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# Eating Disorder Tendencies and Pathogenic Weight Control Usage in High School Female Athletes

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*Eastern Illinois University*

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**Eating Disorder Tendencies and Pathogenic Weight Control  
Usage in High School Female Athletes**

BY

**Natasha L. McDonald**

**THESIS**

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF


**Specialist in School Psychology**

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY  
CHARLESTON, ILLINOIS

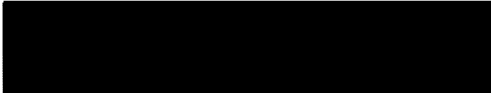
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## Abstract

For many years, eating disorders have become more prevalent in American society. Researchers have recently identified a “new” at risk group, female athletes. The primary purpose of this study was to answer two questions: First, are tendencies toward eating disorders and the use of pathogenic weight control techniques different between female high school athletes and female high school nonathletes? Secondly, among high school female athletes, are tendencies toward eating disorders and the use of pathogenic weight control techniques different between performance sports and traditional sports? Each participant completed a survey packet to gather information on (1) demography including athletic participation, (2) eating attitudes, Eating Attitudes Test-26 (EAT-26) (Garner & Garfinkel, 1979), and (3) usage of pathogenic weight control techniques. The questionnaires were divided into one of the four groups (traditional athlete, performance athlete, combination athlete, or non-athlete) and comparisons were made. Results indicated only minor differences in eating disorder tendencies and pathogenic weight control techniques among the groups. On the EAT-26, athletes had higher mean scores than nonathletes, but this difference was not significant. When traditional athletes and performance athletes were compared using the EAT-26, the traditional athletes had a higher mean score than the performance athletes, but this was also not significantly different. Regarding pathogenic weight control techniques and athletic participation, the athletes scored significantly higher than the nonathletes in regard to vomiting and exercising to control weight/shape. No significant differences were found between traditional and performance athletes in regard to pathogenic weight control techniques. Current literature, implications and future directions are discussed.



## Eating Disorder Tendencies and Pathogenic Weight Control

### Usage in High School Female Athletes

For many years, eating disorders have become more prevalent in American society. Researchers have recently identified a “new” at risk group, female athletes. The National Eating Disorders Screening Program also reports, “Individuals who are preoccupied with weight and appearance may be more likely to participate in athletics” (Powers & Johnson, 2002). Although these women are usually in great physical shape to begin with, pressures from coaches, other team members, and society in general may be causing them to starve their bodies of much needed nutrients (Taub & Blinde, 1992). Moreover, it appears that the onset of eating disorders is typically during late adolescence, ages 14 to 18 (APA, 2000). Thus, the primary purpose of this study was to assess the relationship among eating disorder tendencies, the use of pathogenic weight control techniques, and athletic participation in female high school students.

### General Description of Eating Disorders and Diagnostic Criteria

There are two main types of eating disorders, anorexia nervosa and bulimia nervosa. *Anorexia nervosa* is an eating disorder in which a person purposefully restricts food intake causing significant weight loss (APA, 2000).

The *diagnostic criteria for anorexia nervosa* include: (a) refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., body weight less than 85% of expected weight); (b) intense fear of gaining weight or becoming fat, even though underweight; (c) disturbance in the way in which one’s body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight; and (d) amenorrhea (APA, 2000). Other

symptoms include distorted body image, hyperactivity, and preoccupation with food, weight, and exercise. Some people with anorexia experience relationship problems, depression, dry skin, the development of fine body hair, low blood pressure, and a slowed pulse rate (Lemberg, 1999).

*Bulimia nervosa* is an eating disorder characterized by binge eating and purging. A binge usually involves rapidly consuming large amounts of high-calorie foods. The foods chosen are often sweet and easy to swallow. There are *two types of bulimia nervosa: purging type and nonpurging type*. Binge eating followed by using laxatives, vomiting, diuretics, or enemas characterize the *purging type*. The *nonpurging type* is characterized by bingeing episodes, followed by engaging in inappropriate behaviors such as fasting and excessive exercise in order to compensate for the vast intake of food (Lemberg, 1999).

The *diagnostic criteria for bulimia nervosa* include: (a) recurrent episodes of binge eating, characterized by eating an amount of food in a short period of time that is definitely larger than most people would eat during a similar period of time under similar circumstances and a sense of lack of control over eating during the episode; (b) recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting, misuse of laxatives, diuretics, enemas; fasting, or excessive exercise; (c) the binge eating and compensatory behavior occur an average of at least twice a week for three months; (d) self-evaluation is unduly influenced by body shape and weight; (e) the disturbance does not occur exclusively during episodes of anorexia nervosa (APA, 2000). Other symptoms include strenuous exercise, dieting behavior, and depressed mood. Some people with bulimia nervosa experience cessation of menstrual cycles,

digestive problems, brittle hair and nails, dry skin, dizziness, heart irregularities, dental problems, and damage to finger tips due to acid from the stomach (Lemberg, 1999).

*Pathogenic weight control techniques* refer to potentially injurious weight control methods. These include induced vomiting, laxatives, diet aids (e.g., Dexatrim), fasting, and any other disordered eating behavior (Taub & Blinde, 1994).

### Incidence and Prevalence

Eating disorders are found in postindustrial countries worldwide. These countries have an overabundance of food, but a huge emphasis is placed on being slim and slender, a sign of beauty and attractiveness (Lemberg, 1999). There is also a higher incidence of eating disorders in the developed countries that place a higher emphasis on beauty as a core aspect of femininity and achievement (Mussell, Binford, & Fulkerson, 2000).

Women are ten times more likely to develop an eating disorder than men, and approximately 3% of the female population in the United States has a diagnosable eating disorder (Mussell, et. al., 2000). The prevalence rate for anorexia nervosa is 0.5% of the population, and the onset is typically during late adolescence (age 14-18 years). The prevalence rate for bulimia nervosa among women is 1% to 3% of the population, and the onset is usually during late adolescence or early adulthood (APA, 2000).

### Etiology of Eating Disorders

There is no specific cause of anorexia nervosa or bulimia nervosa. The onset is usually not marked by one significant event; in reality, many factors and events lead to the onset of the disorders (Lemberg, 1999). Changes in body composition due to puberty, peer relationships, and the media have all been speculated causes, but no one cause has been determined (Lemberg, 1999). Many researchers agree that familial,

social, cognitive, learning, and personality factors all contribute to a person developing an eating disorder (Polivy & Herman, 2002).

*Body Composition:* High school students, especially student-athletes, appear to be at a very high risk for eating disorders because of changes in body composition. Girls experience a dramatic increase in body fat during adolescence (high school), and this concerns most athletes (Gill, et al., 1994). This concern could be because of pressures from a coach, parent, another teammate (Taub & Blinde, 1992), or even the uniform requirements of the sport. Often, the individual begins to address these concerns, but loses control. For instance, many girls who develop an eating disorder begin with a simple diet. This may then be accompanied by more exercise than normal and maybe a little fasting or use of diet pills. Some may try bingeing and purging or just stop eating all together. Another popular technique is using laxatives. Regardless of the technique used, it gets out of control very quickly, and is difficult to quit (Gill, et al., 1994).

*Media Influence:* Due to the bombardment of images of thin and “beautiful” people daily in television ads, magazine covers, and billboards, many people blame the media for the increased incidence of eating disorders among young people. Magazines contain advertisements for food and clothing, but they also contain many articles on thinness and instructions on how to be thin (Harrison & Cantor, 1997). In addition to viewing images of slim people and reading about diets, the food industry also focuses on America’s drive to be thin. An article by Wilson and Blackhurst (1999) cites many food company advertisements that attempt to sell their product by placing the focus on the drive for thinness and dieting. Some companies cited include Baked Lays Potato Chips,

the milk campaign, Quaker, Snickers, Eggo waffles, Hershey's Syrup, and Special K (Wilson & Blackhurst, 1999).

