Correlation	-0.056
	Sig. (2-tailed)	0.035*
	N	1410

*Based on chi-square analysis, percent response differed significantly at $p < 0.05$

Goal Weight and Weight and Body Image Attitudes

A Pearson Correlation was completed looking at the correlation between the male participants' self-reported goal weight and their attitudes about weight and body image (see Appendix A-3). Results showed, r=.11, n=840, p<.05. Strength of association is measured as the following: when r $\leq$ .3 the strength is small, from .31 to .5 there is a medium strength of association and anything greater than .5 represents a large strength of association. Results of the female participants' self-reported goal weight and their attitudes about weight and body image were also showed significant difference, *r*=.07, n=1377, *p*=<.05

The Pearson Chi-Square test examining individuals' goal weight as it correlates to the results of the weight and body image attitudes inventory (see Appendix A-3), significant findings were reported for both genders. As the self-reported goal weight of males (Table 12) and females (Table 13) increased, so too did their degree of risk (a higher degree of negative responses) in regard to their attitudes about weight and body image. These findings support the hypothesis of the study in which the researcher hypothesized that there would be a higher degree of risk found among both genders based on self-reported goal weight.

Overall, the difference between the two genders was not found to be significant. In the test of correlation of the self-reported goal weight and physical activity attitudes between males and females, the standard deviation (z = 0.932) showed no significant difference.

Table 12: Correlation Between Male's Goal Weight and Weight and Body Image Attitudes

		Goal Weight
Weight and Body Image Attitudes	Pearson Correlation	0.112
	Sig. (2-tailed)	0.001*
	N	810

*Based on chi-square analysis, percent response differed significantly at $p < 0.05$

Table 13: Correlation Between Female's Goal Weight and Weight and Body Image Attitudes

		Goal Weight
Weight and Body Image Attitudes	Pearson Correlation	0.071
	Sig. (2-tailed)	0.008*
	N	1377

*Based on chi-square analysis, percent response differed significantly at $p < 0.05$

Goal Weight and Physical Activity Attitudes

A Pearson Correlation was completed looking at the correlation between the male participants' self-reported goal weight and their attitudes about physical activity (see Appendix A-4). Results showed, $r=.08$, $n=806$, $p<.05$. Strength of association is measured as the following: when $r \leq .3$ the strength is small, from .31 to .5 there is a medium strength of association and anything greater than .5 represents a large strength of association. Results of the female participants' self-reported goal weight and their attitudes about physical activity did not show any statistically significant difference, $r=.-0.02$, $n=1378$, $p=<.05$

As the self-reported goal weight of male participants increased there was also found to be an increase in the degree of risk (a higher degree of negative responses) for attitudes about physical activity. As shown in Table 15, there was no significance found in the correlation between female participant's self-reported goal weight and their physical activity attitudes.

The difference in the correlation of self-reported goal weight and physical activity attitudes between males and females was analyzed as well. In the test between the self-reported goal weight of the two genders and their physical activity attitudes, the standard deviation ($z = 2.323$) showed significant difference ($p < 0.05$). Overall, males were more likely to have a higher degree of risk, a higher degree of negative responses, associated with physical activity attitudes than their female counterparts. These findings support the hypothesis for male participants only, in regards to a higher degree of negative responses.

Table 14: Correlation Between Male's Goal Weight and Physical Activity Attitudes

		Goal Weight
Physical Activity Attitudes	Pearson Correlation	0.079
	Sig. (2-tailed)	0.025*
	N	806

*Based on chi-square analysis, percent response differed significantly at $p < 0.05$

Table 15: Correlation Between Female's Goal Weight and Physical Activity Attitudes

		Goal Weight
Physical Activity Attitudes	Pearson Correlation	-0.024
	Sig. (2-tailed)	0.373
	N	1378

DISCUSSION

In recent history, an increased amount of attention has been focused on the obesity epidemic across the United States. In 2010 *every* state had a prevalence of obesity *more* than 20%.[1] College students have been the focus of many efforts to intervene and alter unhealthy lifestyle habits that many students practice. As concern continues to be shared in regard to the issue of obesity, it is important to acknowledge another issue that widely relates to obesity. Eating disorders are a prominent issue on college campuses affecting both males and females. With a variety of eating disorders existing among this population it continues to be an area worth researching more.

