Winning At All Costs?:
The Weight-Control Behaviors Of Student Athletes

by

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(ABSTRACT)

The purpose of this study was to explore student athletes' weight-control behaviors. Data consisted of student athletes' responses to a modified version of the Michigan State Weight-Control Survey (Dummer, Rosen, Heusner, Roberts, & Counsilman, 1987). Specifically, the study was designed to explore the following research hypotheses:

1. There is no significant relationship between the weight-control behaviors of athletes competing in sports with weight restrictions (e.g., wrestling) and sports without weight restrictions (e.g., tennis).
2. There is no significant relationship between the weight-control behaviors of athletes competing in sports with subjective judging (e.g., diving) and sports with objective scoring (e.g., swimming).
3. There is no significant relationship between the weight-control behaviors of male athletes and female athletes.

The sample was drawn from intact athletic teams at the university under study. All members of the selected teams were invited to participate.

The results of this research contributed to both practice and research. Athletic department staff and coaches, student affairs practitioners, and health care practitioners were made more aware of weight-control issues for athletes and might design programs and services to address the issue.

The study also lays the groundwork for future research. Scholars may wish to examine other elements of sport (e.g., level of competition, seasonal demands) and their effects on the weight-control behaviors of athletes.

The results revealed that there is a significant relationship between weight-control behaviors and the type of weight restrictions (weight restricted versus non-weight restricted) a sport places on athletes ($p < .05$). There is also a significant relationship between the sex of athletes and the weight-control behavior that they engage in ($P < .05$). The relationship between the weight-control behaviors and the type of judging (subjective versus objective scoring) involved in the sport was also examined. Though the relationship was not significant at the $p = .05$ level, it was significant at the $p = .1$ level.

The results of this research addressed an existing gap in the current body of knowledge. There is very little research about weight-control behaviors of athletes in specific groups of sports. Better understanding the demands that different types of sports place on athletes may enable future scholars and practitioners to better serve the population.

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CHAPTER ONE

Introduction

When students return home from college, the questions that invariably arise from family and friends concern the student's academic program. "What is your major?" and "What classes are you taking?" are questions familiar to most college students.

Learning in the form of gaining cognitive skills is normally the most identifiable outcome of higher education. While cognitive growth is indeed an important part of the college experience (Erickson & Erickson, 1981; Gilligan, 1982, 1988; Kohlberg, 1976; Perry, 1968, 1988), it is far from the only learning taking place.

College students are not uni-dimensional and they do not spend every minute of their college careers in the classroom. Development of the whole student, or holistic development, is a primary goal for higher education (American Council, 1937,1949; Fenske, 1989a, 1989b). Promoting holistic, or personal development demands that attention be paid to other integral components of students, including their social, emotional, spiritual, and physical lives (Fedorovich & Boyle, 1992).

Though there have been attempts, within student affairs, to develop models that link all aspects of students' personal lives (Fedorovich & Boyle, 1992; Hettler, 1980; Johnson & Wernig, 1986; Krivoski & Warner, 1986), these various components of personal development have more frequently been studied as separate elements.

Social development, for example, is one component of personal development. Scholars have examined various aspects of students' social development such as friendship groups (Paul, & Kelleher, 1995); and, social integration (Mayo, Murguia, & Padilla, 1995). The quality and intimacy of a student's social involvements have a great impact on the quality of a students' college career.

A second element of personal development is emotional growth. Emotional development among students has been explored by scholars, including the emotional factors that influence student success in college (Kalsner, 1992). The events that cause students' stress, along with how student's handle the stress are important issues to be studied if administrators and student affairs professionals are to assist students in resolving such problems.

The spirituality of college students is a third component of personal development, though one which has not been extensively examined. Issues such as the appropriateness, or meaningfulness of prayers at school events has been explored (Collins, Hurst, & Jacobson, 1987). Further study is needed to explore the impact of the spiritual component of personal development on students.

Physical development is another major component of personal development. The physical well-being of students has been addressed extensively at colleges and universities in the United States (Collins, Hurst, & Jacobson, 1987; Johnson & Wernig, 1986; Krivoski & Warner, 1986; Pelletier & Peterson, 1986). Physical development can be conceptualized in terms of personal health, physical health, recreation activities, and athletics. Physical development is closely linked to the overall health of students (Leafgren & Elsenrath, 1986).