As the incidence of eating disorders has risen in the past thirty years, the figure of the female American sex symbol has trimmed down significantly (Harrison & Cantor, 1997). A study by Ahrens, Gray, Mosimann, and Wiseman (1990) reported that from 1979 to 1988 the 69 Playboy centerfolds and 60 Miss America Pageant contestants studied weighed at least 15 percent less than expected, which is considered symptomatic of anorexia nervosa. Other studies have shown that there has been an increase in advertisements and messages about staying slim in popular magazines in the past 20 years (Harrison & Cantor, 1997). The effects of this type of media display are not certain, but evidence has been presented that adolescent girls' images of their own bodies are influenced by the media's portrayal of women. Additionally, although exposing college students to advertisements portraying thin and non-thin bodies had an immediate effect on their estimations of their own body; there is very little empirical evidence to support the hypothesis that media images of thin women directly lead to eating disorders (Harrison & Cantor, 1997).

*Cultural Factors:* Cultural beliefs and attitudes have been acknowledged as contributing factors to the development of eating disorders. In the past, it was believed that eating disorders only occurred in white individuals from a high socioeconomic status. However, evidence has been found that eating disorders occur in many ethnic, cultural, and socioeconomic groups (Miller & Pumariega, 2001). Studies have also been conducted comparing African-American and White students' perceptions about body image and dissatisfaction. Results of one study show that African-American women are

more satisfied with their body image and weight. White women had thinner body shape ideals than actual body shape (Miller & Pumariega, 2001). Another study compared African-American, Hispanic, and Caucasian students' eating disorder behaviors. Results indicate that Hispanic and Caucasian students are more preoccupied with weight concerns and have higher levels of body dissatisfaction than African-American students, regardless of actual weight (Rhea, 1999). Researchers also found that compared to the African-American students, Hispanic and Caucasian students reported feeling insecure, inadequate, worthless, and having lower expectations of superior performance. When compared to Caucasian students, the Hispanic and African-American students reported feeling a high sense of alienation and feared the demands of adulthood (Rhea, 1999).

In 1997, the Commonwealth Fund Survey of the Health of Adolescent Girls was completed by 3,586 ethnically diverse female students from 5<sup>th</sup> through 12<sup>th</sup> grade. Results of this survey indicated that eating behaviors and self-perceptions about weight varied significantly among Caucasian, African-American, Hispanic, and Asian American girls. The percentage of girls perceiving that they are overweight include 18% of African-American girls, 24% of Asian-American girls, 28% of Caucasian girls, and 31% of Hispanic girls ("Commonwealth," 1997).

These findings may suggest that different cultures have varied opinions about physical appearance and the need to be thin. Research indicates that Caucasian students have predominately been the culture with the highest risk factors for eating disorder tendencies in the past (Miller & Pumariega, 2001), but researchers now suggest that Hispanic students may be at the highest risk for eating disorders due to a need for acceptance in mainstream culture in the United States (Rhea, 1999). African-American

students continually score lower than Caucasian and Hispanic students on eating disorder inventories which could suggest that African-American families and significant others encourage favorable body-image development rather than fostering a belief that only thinness is acceptable and beautiful (Rhea, 1999).

*Personality Traits:* A study by Black and Burkes-Miller (1988) found that female athletes are forty times more likely to have an eating disorder than the general population. Some researchers suggest that the tendencies of female athletes to have disordered eating may stem from these athletes' personalities. Characteristics such as competitive drive to win and excel, perfectionism, inordinate concern about performance (Gill, Overdorf, & Pfister, 1994), self-motivation (Taub & Blinde, 1992), independence, persistence, and tolerance of pain and discomfort are all characteristic of both athletes and people with eating disorders (Beals, 2000). It has also been reported that athletes at risk for eating disorders are usually those who are particularly critical and anxious of their own athletic performance (Powers & Johnson, 2002). Many of these athletes compare themselves to their teammates and attempt to emulate that particular athlete's body weight and body shape (Beals, 2000).

### Previous Research

Many studies focusing on eating disorders among college students have been conducted; but, only a few studies have examined the incidence of eating disorders among college athletes. A study conducted by Kirk, Singh, and Getz (2001) compared the risk of eating disorders among female college athletes and nonathletes. The participants included 206 National Collegiate Athletic Association (NCAA) Division I athletes from ten varsity sports and one nonvarsity dance team and 197 full-time college

students living in residential housing on the university campus. The participants ranged in age from 16 to 25 years old. Each participant completed the Eating Attitudes Test-26 (EAT-26), a 26-item self-report scale (Kirk, et. al., 2001).

When comparing the athletes to the nonathletes, the results of the EAT-26 indicated that 10.7% of the athletes and 15.2% of the nonathletes scored 20 or above (which indicates eating disorder behaviors). Although the nonathletes scored higher than the athletes, this difference was not significant. The researchers also compared the scores on the EAT-26 among the different sports, including volleyball, soccer, high-tech dance, tennis, cheerleading, softball, lacrosse, cross-country, track and field, swimming/diving, and basketball. Although these results indicated no significant differences, there were some differences in the percentages of eating disordered behavior: Cheerleading 22.2%, Soccer 16.7%, High-tech dance 16.7%, Volleyball 13.3%, Lacrosse 12.9%, Swimming/Diving 11.1%, Softball 5.6%, Cross-country 5.0%, Track and field 5.0%, and Basketball 0.0%. A final comparison was made between eating disorder behavior and age. The results of this comparison suggest that regardless of athletic involvement, younger ( $M = 18.59$ ) college women may be more likely to be at a higher risk for eating disorders than older ( $M = 19.34$ ) college women (Kirk, et. al., 2001).

A study conducted by Gill, Overdorf, & Pfister (1994) focused on high school female athletes and eating disorders. There were 429 high school female athletes in this study. Each participant was given two inventories, the Eating Behavior of Athletes II (EBA II) and the Tennessee Self Concept Scale (TSCS). Each participant's body mass index (BMI) was also calculated using the self-reported measures of the participant's height and weight (Gill, et al., 1994).



The results of this study indicated that 3.1% of the athletes said they “might” have an eating disorder and 14.3% thought that they were “not sure.” Some participants reported that they had already been diagnosed with some type of eating disorder. One-third reported feeling guilty after eating large quantities of food and having an increased fear of becoming overweight regardless of actually being regular weight or underweight, while a quarter of the athletes felt that they had little or no control over their eating habits. In addition, 42.9% of the athletes felt that they were “a little too heavy,” but when looking at their self-reported height and weight, only 1.7% would actually be considered “a little heavy.” Also, more than half of these athletes had reported dieting at some point, and the highest reported technique used was decreased calorie intake and liquid diets. Furthermore, 17.5% of the athletes admitted bingeing between 1 to 7 times per week (Gill, et al., 1994).

This study suggests that eating disorder issues are just as profound in high school athletes as they are in college athletes. The biggest concern found in this study was that over 40% of the athletes’ self-perceptions of their body weight was higher than what it actually was. These results are very similar to previous studies conducted on this subject (Gill, et al., 1994).