This study examined the association between weight and body image attitudes and physical activity attitudes of college students and their self-reported current and goal weights. The data utilized in the study was collected from UNL students who were enrolled in a Nutrition 100 course and/or visited Karen Miller, MS, RD, LMNT for a nutrition consultation at the Campus Recreation Center between the years 2006 and 2011. These students were asked to complete a weight history form, weight and body image attitudes inventory (Appendix A-3), and physical activity attitudes inventory (Appendix A-4). Through the collection and analysis of this data, researchers can better determine where their weight management and eating disorder prevention programming efforts can best be focused.

Overweight and Obesity

Current statistics suggest that among adults aged 20 to 74 years, the prevalence of obesity has increased to 66%.[2] Results from this research study indicate that 29.9% (Table 2) of all students who participated were either overweight or obese. While this study of Nutrition 100 students at the University of Nebraska—Lincoln indicates a significantly lower percentage of obesity, it is concerning that nearly one-third of the students fall into this category. Those that develop obesity as a young adult are at an increased risk of being obese through their adulthood.[2] With overweight and obesity comes a long line of potential negative health consequences. The higher one's BMI, the greater the risk for disease and other medical conditions such as heart disease, high blood pressure, type 2 diabetes, gallstones, breathing problems, and certain cancers.[3] Additionally, the CDC identifies dyslipidemia, stroke, liver and gallbladder disease, osteoarthritis, and gynecological problems as risk factors associated with being overweight or obese.[1] Psychosocial factors have also proved to be influential on obesity among children through adulthood.

Nearly one-third of UNL students who participated in this study were overweight or obese. While this does not match the national average, there is cause for concern as there are many modifiable behaviors that can be addressed among the college population. Researchers who assessed the elevated health risk based on eating and exercise behaviors suggested a tailored weight management program for college-aged males.[4] Based on this suggestion, subgroups would be created in an effort to group students who share similar behavioral and psychosocial characteristics association with

body weight status.[4] The college setting provides an opportune time to establish lasting lifestyle habits. Because of this, along with the consideration of the number of students who are either overweight or obese, it is crucial to utilize the result of this research in an effort to develop programming that will meet the needs of the college population. Effective, research-based interventions need to be developed that can be introduced at various points throughout an individual's college experience.

Weight, Body Image, and Physical Activity Attitudes

According to the World Health Organization, eating disorders are mental disorders involving physiological and psychological effects associated with a preoccupation with food and body image.[5] This research reviewed the results of student's attitudes toward their weight and body image, as well as toward physical activity and categorized students as being either *normal* or *at-risk* based on their responses. Females demonstrated more *at-risk* attitudes, a higher degree in negative responses, in regards to their weight and body image while males showed *at-risk* attitudes, a higher degree in negative responses, towards physical activity.

A limitation in eating disorder research is the insignificant amount of information relating to the male population. This research study was designed to look at previously collected inventories that provided statements relative to weight and body image and physical activity attitudes among students. While the overall percentages in the population studied are not all consistent with past research, the significant differences are relative to consider in future programming and research studies.

One past research study found that 20% of young college men displayed eating attitudes and behaviors characteristic of eating disorders and disordered eating.[6] Also, a cross-sectional study, utilizing the Eating Attitudes Test-40, found the prevalence of eating disorders among a group of female college students to be an alarming 13.8%.[7] Prior research has suggested prevalence ranging from 6.6% to 13.4% among female college students in the U.S.[7] Overall, it is estimated that 95% of all eating disorders affect individuals between the ages of 12 and 25.[8]

As seen in Table 7, the results of this study suggest that females want to lose significantly more weight than males. On average, females want to lose 11.58 pounds while the average among males was a desired weight loss of 0.77 pounds. We know that females between the ages of 15 and 24 are the most vulnerable population for developing anorexia nervosa and that the prevalence among students is higher than that of the general population.[9] Based on this information and the findings of this research study, there is cause for concern among this college population; that being the high degree of negative responses associated with the attitudes of students.