Typically universities address the physical development of students through three campus programs: health services; recreational and lifelong fitness programs; and, intercollegiate athletics. Nearly all postsecondary institutions have a student health center, or make provisions for the health care of their students (Dai & Papalia, 1983; Puryear, 1982). Health services that are regularly offered through campus health centers include emergency health care, birth control education, wellness programs, and care for common illnesses.

A second campus program related to the physical development of college students is recreation programs. Universities often offer a wide range of recreation activities, recreation facilities, organized sports, and programs ranging from introductory aerobic classes and group walks, to intramural sports and organized club sports that compete with teams from other schools (Bradley, Banta, & Bryant, 1992; Pelletier & Peterson, 1986).

Intercollegiate athletics (ICA) is the third program many universities offer to address the physical development of students. ICA programs are organized ways for students to compete with student athletes from other universities. Such sports are typically regulated by the National Collegiate Athletic Association (NCAA). The NCAA was established to ensure the safety of student-athletes through the enforcement of standardized rules and regulations. When teams from rival schools began to compete in football at the turn of the century, many serious injuries were sustained. In 1905, the presidents of several colleges formed the NCAA in order to regulate sports to make the games safer for the athletes (Guttman, 1991). Today, the NCAA

guides ICA programs at over 500 college and university campuses across the nation (Dana Mulholland, personal communication, August 14, 1996).

ICA athletes compete in a number of different categories, and universities support teams in a wide variety of sports. While many are familiar with collegiate football and basketball, ICA programs and the NCAA also sponsor what are known as "Olympic sports" such as swimming, running, and tennis. Olympic sports are those traditionally represented at the Olympic Games.

The NCAA is organized around three divisions (I, II, and III) of competition. Division I teams are typically found at the largest universities, offer the largest number of scholarships, are often financially self-supporting, and generally offer the highest level of competition. Division II athletic programs offer a more limited number of scholarships than Division I teams, and are not financially self-supporting. Division III athletic programs offer no scholarships, are funded internally (through the home institution) just as any other department at the college, and the teams typically play shorter seasons than those in the other two divisions (NCAA Manual, 1994).

ICA programs often receive a tremendous amount of attention. Football and basketball games are frequently televised nationally, as are other NCAA championships (e.g., swimming, track and field, baseball). The athletes are often seen as representatives of their schools, and, as a result, student athletes frequently have greater visibility, and are more recognizable than the top scholars at the same universities (Guttman, 1991).

While ICA programs at universities generally attract attention, the physical well-being of student-athletes is often overlooked. It may be assumed by many, including student affairs professionals, that student athletes who dedicate themselves to improving their physical performance are among the healthiest students on campus. Recent articles and events suggest that this may not be the case, however.

Among highly competitive athletes, unhealthy eating behaviors are rampant (Dummer, Rosen, Heusner, Roberts, & Counsilmen, 1987a; Moriarty & Moriarty, 1994; Rosen, McKeag, Hough, & Curley, 1986; Ryan, 1995). In addition, use of steroids among student athletes is well documented (Chng, & Moore, 1990). Unhealthy eating behaviors and illegal drugs are often employed in an effort to achieve a perceived ideal weight for a given sport. Unhealthy eating behaviors and steroid use among student athletes suggest that weight-control is an important physical health issue for student athletes.

Weight-control behaviors (WCBs) include methods of actively trying to lose or gain weight. Some weight-control behaviors can be described as healthy, such as limiting sweets to lose weight, or eating high carbohydrate diets to gain weight. Other behaviors are not healthy. Unhealthy attempts at weight-control include disordered eating (Rosen et al., 1986) or steroid use (Chng & Moore, 1990). These weight-control behaviors are dangerous, and can threaten the health and life of student athletes.