Taub and Blinde (1992) compared athletes and nonathletes. The participants were all enrolled in mandatory physical education classes at a high school, and 100 were athletes, while 112 were nonathletes. A four part questionnaire addressing (1) frequency of pathogenic weight control techniques, (2) demographic information and dieting behavior, (3) gender-role orientation, and (4) questions assessing behavioral and psychological traits associated with eating disorders was administered (Taub & Blinde,

1992). Frequency of pathogenic weight control techniques was measured by responses to questions about use of various weight control methods such as laxatives, diet pills, and fasting. Demographic information included age, race, grade level, and athletic involvement. Also included in the demographic section of the questionnaire were questions soliciting the participant's current dieting behavior. The results of the pathogenic weight control techniques and the current dieting behavior questions indicated that athletes and nonathletes did not differ significantly on current dieting practices, although 28% of athletes and 25% of nonathletes reported currently dieting to lose weight. The gender-role orientation section of the questionnaire was the Personality Research Form (PRF) ANDRO Scale. Athletes were found to be more androgynous and masculine than nonathletes. On the Eating Disorder Inventory (EDI) athletes scored higher than nonathletes on the perfectionism and bulimia scales. Athletes also scored higher on self-esteem, which is contradictory, because research suggests that most perfectionists and bulimics have lower self-esteem scores (Taub & Blinde, 1992). This study found some significant differences between athletes and nonathletes concerning eating disorders and weight control techniques (Taub & Blinde, 1992).

Researchers also compared specific sports, including basketball, volleyball, track/cross country, and softball, and found no significant results. Researchers did note, however, that athletes, overall, scored high on body dissatisfaction and perfectionism, and the use of diet aids and fasting were also high for them. Although results were not highly significant, this study provided valuable information for future research (Taub & Blinde, 1992).

A few years later, Taub and Blinde (1994) published another study focusing on high school athletes and eating disorders. This study compared athletes and nonathletes, and then divided athletes into two groups. These groups were athletes and performance squad members. There were 650 participants in this study: 302 athletes, 89 performance squad members, and 259 nonathletes. The students completed the Eating Attitudes Test (EAT). This eating disorder inventory asks questions about pathogenic weight loss techniques and body image. Demographic information, including specific sport participation was also obtained by the researchers. Results of this study were similar to those of the previous study. There were no significant differences among the three groups on the Eating Attitudes Test (EAT) scale. Although the differences were not significant, researchers did find that the group, overall, was at high risk for eating disorders. One out of every five female students in the study had a score over the disturbed eating patterns cut-off. This included 19.5% of athletes, 23.6% of performance members, and 21.1% of the nonathletes. Cheerleaders and softball teams scored the highest on the EAT inventory. Similar to the scores on the EAT, participants did not show significant differences in weight control techniques, but the overall scores were quite high. As many as 5% to 7% of the participants engaged in daily pathogenic weight control methods (Taub & Blinde, 1994).

Smolak, Murnen, and Ruble (2000) conducted a meta-analysis on female athletes and eating disorders. They examined data from 34 studies comparing eating disorders and athletic participation. Results indicate that athletes appeared to be at a higher risk for eating disorders than nonathletes, but athletes reported lower body dissatisfaction than

nonathletes. The athletes at the highest risk to eating disorders included dancers and elite athletes participating in sports that emphasize thinness (Smolak, et. al., 2000).

Although findings have been somewhat inconsistent, the above studies highlight that eating disorders can be a real problem in today's high schools. However, research with high school students has been limited and restricted to a small geographic area (Taub & Blinde, 1992 & 1994; Gill, et al., 1994). Further, none of the studies included sports such as gymnastics, swimming, diving, or tennis, sports where the athlete is small and very fit. In addition, these studies are dated (eight to ten years old). As society puts more pressure on looks than ever, and as female sports grow, there may be more women and girls at risk for eating disorders. Thus, more research is needed to expand our understanding of eating disorders, especially in female high school athletes. The present study was designed to evaluate the relationship between eating disorder tendencies and athletic participation in female high school students.

The primary purpose of this study was to answer two questions: First, are tendencies toward eating disorders and the use of pathogenic weight control techniques different between female high school athletes and female high school nonathletes? Secondly, among high school female athletes, are tendencies toward eating disorders and the use of pathogenic weight control techniques different between performance sports and traditional sports?

The hypotheses of this study were as follows:

(1) Students who participate in athletics would have more tendencies toward eating disorders (as measured by the Eating Attitudes Test-26 (EAT-26)) than students who are not involved in athletics;

(2) Students who are involved in athletics would show more use of pathogenic weight control techniques (as measured by the additional questions on the EAT-26) than nonathletes;

(3) Performance athletes would show more tendencies towards eating disorders (as measured by the EAT-26) than traditional athletes; and

(4) Performance athletes would show more use of pathogenic weight control techniques (as measured by the additional questions on the EAT-26) than traditional athletes. Although Blinde and Taub (1994) found no statistical significance, the results indicated that athletes showed more eating disorder tendencies than nonathletes. Thus, their hypotheses ten years ago, along with changes in society and the pressures from media and other outside sources make these hypotheses relevant once again. Further, Gill, et. al., (1994) found that eating disorder issues are as profound in high school athletes as they are in college athletes.

For the purposes of this study, an *athlete is defined* as anyone who participates in an organized sport or is part of a team who competes at the high school level (this excludes band and show/swing choirs as well as students who only participate in sports outside of school). *Traditional sports* include sports such as basketball, volleyball, soccer, track, cross country, softball, swimming/diving, tennis, gymnastics, golf, and weightlifting, and *performance sports* include activities such as, dance and cheer teams (where the main focus is entertainment rather than competition).

## METHOD

### *Participants*

There were 221 participants in this study. All participants were female high school students, both athletes and nonathletes. Three high schools in central Illinois with an enrollment no smaller than 1,400 students participated. The majority of participants (49%) were from one school and the balance came from the second and third schools, 35% and 16%, respectively. The sample consisted of both athletes and nonathletes. The nonathlete participants made up 48% of the sample, while the athletes made up 49% of the sample. Three percent of the participants did not report athletic participation. Of the participants who reported being involved in athletics, 61% ( $n = 66$ ) were traditional athletes, 23% ( $n = 25$ ) were performance athletes, and 16% ( $n = 28$ ) were both traditional and performance athletes. The athletes participated in a variety of women's sports offered at the varsity, junior varsity, and freshman levels, including basketball, volleyball, soccer, track, cross-country, softball, swimming/diving, tennis, golf, and weightlifting (traditional sports) and dance and cheer teams (performance sports). All participants were assigned a number to ensure confidentiality.

The participants who reported age ( $n = 216$ ) ranged in age from 14 to 19-years-old, with most participants being age 16 or 18-years-old (age 16 = 27%, age 18 = 24%, age 15 = 20%, age 17 = 16%, age 14 = 10%, and age 19 = 2%). Of the participants who reported race ( $n = 215$ ), the majority were Caucasian (65%). African American participants represented 19% of the sample, Asian American and Hispanic participants represented 4% and 3% of the sample, respectively, and 7% of the participants reported

“Other.” All high school grade levels were represented in the sample (12<sup>th</sup> grade = 30%, 10<sup>th</sup> grade = 29%, 9<sup>th</sup> grade = 20%, and 11<sup>th</sup> grade = 17%).

### *Design*

The independent variable in this study was involvement in athletics. It was further divided into athletic involvement and type of sport. A participant who was an athlete was either a traditional athlete, a performance athlete, or was involved in both traditional and performance athletics. The dependent variable was the severity of eating disorder tendencies (as determined by the total score on the questionnaire). This was a between-subjects design.

### *Instruments*

For the purpose of gathering data, participants completed a survey packet (Appendix A) which included (1) demographic information including athletic participation, (2) Eating Attitudes Test-26 (EAT-26) (Garner & Garfinkel, 1979), and (3) usage of pathogenic weight control techniques. For the demographic information and pathogenic weight control techniques, participants indicated their responses on a checklist, fill-in-the-blank format, and “yes or no” format, respectively. For the EAT-26 questionnaire, they used a scan-tron response sheet. The survey packet also included a student assent form (Appendix B).