Among the male participants in this study, results showed that as their self-reported current weight increased, the degree of risk (a higher degree of negative responses) associated with weight and body image attitudes also increased. The weight and body image attitudes inventory consisted of statements about the level of comfort participants feel surrounding their weight. This inventory also had statements related to how they feel in regards their body shape and size. The results of the male participants

revealed a significant correlation between their self-reported current weight and weight and body image attitudes.

Approximately 43.5% of male participants in this study presented a BMI (calculated utilizing self-reported height and weight information) within the overweight and obesity category. A study of eating attitudes in college males indicated that past research suggests obesity may be a predisposing factor for male eating disorders.[10] Provided this guidance in research, it may be assumed that the male participants of UNL may be at an increased risk for eating disorders based on their high degree of negative responses on their weight and body image attitudes inventories.

In a study entitled *The association between the body mass index of first-year female university students and their weight-related perceptions and practices, psychological health, physical activity and other physical health indicators* researches concluded that only 15.8% of the students were satisfied with their weight and more than half had tried to lose weight during the two years preceding the study.[11] The conclusions of the aforementioned study, showing that a higher the mean BMI the less satisfied the students were with their weight, are similar to the findings of this research study.[11] As seen in Table 4, approximately 18% of female participants and 4.6% of male participants reported *at-risk* attitudes, a higher degree of negative responses, in regards to weight and body image. When assessing physical activity attitudes, more females (8.6%) presented a higher degree of negative responses (see Table 5).

Significance was found among both males and females in the correlation between their self-reported goal weight and their weight and body image attitudes (see

Table 12 and Table 13). As participant's goal weight increased, so too did their possibility to have a higher negative response to weight and body image statements. Similarly, male and female college students found to be in the 'High Risk' category upon completing various questionnaires (including questionnaires focused on nutrition, eating, physical activity, and desired weight) were found to desire the greatest amount of weight loss.[4] This information is relevant to additional research discussing the longitudinal consequences of obesity, disordered eating, and eating disorders. Research has shown that adolescents who diet and engage in unhealthful weight-control behaviors are predicted to deal with outcomes related to obesity and eating disorders.[12]

The prevalence of eating disorders among the college population is increasing and many colleges lack the resources needed to help students with these diseases.[13] In a survey conducted by the Eating Recovery Center and the Enrollment and Retention Services Division of Education Dynamics, researchers found that 48% of students do not know that they have an eating disorder.[13] These findings, coupled with the high degree of negative responses about weight, body image, and physical activity for both males and females at UNL, suggest an increased need for resources to be provided on college campuses.

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CHAPTER III

CONCLUSION

Two objectives were presented for this study: 1) To determine whether self-reported weight impacts attitudes as they relate to weight, body image, and physical activity for both male and female college students. 2) To determine whether a correlation exists between the difference in self-reported current weight and self-reported goal weight of both male and female college-aged students and their weight, body image, and physical activity attitudes.

The analysis of weight and body image attitudes inventories and physical activity attitudes inventories of students attending the University of Nebraska—Lincoln provided information to meet the aforementioned objectives. The results of this study indicate that both genders are subject to some degree of dissatisfaction as they have reported a higher degree of negative responses in relationship to weight, body image, and physical activity. The inventories utilized may provide insight to the necessary focus of program development for subgroups of males and females. Based on these results, females may need programming geared towards weight and body image issues while programming for males may be more effective if geared towards physical activity attitudes.

LIMITATIONS

As with any research, this study carries with it some limitations. All heights and weights utilized in this study were self-reported by participants. Due to the inconsistency that exists among self-reported weights, limitations are faced in the accuracy of the results. The instrument used to determine the degree of risk in attitudes about weight, body image, and physical activity has not previously been validated. Degree of risk was a subjective result determined by the researcher and not one that has been formally tested. Finally, all participants completing the assessment were either in the Nutrition 100 course or they met with the dietitian at UNL Campus Recreation and therefore may have a vested in health and wellness. These participants may not provide an accurate representation of the attitudes college students have in regards to weight, body image, and physical activity.