Scholars have studied the issue of weight control behavior among student athletes from a number of perspectives. Some have examined the problem of weight-control and athletes who compete in specific sports (Parker, Lambert, & Burlingame, 1994). Wrestling and rowing have been studied because those sports impose weight restrictions on athletes (Sykora, Grilo, Wilfley & Brownell, 1993). The use of steroids in weight lifting and body building has been studied because these sports require strength and muscle bulk, traits that can be enhanced through the use of steroids (Chng & Moore, 1990). Swimmers and runners are interesting to study because it is often thought that a lighter body will help these athletes be more competitive (Benson, 1991; Nash, 1987; Thornton, 1990).

Athletes' weight-control behaviors have also been studied in combination with personality traits. Sports such as long distance running often require long hours, and many miles of training. It has been postulated that the mental reasoning and personality traits required to endure the training may resemble those associated with severe weight-control behaviors (Andersen, Barlett, Morgan, & Brownell, 1995; Davis, 1992; Parker et al., 1994).

The weight-control behaviors of athletes as a group have also been explored. Athletes' weight-control behaviors have been compared to non-athletes. Athletes have also been examined based on levels of competitiveness (Taub & Blinde, 1992).

The bulk of research on student athletes and WCBs has focused on either the influence of the WCB on athletic performance, or the characteristics of athletes in relation to their sports. The number of studies, and the variety of ways in which this phenomenon has been examined suggest that it is a pressing issue for student athletes and those who provide programs and services for them. However, there is a relative dearth of information on the relationship between specific groups of sports and athletes' weight-control behaviors. The present study was designed to address this gap in the literature.

Purpose of Study

The purpose of this study was to examine the relationship between specific groups of sports and the weight-control behaviors of college athletes at a NCAA Division I school who engage in these sports. Sports were divided into categories based on specific characteristics that may effect the way the athletes perceive the need to control their weight.

First, the WCBs of athletes in sports with weight restrictions (WR) (weight classes) for competition were compared to the WCBs of athletes in non-weight restricted (NWR) sports. WR sports included rowing and wrestling, events where athletes must meet weight requirements in order to compete.

Second, the WCBs of athletes in subjective judging (SJ) sports were compared to the WCBs of athletes in objective scoring (OS) sports. SJ sports included diving and gymnastics, in which a panel of judges subjectively score each athlete's performance. OS sports included swimming and track and field, where objective measures like time-clocks and points scored, determine winners and losers.

A final comparison was made between the WCBs of athletes in men's and women's sports. Differences between male athletes (MA) and female athletes (FA) were calculated.

In all instances, weight-control behaviors of the athletes were measured by a modified version of the Michigan State Weight-Control Survey (MSWCS) (Dummer et al., 1987b), a paper and pencil instrument designed to measure what weight-control behaviors the athletes engage in and how often they engage in such behaviors.

Research Hypotheses

The present study was designed to test the following null hypotheses:

1. There is no significant relationship between the weight-control behaviors of athletes competing in sports with weight restrictions and sports without weight restrictions.

2. There is no significant relationship between the weight-control behaviors of athletes competing in sports with subjective judging and sports with objective scoring.

3. There is no significant relationship between the weight-control behaviors of male athletes and female athletes.

Significance of the Study

This study has significance for many university constituencies. Student-athletes might benefit from the information about weight-control behaviors specific to their sports. If they have a better understanding of these behaviors, they may be more likely to avoid unhealthy actions. Athletes might also benefit if those who are influential in their lives (e.g., coaches, trainers) understand the warning signs of dangerous weight-control behaviors.

Athletic administrators might benefit by understanding the weight-control behaviors of athletes in specific sports. Better understanding of the inherent differences between WCBs in different sports could aid administrators in designing educational interventions for student-athletes and coaches.

Athletic coaches might benefit from the results of this study through a better understanding of the behaviors of the student-athletes they coach. The results of the present research may enable coaches to help their athletes make healthy weight-control decisions.

This study might also benefit other constituencies on campus that are not typically associated with ICA programs. For example, the dining services staff who serve the student-athlete population may find the results of this study beneficial. Given a better understanding of the specific weight-control issues of athletes in different sports, meals could be planned that might help alleviate some of the student-athlete weight-control problems.

The study may benefit the health services staff who work with student-athletes. The results may illuminate areas in which health services could create educational programs for the athletes. If health services staff know which groups of athletes are pre-disposed to pathogenic weight-control behavior problems, they may be better able to diagnose and treat such disorders.