Demographic information, such as age, race, grade level, high school attending, and athletic participation was obtained. Participants also put a check mark next to the sports that they participated in, including volleyball, basketball, soccer, gymnastics, cheer team, track, swimming, tennis, dance team, and others. In addition, participants indicated

their current height and weight, highest and lowest weight at current height, desired weight, and frequency of menstrual periods.

Disordered eating tendencies were assessed by the EAT-26, a 26-item, Likert-type scale, with responses that range from “always” (1) to “never” (5) (Garner & Garfinkel, 1979; Garner, Olmstead, Bohr, & Garfinkel, 1982). The responses “never” and “sometimes” earn a score of zero, while “often”, “usually”, and “always” earn scores of one, two, and three, respectively. Sample items include, “I avoid eating when I am hungry”; “I am preoccupied with a desire to be thinner”; and “I like my stomach to be empty.” Each item has a maximum score of three, where a three is the anorexic extreme and a score of zero is the non-anorexic extreme (Garner, et. al., 1982). A total score of 20 or higher indicates significant weight or eating concerns and a higher risk for developing an eating disorder (Garner, et. al., 1982). The EAT-26 has been widely used by researchers studying a wide range of age groups, including adolescents, and has been found to be both valid and reliable (Kirk, et. al., 2001; Taub & Blinde, 1994). The EAT-26 was used with permission from test developer, David Garner (Appendix C).

The third part of the questionnaire addressed the use of pathogenic weight loss techniques and frequency of dieting behaviors. Questions in this section required a “yes” or “no” response. Examples of such questions include, “Have you/do you ever make yourself vomit to control your weight/shape, or have you/do you exercise to lose weight or to control your weight?” The entire questionnaire took approximately twenty minutes to complete.



*Procedure*

To conduct this study, schools and school districts were contacted by a letter (Appendix D), followed by e-mail, and phone calls in order to gain permission for their students to participate in this study on school property. Once the schools/school districts granted permission, a letter (Appendix E) was given to each teacher in the school explaining the study and the procedure. In addition, the principal designated a contact person within the school. This person assisted with the collection of consent forms and the administration of the questionnaire. Parent consent forms (Appendix F) were sent home with each female student in the three schools. Approximately 1600 consent forms were sent home with students. Consent forms were distributed in homeroom classes, physical education classes, or health classes (all required classes at each school). Students were given one week to return the signed permission slips.

After signed parent consent forms were received, the questionnaires were administered by the researcher, along with the designated contact persons (e.g., teachers, school psychologists, or school social workers) when available. The individuals who assisted with administering the questionnaires had received prior graduate school training in test administration. Directions and procedures for questionnaire administration (Appendix G) were standardized across schools through training and written instructions. Only those students with parental permission participated in this study. Participants were required to give their name when they entered the room (to complete the questionnaires) for attendance and security purposes only. Then, this list was used to verify participant attendance in the session with the attendance offices at the schools, then the list was destroyed. This eliminated the misuse of student passes. The participants were not asked

to identify themselves by name on the questionnaire. Each participant was identified by a number and all responses were kept confidential.

After completing the questionnaires, as the students exited the room, they received a debriefing statement explaining the true nature of the study (Appendix H). The participants were not informed of the true nature of the study prior to completing the questionnaire because previous research suggests that participant's responses could be influenced (Blinde & Taub, 1994). The completed questionnaires were placed in a sealed envelope and given to the researcher. The researcher then divided the questionnaires into one of the four groups (traditional athlete, performance athlete, combination athlete, or non-athlete). The inventories were scored by the researcher and by a computer. The researcher scored the demographic and pathogenic weight control sections, and the scantron response sheets were scored by a computer at Eastern Illinois University.

## RESULTS

A series of one-way analysis of variance (ANOVA), Chi-Square tests, and Pearson Correlation Coefficient were conducted. Comparisons were made between athletes and nonathletes, then among traditional athletes, performance athletes, and athletes who participated in both traditional and performance sports. Athletic involvement, total score on the EAT-26, and responses to pathogenic weight control questions were used to make these comparisons.

### *Scores on the EAT-26*

As indicated by the test developers (Garner, et. al., 1982), a test score at or above 20 on the EAT-26 should be considered at risk for an eating disorder. Scores falling below 20 were classified as having a lower risk for developing an eating disorder. As

Table 1: Overall EAT-26 Scores shows, for the entire sample ( $n = 221$ ), the overall mean score was 9.29; 10% of the participants scored at or above the cut-off score and 7% scored between 15 and 20 which would be in the moderate at-risk range (Garner, et. al, 1982). Mean scores for the athletes and nonathletes were 9.87 and 8.92, respectively. In the athlete group ( $n = 109$ ), 12% ( $n = 13$ ) scored 20 or greater on the EAT-26. In the nonathlete group ( $n = 107$ ), 8% ( $n = 9$ ) of participants scored 20 or greater on the EAT-26. Although the athlete group had a higher percentage of participants meeting the criteria for eating disorder tendencies, the difference was not significant, ( $F(3,212) = .400, p > .05$ ).

Among the participants who indicated athletic involvement and scored above the cut-off score of 20 on the EAT-26 ( $n = 13$ ), 7% were traditional athletes, 2% were performance athletes, and 3% were both traditional and performance athletes (Those who indicated participation in both were only included in the “both” category; and their scores were not included in the traditional or performance categories.). When comparing athletic participation and risk for eating disorders, 12% of the traditional athletes ( $n = 66$ ), 8% of the performance athletes ( $n = 25$ ), and 17% of the “both” (traditional and performance) athletes ( $n = 18$ ) scored at or above the cut-off score of 20 on the EAT-26.

The scores on the EAT-26 were analyzed among sports as well. These sports teams included basketball, soccer, tennis, cross country, golf, softball, track, gymnastics, swimming/diving, volleyball, cheer team, and dance team. The mean EAT-26 scores varied among the sports (Refer to Table 2: Comparison of Sport and EAT-26 Scores). Due to the small number of participants in golf and gymnastics, those were not included

in the mean comparison. Softball had the highest overall mean with 14.71, while surprisingly, cheer team obtained an overall mean score of 5.2.

Within each sport, the percentage of athletes who scored 20 points or higher on the EAT-26 was examined. The team with the highest percentage of participants scoring above the cut-off was softball, 29%. The percentage for basketball was 20%, and 18% of the volleyball participants scored above the cut-off score. Of the performance-based teams, 12% of the dance team members scored above the cut-off, while 14% of the cheer team members scored above the cut-off.

The scores on the EAT-26 were fairly similar across ages, grade levels, and schools. The mean score on the EAT-26 in regard to age ( $n = 216$ ) ranged from 8.05 to 12.50; the lowest being 14-year-olds and the highest being 19-year-old participants. Mean scores were also similar across grade levels ( $n = 212$ ). The mean scores ranged from 8.18 (9<sup>th</sup> grade) to 10.10 (10<sup>th</sup> grade). Across the three different schools, the mean scores were 9.07, 9.43, and 9.64. Of those who reported race ( $n = 215$ ), the mean scores varied somewhat among different races. Asian American ( $n = 9$ ) participants had the lowest overall mean score, 4.67. Hispanic ( $n = 6$ ) participants' mean score was 7.50 and African American ( $n = 42$ ) participants scored a mean of 7.83. Caucasian ( $n = 143$ ) participants and those reporting "Other" ( $n = 15$ ) had the highest mean scores with 9.95 and 11.00, respectively.