FURTHER RESEARCH

In an effort to more effectively research the attitudes of college students in relationship to weight, body image, and physical activity, the use of a validated instrument that can measure the prevalence of eating and physical activity disorders would be suggested. A randomized control study and the use of actual weights, rather than self-reported information, would provide more consistency and accuracy to the results of the research.

APPENDIX A-1

Institutional Review Board Letter of Approval

NUgrant research administration system

Your project has been approved by the IRB.

Project Title: College Student BMI's and Goal Weights

Approvers Comments:
Dear Ms. Estes and Dr. Koszewski,

Project #12192 titled, College Student BMIs and Goal Weights has been approved. You are authorized to begin your research. Your project was approved as an Expedited protocol, category 5.

Please allow sufficient time for the official IRB approval letter to be available within NUgrant.

Cordially,

Rachel Wenzl
Research Compliance Services Specialist
Human Research Protection Program

APPENDIX A-2

Weight History Form

Nutrition Consultation

University of Nebraska, Lincoln

Campus Recreation

Fitness and Wellness Services

For questions, please contact:

Karen Miller, MS, RD, LMNT

Coordinator for Nutrition Education

(402) 472-0880

University of Nebraska, Lincoln

Campus Recreation

Fitness & Wellness Services

Weight History

Name: _____ UNL ID #: _____

Daytime Phone: _____ Home Phone: _____

Email Address:_____

Gender: _____ Age: _____ Height: _____

Weight History:

Current Weight: _____ Goal Weight: _____

Women Only: Do you menstruate monthly? Yes No

Highest weight as an adult and at what age? (18 years or older) _____

_____

Lowest weight as an adult and at what age? (18 years or older) _____

_____

Have you ever been at your goal weight? _____If yes, when and for how long?
_____

Please list any pertinent family or personal weight management history or issues.
_____

_____

Medication/Supplements: _____

Identify one question you would like answered or one subject you would like to discuss in your nutrition consultation. _____

_____

Do you have any nutrition related goals? Explain_____

_____

How did you hear about us?_____

APPENDIX A-3

Weight and Body Image Attitudes Inventory

Weight and Body Image Attitudes Inventory

TRUE	FALSE	
_____	_____	I rarely talk negatively about my body.
_____	_____	I do not weigh myself more than once a week.
_____	_____	If appearance didn't matter in our society, I would still exercise the same amount that I do now.
_____	_____	I rarely compare my looks or body to others.
_____	_____	I rarely feel guilty/anxious after eating a high fat/high calorie food.
_____	_____	I can accept a compliment about my appearance.
_____	_____	If I had to do things that were unhealthy (fasting, laxatives, throwing up, excess exercise) in order to change (or maintain my weight), I would choose not to do them.
_____	_____	I feel happy or content, for the most part, with my life at this time.
_____	_____	I wouldn't panic if I gained (or lost) a few pounds.
_____	_____	For the most part, I am satisfied with my body shape and size.

**Adapted from the University of Florida Counseling Services

APPENDIX A-4

Physical Activity Attitudes Inventory

Physical Activity Attitudes Inventory

TRUE	FALSE	
_____	_____	The way my body looks to me depends on whether I have exercised that day or not.
_____	_____	I often exercise when I have an injury or don't feel well.
_____	_____	I feel anxious if I miss even one workout.
_____	_____	I feel depressed and/or irritable if I miss exercising for three days or more.
_____	_____	I find myself continually adding newer and stricter goals to my exercise routine.
_____	_____	I will dramatically alter my schedule in order to work out.
_____	_____	The thought of cutting back on my workout scares me.
_____	_____	I give up social engagements to exercise.
_____	_____	I monitor how many calories I burn every time I work out.
_____	_____	I consider exercise more of a chore than an activity.

**Adapted from *Appearance Obsession: Learning to Love the Way You Look* by Joni E. Johnston, Psy.D.