The present research will expand on the knowledge base that student affairs professionals currently have regarding student athletes and weight-control behaviors. By providing guidance in the area of physical well-being, this research can fill a gap in the literature on physical development, and can

assist student affairs professionals and others in promoting holistic development of the student-athletes.

Limitations

Like all studies, this research has some limitations. First, the information was collected through self-report. Careful measures were taken to assure the participants that the surveys would be anonymous, but as with any self-report data collection technique, it is possible that respondents were not totally honest in their responses.

Second, the study was conducted at a single institution. Using athletes from one university better controlled some variables, but it is possible that there was something unique to the athletes at the university under study that affected the data collected.

Despite these limitations, the study yielded useful information that addressed a significant gap in the literature on athletes and WCBs. This report informs student affairs professionals about the weight-control behaviors specific to athletes competing in different sports. By providing data about WCBs, the present research can address a gap in the existing literature about physical development. As physical development is an integral part of personal development, by better understanding the WCBs of the student athlete population, student affairs professionals may be better able to promote the personal growth of those students. Personal growth, in turn, is one of the two major components of holistic development. Promoting growth in personal development may lead to enhancement of holistic development for these students.

Organization of the Study

The present study is organized in five chapters. Chapter One provided a general introduction to the phenomenon under study, and the purpose, significance, and hypotheses of the research. In Chapter Two, the relevant literature is reviewed. Chapter Three describes the methodology, sampling, and procedures employed in the study. Chapter Four presents the results of the study while Chapter Five discusses those results and their implications for future practice and research.

CHAPTER TWO
Literature Review

In order to place the weight-control behaviors of student athletes in an appropriate context for the present study, it was necessary to examine two bodies of research. First, definitions of weight-control were explored, in particular clinical and non-clinical definitions. Second, the literature on weight control behaviors of select populations that have been widely studied is examined. These include college students, women, and athletes.

Definitions of Weight Control

There are a variety of weight-control behaviors that may cause weight loss or gain. Some moderate weight-control behaviors, such as eliminating sweets, counting calories ingested, and increasing exercise are familiar. Other more severe and dangerous behaviors are less well known, and include anabolic steroid use and starvation. Though there are many unhealthy weight-control behaviors, a relatively small number qualify as clinical (mental or physical) disorders (Striegel-Moore, Silberstein, Frensch, & Rodin, 1989). These weight-control behaviors are so severe that they are defined by the medical community as diseases.

Definitions of Clinical Weight-Control Behaviors

The clinical definitions of eating disorders classified as mental disorders are often misunderstood. For example, the terms “anorexia” and “bulimia” are frequently used casually and inappropriately. Anorexia Nervosa and Bulimia Nervosa are actually clinical terms for conditions defined as mental disorders by the medical community (DSM-IV, 1994).

Anorexia Nervosa refers to a condition that is characterized by several criteria, and all of the criteria must be met to diagnose the disorder. Individuals who have Anorexia Nervosa refuse to maintain a normal body weight (i.e., their body weight is 85% or less of normal weight as defined by standardized height-weight charts). Individuals suffering from Anorexia Nervosa also have an irrational fear of gaining weight and a disturbed, or distorted body image. In addition, if the individual is postmenarcheal (has begun menstruating) and she has Anorexia Nervosa, she will have amenorrhea (absence of menstrual period). This disease effects 0.5% to 1% of females. There is limited data on the prevalence of Anorexia Nervosa among men, but there are far fewer male cases than female cases (DSM-IV, 1994).

Bulimia Nervosa refers to a condition that is characterized by several criteria, and all of the criteria must be met to warrant a diagnosis of the

disorder. These characteristics include: recurrent episodes of binge eating (eating, in a discrete amount of time, an amount of food that is excessive); a sense of lack of control over eating; and, recurrent inappropriate behavior to prevent weight gain (e.g., self-induced vomiting, misuse of laxatives; excessive exercise). These episodes must occur at least twice a week for three months to qualify for a diagnosis of Bulimia Nervosa. Bulimia Nervosa is slightly more common than Anorexia Nervosa, occurring in one to three percent of young adult females. The rate of occurrence for men is a fraction (one tenth) of that for women (DSM-IV, 1994).