#### *Pathogenic Weight Control Techniques*

The participants responded to four additional questions pertaining to pathogenic weight control techniques:

1. *“Have you ever gone on eating binges where you feel that you may not be able to stop?”* Almost 20% (n = 207) of the participants responded “yes.” Of the four different groups (nonathlete, traditional athlete, performance athlete, both traditional and performance athlete), those in the “both” group had the highest percentage of “yes” responses, 28%. Chi-square test results showed that there were no significant differences in responses between athletes ( $\underline{M} = 1.80$ ) and nonathletes ( $\underline{M} = 1.81$ ),  $\chi^2(1, N = 204) = .060$ ,  $p = .05$ . Chi-square test results also indicated that performance athletes did not respond “yes” to this question significantly more ( $\underline{M} = 1.87$ ) than traditional athletes ( $\underline{M} = 1.81$ ),  $\chi^2(1, N = 85) = 4.60$ ,  $p = .05$ .

2. *“Have you ever made yourself sick (vomit) to control your weight?”* Overall, 6% of the participants responded “yes” to this question. The traditional athletes and those in the “both” category had the highest percentages, 11% and 17%, respectively. Chi-square test results showed that athletes responded “yes” to this question significantly more ( $\underline{M} = 1.98$ ) than nonathletes ( $\underline{M} = 1.89$ ),  $\chi^2(1, N = 204) = 6.47$ ,  $p = .05$ ; and that performance athletes ( $\underline{M} = 1.96$ ) and traditional athletes ( $\underline{M} = 1.89$ ) did not have significantly different response patterns,  $\chi^2(1, N = 85) = .948$ ,  $p = .05$ .

3. *“Have you ever used laxatives to control your weight?”* Almost 9% of the participants responded “yes.” The performance athletes had the highest percentage of “yes” responses (13%) to the use of laxatives to control weight. Chi-square test results showed that athletes did not respond “yes” to this question significantly more ( $\underline{M} = 1.90$ ) than nonathletes ( $\underline{M} = 1.92$ ),  $\chi^2(1, N = 204) = .087$ ,  $p = .05$ . Chi-square test results also indicated that performance athletes did not respond “yes” to this question significantly more ( $\underline{M} = 1.87$ ) than traditional athletes ( $\underline{M} = 1.94$ ),  $\chi^2(1, N = 85) = .965$ ,  $p = .05$ .

4. *“Do you exercise to control their weight/shape?”* Eighty percent of the overall sample responded “yes.” Seventy-three percent of nonathletes, 87% of traditional athletes, 95% of performance athletes, and 83% of athletes in the “both” category responded “yes” to this question. Chi-square test results showed that athletes responded “yes” to this question significantly more ( $\underline{M} = 1.27$ ) than nonathletes ( $\underline{M} = 1.12$ ),  $\chi^2(1, N = 204) = 7.50, p = .05$ . Traditional athletes and performance athletes were also compared. Results indicated that performance athletes ( $M = 1.04$ ) and traditional athletes ( $\underline{M} = 1.13$ ) did not have significantly different response patterns,  $\chi^2(1, N = 85) = 1.30, p = .05$ .

Of the participants who scored above the cut-off score of 20 on the EAT-26 ( $n = 23$ ), only 20 responded to the above questions. Regarding the question concerning eating binges, eight of the participants who responded “yes” scored above the cut-off score on the EAT-26. This is 40% of those who were above the cut-off score. Regarding vomiting to control weight, (25%,  $n = 5$ ), using laxatives to control weight/shape, (15%,  $n = 3$ ), and exercising to lose weight or control shape, (90%,  $n = 18$ ) of the participants who scored above the cut-off indicated “yes.”

Participants also reported their current weight, highest weight, lowest weight, and desired weight. A series of analyses were conducted using these data. The average current weight was 136 pounds, with weight ranging from 63 to 320 pounds. The average desired weight was 123 pounds, with desired weight ranging from 75 to 220 pounds. There was a significant positive correlation ( $r = .14, p < .05$ ) between current weight and age; as age increased, current weight also increased. When comparing current weight and EAT-26 score, a significant positive correlation ( $r = .15, p < .05$ ) was

found. The higher the current weight, the higher the EAT-26 score. However, when comparing EAT-26 score and difference between current and desired weight, a significant positive correlation ( $r = .17$ ,  $p < .05$ ) was found, indicating that the higher the EAT-26 score, the less weight the participant wished to lose.

The desired and current weight for the participants was analyzed to determine the amount of weight the participants desired to lose. Of the total sample who reported weight ( $n = 206$ ), 14% indicated that they were satisfied with their current weight, 12% indicated that they desired to gain weight, and 74% reported that they wished to lose weight. A paired sample independent t-test was conducted comparing current weight and desired weight. Results indicated a significant difference between current weight and desired weight,  $t(205) = 8.52$ ,  $p < .05$ . In addition, a strong significant positive correlation ( $r = .78$ ,  $p < .01$ ) was found between current weight and desired weight. Of the participants who indicated wanting to lose weight (74%,  $n = 153$ ), 52% indicated wanting to lose ten pounds or less, 26% indicated wanting to lose ten to twenty pounds, while 22% indicated wanting to lose over twenty pounds.

A series of one-way ANOVA tests were conducted to compare current weight, desired weight, and the difference between current and desired weights for participants who reported both weight and athletic participation ( $n = 205$ ). Results show no significant differences among the groups of athletes. When comparing athletic participation and weight loss wishes; 66% of the nonathletes, 83% of the traditional athletes, 80% of the performance athletes, and 78% of both traditional and performance athletes indicated wanting to lose weight.

## DISCUSSION

Research in the area of eating disorders has historically led to varying results. Some studies have found that college female students have a higher incidence of eating disorders than the general population (Kirk, et. al., 2001). Others have focused on athletic participation as a comparison group, and have found that elite college athletes can be characterized as more “weight preoccupied” than their nonathletic classmates (Skowron & Friedlander, 1994). Many studies focusing on high school athletes have found similar results. These results suggest that high school students, in general, have an increasingly higher incidence of eating disorder behaviors, but there are only small differences between athletes and nonathletes (Taub & Blinde, 1992; Gill, et. al., 1994; Taub & Blinde, 1994). This was also supported by a study comparing college athletes and nonathletes (Kirk, et. al., 2001). They found that younger college students ages 18 and 19 (similar to the current study) were at a higher risk for eating disorders than older college students.

Although the current study found similar results to the abovementioned studies, the information gleaned from it would be helpful in updating the literature, because most of the studies conducted on adolescents with eating and weight control habits are at least 10-years-old. It was hypothesized that (1) students who participated in athletics would have more tendencies toward eating disorders than students who were not involved in athletics, (2) students who were involved in athletics would show more use of pathogenic weight control techniques than nonathletes, (3) performance athletes would show more tendencies towards eating disorders than traditional athletes, and (4) performance athletes



would show more use of pathogenic weight loss techniques than traditional athletes. The results of this study did not support these hypotheses.

However, there were a few significant results. In regard to overall EAT-26 scores, 10% of the total sample scored at or above the cut-off point of 20. This figure is much higher than the reported national average for the general population (3%) of people with eating disorders (Mussell, et. al., 2000). This shows that regardless of athletic participation, too many of today's high school students are at risk for eating disorders, or may already have an eating disorder.

Similar to previous studies comparing high school athletes and nonathletes, (Taub & Blinde, 1992; Gill, et. al., 1994; Taub & Blinde, 1994) the current study found only minor differences in eating disorder tendencies and pathogenic weight control techniques between the two groups. On the EAT-26, athletes had higher mean scores than nonathletes, but this difference was not significant. When traditional athletes and performance athletes were compared using the EAT-26, the traditional athletes had a higher mean score than the performance athletes, but this was also not significantly different. Again, in terms of eating disorder tendencies and the use of pathogenic weight control techniques (except purging and exercise), athletes and nonathlete female students do not seem to differ.

Of those participants who scored high on the EAT-26, three participants indicated seeking treatment for eating concerns. It is important to note that in order to follow-up with athletes whose score fell within the at-risk range, the school psychologists or counselors were informed of the high scores. In order to honor confidentiality, names of participants were not released, but the counselors were informed of the severity of the

situation within their respective school. Furthermore, it was suggested that mental health professionals in these high schools initiate an educational campaign that would address eating disorder tendencies, consequences of eating disorders, and availability of services.

When specific sports were compared, the sports with the highest mean scores included softball, basketball, and volleyball; all traditional sports. This may be due to the level of androgyny among individuals who participate in these sports. Blinde and Taub (1992) examined gender-role orientation among athletes. Results showed that athletes leaned towards masculinity and androgynous personality types, while non-athletes leaned toward feminine and interdeterminate personalities.

Athletes and nonathletes may be at similar risk for eating disorder tendencies at the high school level for many reasons. One possibility is that although athletes are part of an organized group with intense training and goals, these goals may be set at reasonable levels and students are monitored closely by teachers and coaches. Further, teachers and coaches may also promote healthy living as part of the training. Without specific pressures concerning weight and body image, athletes may be at the same risk as their nonathlete counterparts when it comes to eating disorders (Blinde & Taub, 1994). On the other hand, the athletes who reach the collegiate or professional level may experience increased pressure physically and mentally by coaches; and parents are no longer as involved with daily living, which could lead to an increase in risk for eating disorders for athletes (Blinde & Taub, 1994). It may then be possible for some to assume that female adolescent athletes have similar experiences. However, the results of this study as well as previous studies show no significant difference between athletes and nonathletes in eating disorder tendencies at the high school level.

When comparing pathogenic weight control techniques and athletic participation, many studies have found no significant differences between athletes and nonathletes (Taub & Blinde, 1992; Gill, et. al., 1994; Taub & Blinde, 1994). In the present study, some significant differences were found. Athletes responded “yes” significantly more than nonathletes when asked about vomiting to control weight and exercising to control weight/shape. The latter is understandable because most athletes are required to exercise as part of their sport training. The athletes scoring significantly higher than the nonathletes in regard to vomiting to control weight may be symptomatic of bulimia, and should be a concern. When asked if participants have gone on eating binges in which they felt that they could not stop eating and the use of laxatives, no significant differences were found. In addition, when traditional athletes were compared to performance athletes in regard to the questions pertaining to the use of pathogenic weight control techniques, no significant differences were found. This is consistent with the overall results that athletes and nonathletes do not differ in tendencies toward eating disorders.

Some interesting findings of this research are that 74% of the entire sample of students wished to lose weight. This reflects the larger society and culture in the United States of America at this time (Harrison & Cantor, 1997). Researchers estimate that 40% to 60% of female high school students are on diets (“kNOw,” 2004). The current weight of the participants ranged from 63 to 320 pounds, with an average of 136 pounds. This range appears to be too extreme, because adolescents between the ages of 14 and 19 participated in this study, and weights of 63 and 320 are underweight and overweight, respectively. According to the Center for Disease Control (CDC), the lowest “normal” weight for 14-year-olds is 85 pounds; while the highest “normal” weight for 19-year-olds

is 196, regardless of height (“Growth charts,” 2004). Almost 6% of participants weighed at or above the highest “normal” weight for 19-year-olds, but only one of them was 19-years-old.

The average desired weight was 123 pounds, which indicates that on average, participants wished to lose 13 pounds. Only 14% of the participants felt that they were satisfied with their current weight. The fact that there were no differences between athletes and nonathletes, and performance athletes and traditional athletes in weight or weight loss wishes, weight problems or lack thereof may not be unique to any group. In addition, participants who weighed the most scored significantly higher on the EAT-26, suggesting that as an adolescent’s weight increases, the tendencies for eating disorders increase, which further suggests that these young people try anything to control their weight. The significant positive correlation ( $r = .78$ ,  $p < .01$ ) between the EAT-26 score and the difference between current and desired weight may suggest that the higher the EAT-26 score, the less weight the person wanted to lose. Although difficult to ascertain, this may suggest that (1) the disordered eating habits may have already reduced the current weight, (2) the thinner girls may practice higher level of weight control techniques, although they may not need to lose much, (3) participants may not have divulged their true current weight, or (4) participants were realistic about weight loss.

In regard to weight control techniques of vomiting and laxative use, 6% and 9% of participants, respectively, used them. Regardless of athletic participation, these numbers are too high. The significant differences found between athletes and nonathletes concerning vomiting and exercising to control weight are results that have not been found to be significant in previous studies of this nature. However, previous studies have

shown that athletes indicate vomiting to control weight. For example, Blinde and Taub (1992) reported that one-tenth of all volleyball, track/cross country, and softball team members engaged in vomiting to control weight. A study by Gill, et. al., (1994) reported that 17.5% of athletes admitted bingeing 1 to 7 times per week. Although the previous studies did not find significant results, their contributions along with the results of the current study indicate that high school athletes are engaging in weight control techniques and that vomiting or purging may be a method of choice.

There may be some tentative explanations for the common use of vomiting or purging and laxative use to control weight. First, privacy for purging and laxatives may be readily available. Laxatives may be purchased at any drug store, grocery store, or even gas station, making them widely available to all ages. Vomiting may be used more often by adolescents, because people are typically alone when they are in a restroom. For an adolescent, this may be the only time they can be alone, so they are able to purge in private. Secondly, vomiting and laxatives provide instant gratification for the adolescent. If they binge and then feel guilty, these methods, unlike others, can provide the adolescent an immediate way to rid themselves of the food.

Finally, like most studies, caution must be exercised in generalizing the results of this study. The sample size was relatively small and it lacked diversity due to difficulty in gaining permission from schools or parents for student participation; 65% were Caucasians. A study such as this could benefit from a large sample size and a very diverse population. Researchers may want to pay attention to Hispanic American and bi-racial girls, as the findings of the current study suggests an increased risk for eating disorder tendencies. In addition, although the participants were not informed of the

nature of the study until after all data were collected, their method of responding was self-report, which is suspect to subjective biases. For this reason, future studies may want to actually weigh participants and also measure their height immediately after data collection.

In conclusion, the literature suggests that there appears to be a cultural influence on eating behaviors (Harrison & Cantor, 1997; Miller & Pumariega, 2001; Polivy & Herman, 2002). Young people are “taught” very early on, through all types of media, how they should look to be attractive in society and this usually requires being very thin (Harrison & Cantor, 1997). As the results of this study suggest, high school female students are at high risk for weight problems and eating disorder tendencies. Many students may not know or understand healthy eating as well as healthy ways of controlling weight; therefore, they may look for less healthy methods that provide fast results. Unfortunately these methods may be fasting, laxatives, or vomiting and may lead to disordered eating habits and eventually to eating disorders.

Research shows that untreated eating disorders may result in mental and physical health problems, such as depression, dental problems, low blood pressure, cessation of menstrual cycles, increased risk for osteoporosis, digestive problems, heart irregularities, and even death (Lemberg, 1999). Thus, the primary implication of this study may be that education is needed in the area of eating disorders in high schools in order to help parents, teachers and students themselves understand the prevalence of eating disorder tendencies and behaviors within their schools, the dreadful outcome of untreated eating disorders, and to help develop educational and treatment programs to support and encourage a healthy eating lifestyle.