Though the rate of occurrence for both of these diseases seems relatively small, the data may be misleading. Studies have reported rates as high as 15% among certain populations, such as college residence hall students (Berg, 1988). In addition, the guidelines for diagnosing the diseases are relatively strict. Many more people may practice unhealthy weight control behaviors that do not fit clinical definitions of Anorexia Nervosa or Bulimia Nervosa.

Definitions of Non-Clinical Weight-Control Behaviors

It is important to differentiate between a clinical eating disorder and disordered eating behaviors (Thornton, 1990). According to Brotman (A Round Table, 1985), there is a difference between behaviors such as vomiting to control weight and the self-induced vomiting that is a characteristic of Bulimia Nervosa. Neither behavior is healthy, but the motivation, mental reasoning, and emotions surrounding the behavior are distinct. Many people may practice unhealthy weight-control behaviors but do not fit the clinical definitions of Anorexia Nervosa and Bulimia Nervosa (A Round Table, 1985; Thornton, 1990).

For example, there is a field of research called restrained eating that classifies people as dieters, restrained eaters, and chronic dieters. Though these behaviors have names, they are not clinical (mental or physical) diseases. Rather the terms are operationally defined, based on scores measured by a restrained eating survey. Essentially, the terms define individuals who are consciously altering their diet by restricting their food intake regardless of their body signals with regard to satiation (Rand, & Kuldau, 1991).

There are a number of other behaviors that people engage in to lose weight. One behavior is taking pills which may be purchased at drug or grocery stores. One type of pill, diet pills, may reduce appetite. A second type, diuretics, causes the body to lose water by urinating, hence reducing body weight. A third type is laxatives, which can also come in the form of

liquids or tablets. Laxatives cause the body to defecate to lose body weight (Black & Burckes-Miller, 1988; Dummer et al., 1987a, Steigel-Moore et al., 1989).

Other people simply alter their eating habits. They may count their calories in order to stay within a predetermined range, exclusively eat certain kinds of food, or eliminate certain types of food. Fasting is an extreme form of altering eating habits. Fasting refers to eating no food for a day or more. People who are fasting may drink water, juice, or other beverages (Black & Burckes-Miller, 1988, Dummer et al., 1987a, Stiegel-Moore et al., 1989).

There are a number of behaviors that people engage in to gain weight, as well. The most extreme method is to ingest anabolic steroids. Anabolic steroids (e.g., Dianabol) are drugs that accelerate gain in muscle. These drugs usually require a prescription, but are often obtained illegally. Anabolic steroids are often taken in conjunction with a weight training program, but sometimes increasing weight training alone is used to gain weight. Anabolic steroids are frequently used by two groups of people; athletes who place a great deal of importance on winning, and people with narcissistic personality types (Wright & Cowart, 1990).

There are also weight gain behaviors that involve changing the food that is ingested. There are drinks, foods, and pills that are formulated to aid in weight gain. These consumables often contain high levels of carbohydrates, protein, and or calories. Many of these products are available at health food and specialty stores. People may simply increase the number of calories ingested through diet alone (Dummer et al., 1987a).

In general, weight-control behaviors may be defined as pathogenic or non-pathogenic. Pathogenic weight-control refers to methods of weight control that are unhealthy or extreme. Some of the most common are abuse of laxative or diet pills; self-induced vomiting; and, anabolic steroids use (Dummer et al., 1987a; Rosen, et al., 1986).

Given this understanding of the definitions that relate to weight control behaviors, an examination of the populations whose WCBs have been most frequently studied was warranted.

Weight-Control Behaviors of Select Populations

Engaging in weight-control behaviors is a wide-spread phenomenon, which has led to relatively wide-spread research on this topic. Weight-control behaviors among many populations have been studied, but some of the most

extensive work has been done on three groups: college students; women; and athletes.

Weight-Control Behaviors Among College Students

Many researchers are located on or near college campuses, therefore college student behaviors are often studied because of the proximity of a sample population. As society has increased pressure on people to be physically fit, research on eating disorders and other weight-control issues has increased as well. These researchers often use college students as their subjects (Guthrie, 1991; Lerner, 1985; Pyle, Halvorson, Neuman & Mitchell, 1986; Zuckerman, Colby, Ware & Lazerson, 1986).

Scholars have studied college students' weight-control behaviors for reasons other than increased pressure to be physically fit. The most compelling reason is that the highest rates of clinical eating disorders occur in late adolescence and early adulthood (DSM-IV, 1994). Many college students are aged 18-22, making them prime candidates for these disorders, hence primary subjects for research.

Additionally, the onset of eating disorders often occurs during a stressful period of a person's life (DSM-IV, 1994). The first year of college is often stressful for students, and students frequently have trouble managing that stress. Many students have a tendency to overeat or under-eat when stressed (Lerner, 1985). In one study, 25% of students surveyed had imposed a diet on themselves for the first time during their first year of college (Stiegel-Moore et al., 1989). This study also reported an increase in disordered weight-control behaviors, although the incidence of clinical disorders remained steady throughout the year. Other studies have reported even more dramatic results, suggesting that 56% of college students are modifying their diets (Miller, Coffman, & Linke, 1980).

Several studies on colleges students have focused exclusively on Bulimia Nervosa and bulimic behaviors. Of the college students that Zuckerman, Colby, Ware, and Lazerson (1986) surveyed, eight percent of the women and almost one percent of the men were identified as Bulimic. Pyle, Halvorson, Neuman, and Mitchell (1986) twice surveyed college students, in 1980 and 1983. They found that the frequency of bulimia symptoms among the women had increased three fold during the three-year period. They found no significant increase among men.

Weight Control Behaviors Among Women

Among the college students who are practicing restrictive weight-control behavior (i.e., reducing caloric intake), females are much more likely than males to be actively dieting (Klesges, Mizes, & Klesges, 1987; Rand & Kuldau, 1991; Weeda-Mannek, 1994). Klesges et al. (1987) reported that female college students were much more likely to engage in appropriate and inappropriate diets and appropriate and inappropriate weight-control strategies. Women were also more than three times more likely than men to have started restricting their diets prior to entering college (Striegel-Moore, et al., 1989; Williams, Schaefer, Shisslak, Gronwalt, & Comerci, 1986).

Restrictive weight-control is not limited to college age women, however. Studies indicate that weight-control is an issue for females of various ages. Phelps, Andrea, Rizzo, Johnston, and Main (1993) found increased incidence in disordered eating and restrictive weight-control, including diet pills, self-induced vomiting, and laxative use, among female adolescents. The inappropriate behaviors most often coincided with the onset of puberty (Dolan & Gitzinger, 1994). One study of junior high school girls suggested that 12% of the girls had bulimic behavior tendencies (Williams et al., 1986). In addition, restrictive weight-control behavior is a factor throughout women's lives. Twenty to thirty percent of women in all age groups under 65 are actively restricting their eating (Rand & Kuldau, 1991).

Restrictive weight-control behaviors may have deleterious effects. In the extreme, Anorexia Nervosa and Bulimia Nervosa can eventually cause death (DSM-IV, 1994). Among non-clinical cases, women may suffer from the effects of an unbalanced diet. In one study, women who were actively dieting had low energy and low iron levels in their body, indicating that they were maintaining a less than optimal diet (Koszewski, Newell, & Higgins, 1990).

Women employ a variety of methods in attempts to lose weight. Miller et al. (1980) found that a majority of women try to lose weight by altering food intake. Decreasing portions and eliminating carbohydrates were the most prevalent techniques women employed. None of the women in the study reported using pills, self-induced vomiting, or laxatives.

Other studies have found conflicting information. Rates of incidence of weight-control behaviors characteristic of eating disorders have been found that support the percentages reported in the DSM-IV (1994) of one to four percent (Klesges et al., 1987). Other studies reported behaviors associated with Anorexia Nervosa and Bulimia Nervosa as high as 15% and 12%, respectively, among college women (Berg, 1988).

Some women exercise as a form of weight-control. More women link exercise with weight-control than men. Men tend to view exercise as a fun, competitive, social activity. Women are much more likely than men to engage in physical activity specifically to control their weight (Walters & Sedlacek, 1984). However, women tend to employ more passive methods of weight-control (e.g., fasting) (Black, 1991a, 1991b).