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Table 1

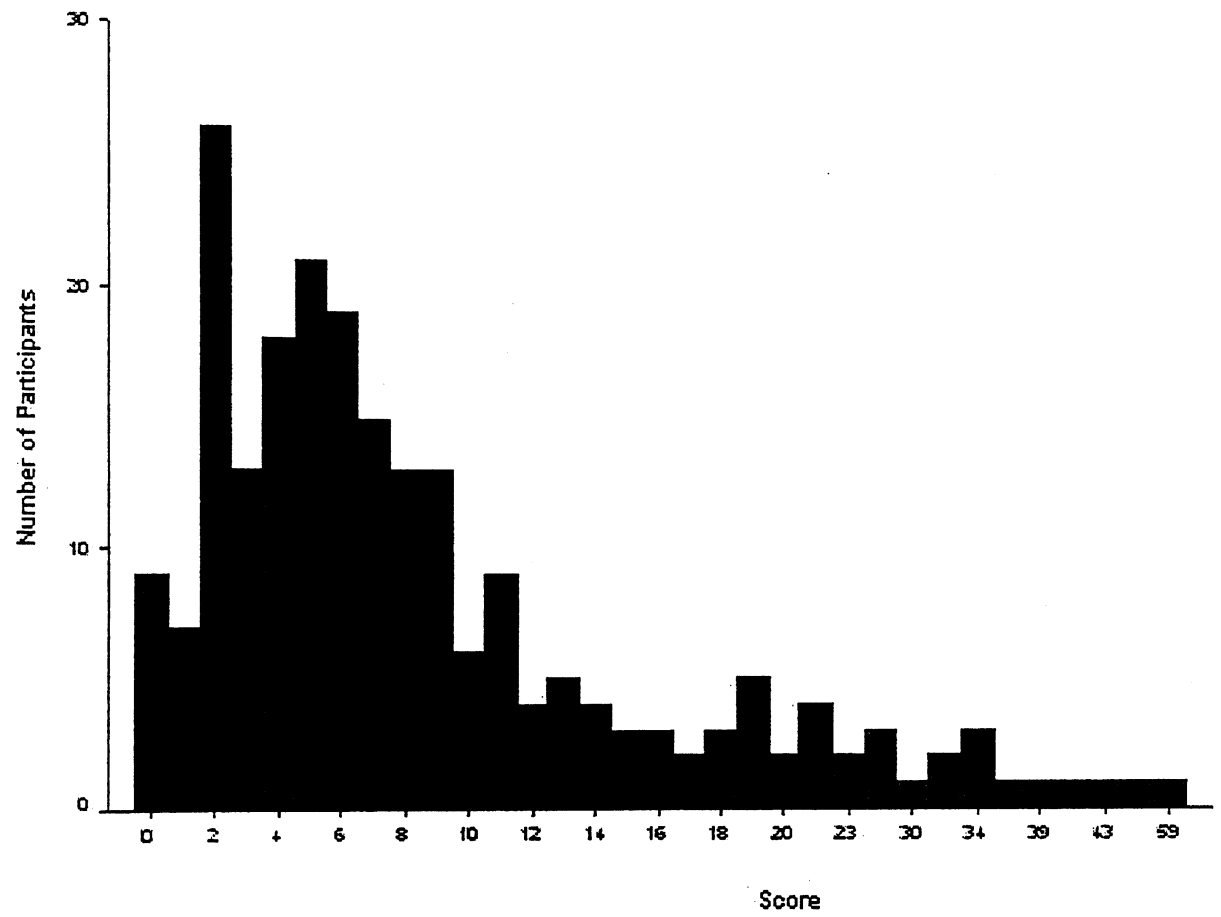
## Comparisons of Sport and EAT-26 Scores

Sport	Participants	Mean Score
Basketball	15	11.27
Cross Country	4	9.25
Soccer	18	7.44
Softball	14	14.71
Swimming/Diving	15	9.67
Tennis	6	6.00
Track	21	9.14
Volleyball	17	11.24
Cheer Team	14	5.20
Dance Team	25	10.47

Note: An athlete could participate in more than one sport. Thus, the “both” category is not included in this table to avoid redundancy. Participants who indicated more than one sport are already included with each of their respective sports in this comparison.

Figure 1

Eating Attitude Test-26 Scores for All Participants



## Appendix A

### Eating Attitudes Questionnaire\*

Number \_\_\_\_\_

Please respond to the following statements on your scan-tron sheet using the scale below

A=Always                      D=Sometimes  
B=Usually                    E=Never  
C=Often

1. I am terrified about being overweight
2. I avoid eating when I am hungry
3. I find myself preoccupied with food
4. I have gone on eating binges where I feel I may not be able to stop
5. I cut my food into small pieces
6. I am aware of the calorie content of the foods I eat
7. I particularly avoid food with a high carbohydrate content (bread, rice, potatoes, etc)
8. I feel that others would prefer if I ate more
9. I vomit after I have eaten
10. I feel extremely guilty after eating
11. I am preoccupied with a desire to be thinner
12. I think about burning up calories when I exercise
13. Other people think I am too thin
14. I am preoccupied with the thought of having fat on my body
15. I take longer than others to eat my meals
16. I avoid foods with sugar in them
17. I eat diet foods
18. I feel that food controls my life
19. I display self-control around food
20. I feel that others pressure me to eat
21. I give too much time and thought to food
22. I feel uncomfortable after eating sweets
23. I engage in dieting behavior
24. I like my stomach to be empty
25. I have the impulse to vomit after meals
26. I enjoy trying new rich foods

*Please circle Yes or No*

27. Have you gone on eating binges where you feel that you may not be able to stop?  
(Eating a large amount of food while feeling out of control)                      **Yes    No**
28. Have you made yourself sick (vomit) to control your weight?                      **Yes    No**
29. Have you used laxatives (diet pills, diuretics, etc) to control your weight?                      **Yes    No**
30. Do you exercise to lose weight or control your shape?                      **Yes    No**

\* Printed with permission from David Garner, Eating Attitudes Questionnaire (1979)

**Continue, please!**

**1 of 2**

Number \_\_\_\_\_

31. Please tell us a little about yourself (you may write, circle or check):

Your age: \_\_\_\_\_

Ethnic/Racial Background (check one):

_____ African American	_____ Asian American	_____ Caucasian
_____ Hispanic	_____ Native American	_____ Other

Grade Level (circle one): FR SO JR SR

High School Attending: \_\_\_\_\_

Gender (circle one): M F

Current Height: \_\_\_\_\_ Feet \_\_\_\_\_ Inches

Current Weight: \_\_\_\_\_ lbs

Highest Weight since you entered high school (excluding pregnancy): \_\_\_\_\_ lbs

Lowest Weight since you entered high school: \_\_\_\_\_ lbs

Your desired Weight (what you would like to weigh): \_\_\_\_\_ lbs

Do you have regular menstrual periods (circle one)? Yes No

Have you ever lost your period for 3 months or more (excluding pregnancy)? Yes No

Athletic Participation

\*Please place a check mark next to the sports you participate in at the high school level (i.e., the team is sponsored by the high school that you attend).

_____ Basketball	_____ Cross Country	_____ Cheerleading
_____ Dance Team	_____ Golf	_____ Gymnastics
_____ Soccer	_____ Softball	_____ Swimming/Diving
_____ Tennis	_____ Track	_____ Volleyball
_____ Weightlifting		

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Appendix B

### Sample Student Informed Assent

**Project Title:** Eating Attitudes

**Investigator:** Natasha McDonald

I, \_\_\_\_\_, hereby verify that I have been informed by Natasha McDonald either orally or in writing, or both, about the research on Eating Attitudes. My parents have already given permission for me to participate in this study. I also agree to participate and do my best in completing this brief questionnaire. I understand that it will take me about 15 minutes to do so.

I also understand that all information about me is confidential, participation is voluntary, and I may choose to withdraw from the study at anytime without any penalties.

I understand that I have the right to ask questions at any time and that I should contact Natasha McDonald (217-\*\*\*-3491) or Dr. Assege HaileMariam (217-\*\*\*-6615) for answers about the research.

By signing this form, I show that I understand my involvement in this study and also freely agree to participate.

---

Student Signature

---

Date

## Appendix C

### Permission to use EAT-26

#### The Eating Attitudes Test (EAT-26)

The *Eating Attitudes Test (EAT-26)* is the screening test used for the 1998 National Eating Disorders Screening Program. The EAT is probably the most widely used standardized measure of symptoms and concerns characteristic of eating disorders (Garner, 1993; 1997). The EAT-26 alone does *not* yield a specific diagnosis of an eating disorder. Neither the EAT-26, nor any other screening instrument, has been established as highly efficient as the sole means for identifying eating disorders. However, studies have shown that the EAT-26 can be an efficient screening instrument as part of a two-stage screening process in which those who score at or above a cut-off score of 20 are referred for a diagnostic interview (King, 1989, 1991). This is the procedure that has been followed in the National Eating Disorders Screening Program.

Thank you for your interest in the Eating Attitudes Test (EAT). You have permission to use the EAT in your research and clinical work and there is no charge for this permission as long as you acknowledge the original publication (Garner et al., 1982) as your source.

Below is a copy of the EAT-26 as well as information on its scoring. I would appreciate you providing me with a copy of any reports or publications in which this instrument is used since it may serve as a useful resource for other researchers and clinicians.

EAT © David M. Garner & Paul E. Garfinkel (1979), David M. Garner et al., (1982)

## **Appendix D**

### **Sample Letter to School Districts**

Dear Mr/s....,

February 10, 2004

My name is Natasha McDonald, and I am currently a third-year graduate in the School Psychology program at Eastern Illinois. As part of my studies, I am required to complete a thesis. My thesis topic is eating attitudes in high school females, and I would like to include your students in this research.

Attached is a copy of the procedure, questionnaire, and debriefing statement. The study will take place this spring, and does not require a great deal of teacher involvement. Please look over the packet of information and feel free to call or e-mail me with any questions/concerns. I would appreciate your participation in my study.

Sincerely,

Natasha McDonald

Natasha McDonald  
School Psychology Intern  
Danville District #118  
123 Anystreet  
Anytown, IL  
(217) \*\*\*-3491



### **Procedure for Research**

**Project Title:** Eating Attitudes

**Investigator:** Natasha McDonald

The purpose of the present study is to understand eating habits and attitudes and early signs of eating disorders in high school female athletes. The following procedures will be followed:

- Permission will be sought from schools to participate in this study.
- Teachers will send home a consent form with each student for the parents to sign and return to a designated person (e.g. school psychologist, teacher, etc.). The designated school employee will place the completed consent forms in an envelope (provided) to be picked up by the researcher at the end of the week.
- Each participant will be assigned a number and a list will be maintained. Although the primary purpose of this list is for data management purposes, it can also be used to identify students who may show eating disorder tendencies in order to offer them information and intervention. Then, the list will be destroyed.
- Participation is voluntary and can be withdrawn at any time without penalty.
- Once parent consent is granted, participants will complete the Eating Attitudes Questionnaire that will take about 15 minutes. This will take place in a designated area at each school.
- Each participant will receive a debriefing statement after completing the questionnaire.
- After scoring the questionnaire, if a student appears to be high risk for eating problems, the parent will be informed of this concern. We will also suggest community resources they may want to seek out.

This concludes the data collection phase.

## Appendix E

### Sample Letter to Teachers

Homeroom teachers,

March 3, 2004

This letter is to inform you that I will be conducting a research study at \_HS during the next few weeks. My name is Natasha McDonald, and I am a graduate student at Eastern Illinois University. I am completing my internship with Danville District #118 this school year. The research study focuses on eating attitudes in high school females. Your involvement is to hand out the permission slips to all female students in your homeroom classes on Monday, March 8, 2004, and return the permission slips to (designated person) by Thursday, March 11, 2004. The students who gain permission will be called out of homeroom (as per a list given to you Friday, March 12, 2004) to the cafeteria in order to complete the survey. The students will be released to first hour classes after the homeroom period is over.

Here is the timeline:

- |                 |  |
|-----------------|--|
| March 8, 2004:  | -Newsclip on _HS morning news<br>-Pass out permission slips to female students                         |
| March 11, 2004: | -Signed permission slips due to (designated person's) mailbox  |
| March 12, 2004: | -List of students who have permission and will excused from homeroom (3/15/04) will be in your mailbox |
| March 15, 2004: | -Students will complete survey in the cafeteria during homeroom  |

I really appreciate your cooperation with this. The permission slips are attached. If you need more, please see (designated person) at \_HS. If you have any questions, please call me at \*\*\*-3491.

Thanks,

Natasha McDonald

Natasha McDonald  
School Psychology Intern  
Danville District #118  
\*\*\*-3491

## Appendix F

### Sample Parental Consent Form for Participation in Research

I am conducting a study about eating attitudes in high school students. I invite your child to participate in this thesis research. Please read this information form and feel free to ask any questions regarding the study before giving consent.

This study is being conducted by Natasha McDonald, School Psychology Graduate Student and supervised by Assege HaileMariam, PhD., Assistant Professor of Psychology, Eastern Illinois University.

Purpose of the Study:

The purpose of this study is to examine the eating attitudes of high school students.

Procedure:

The research will take place at your child's school during the school day. Your student will complete a short questionnaire, and total time for completion should be about 15-20 minutes.

Confidentiality:

The results of this participation will be confidential. All student information and responses to the questionnaire will be used for the purpose of this research only, and all materials will be destroyed upon completion of this study.

Voluntary Nature of the Study:

Your child's participation in this study is entirely voluntary. If you or your child decide at any time to withdraw from the study there is no penalty, and any information collected will be destroyed.

Contacts/Questions:

My name is Natasha McDonald. If at any time you have questions regarding this study, please feel free to contact me at (217) \*\*\*-3491. You may contact my thesis chairperson, Dr. Assege Haile Mariam at (217) \*\*\*-6615 for any additional questions/concerns.

---

I have read the above information and give consent for my student, \_\_\_\_\_, to participate in this study.

---

Signature of Parent/Guardian  
(if student under 18)

---

Date

---

Signature of Researcher

---

Date

**\*\*Please return this permission slip to \_\_\_\_\_ at \_\_\_ HS.\*\***

## **Appendix G**

### **Procedure for Questionnaire Administration**

As students enter the testing session

1. Check student ID and verify permission has been obtained
2. Give student survey packet & pencil and instruct them to please wait to begin

After all students have received a packet, give oral directions:

1. Have students read & sign student assent form
2. Students are to complete 1-26 using the scan-tron sheet  
-No names or SS# please!
3. Students should circle Yes/No for #27-30
4. Students complete demographic information on back of questionnaire

When students are handing in the packet:

1. Confirm that all three sections have been completed and place packet in provided envelope
2. Hand student debriefing sheet

## **Appendix H**

### **Sample Debriefing Statement**

**Project Title:** Eating Attitudes

**Researcher:** Natasha McDonald

Thank you for your participation in this study. Your contribution is greatly appreciated. The study is examining eating attitudes and the prevalence of eating disorders in high school students. We were unable to inform you of the true nature of the study at the beginning of the study because previous research suggests that participant's responses could be influenced. We would like to remind you that we did not ask for names and that all of your responses will be kept confidential.

After completing this questionnaire, if you feel that you have a concern about your eating habits or you suspect that you have an eating problem, please talk to your parents or your school counselor, school social worker, and school psychologist.

If you would like a summary of the results of this study or wish to have more information regarding the study, please contact Natasha McDonald at the address listed below. Thank you, again!

Natasha McDonald  
School Psychologist Intern  
Danville District #118  
123 Anytown Rd  
Anytown, IL  
(217) \*\*\*-3491