The prevalence of dieting among women is precipitated by the importance women place on achieving what they perceive to be ideal body weight. Women have high expectations about the benefits that they will receive upon reaching a desired, ideal weight (Klesges et al., 1987). In addition to the excessive importance women place on achieving ideal weight, they often tend to over-estimate their weights. Alarmingly, even women who are underweight may overestimate their weight so much that they indicate that they are overweight (Klesges et al., 1987).

Among the rewards the women expect from reaching their ideal weight is increased positive attention from men (Klesges et al., 1987). The mere proximity of men may cause an increase in inappropriate weight-control behaviors. For example, Berg (1988) reported a higher incidence of Bulimia Nervosa among women who lived on co-educational floors of college residence halls than among women who lived on single sex floors.

Women may also be motivated to engage in weight-control behaviors because they feel a lack of control in other areas of their lives. Control of their weight may become a substitute for effective control of their lives (Dolan, 1994).

Weight-Control Behaviors Among Athletes

While pursuit of ideal body weight to improve one's physical appearance is a widespread phenomenon, other populations believe weight-control behavior is necessary. Athletes are one population that frequently engages in weight-control behavior. Weight loss or weight gain is often beneficial and appropriate as part of a well designed athletic training program (Black & Burckes-Miller, 1988). Borgen and Corbin (1987) found no significant difference between athletes' and non-athletes' drive for thinness. This suggests that there are other reasons, aside from a desire to be thin, that athletes engage in weight-control behaviors. Athletes report engaging in such behavior to increase performance, or say it is necessary to successfully compete in their sport (Davis, 1992; Dummer et al., 1987a; Fuller & LaFountain, 1987; Rosen, et al., 1986; Sykora, et al., 1993).

However, the weight-control behaviors athletes employ are not always appropriate or healthy (A Round Table, 1985). In 1990, eating disorders were reported as a significant health problem among college athletes (Dick, 1990). Additionally, there are many additional athletes engaging in unhealthy eating and weight-control behaviors who do not actually have an eating disorder (Black & Held, 1991). Several studies have suggested that college athletes are more likely than other college students to engage in unhealthy weight-control behaviors (Black, 1991a, 1991b; Black & Burckes-Miller, 1988; Burckes-Miller & Black, 1991).

Conversely, one study of non-collegiate athletes found a smaller occurrence of eating disorder symptoms among the athletes than in normative collegiate samples (Sullivan & Steel, 1991). Perhaps there is some element of collegiate athletics (e.g., level of competition) that increases the likelihood that an individual would engage in unhealthy weight-control behavior. Burckes-Miller and Black (1991) suggest that there may be a contagious effect with unhealthy weight-control behaviors when less successful members of a team who are prone to eating disorders observe more successful teammates engaging in the behaviors. The athletic community, especially at the highest levels of competition, espouses the belief that lean bodies equal a superior performance (Thornton, 1990). Engaging in certain eating behaviors may also create a feeling of camaraderie and acceptance for teammates hoping to fit in (Burckes-Miller & Black, 1991).

In addition to eating-disorders, or weight-reducing behaviors, athletes are more likely than non-athletes to engage in weight-increasing behaviors (Wright & Cowart, 1990). The most dangerous weight-increasing method involves the use of anabolic steroids. Athletes are far more likely than non-athletes to use steroids (Chng & Moore, 1990; Fuller & LaFountain, 1987). Various studies have estimated that steroid use among college student populations ranges between one and two percent, and the percentage of use among collegiate athletes to be between two and 17 percent (Selby, Weinstein, & Bird, 1990; Wright & Cowart, 1990).

The weight-control behavior of athletes has been examined in a variety of contexts. Nash (1987) compared high-performance female athletes to non-athletes and found a greater degree of inappropriate dieting behavior and an increased preoccupation with body weight among the athletes. These findings indicate a serious problem, as women in general have a tendency to be concerned with their weight and trying to control it (Klesges et al., 1987; Rand & Kuldau, 1991).

Other studies have examined the relationship between weight-control behaviors of athletes and personality characteristics. Because Anorexia

Nervosa and Bulimia Nervosa are medically considered mental disorders, it has been hypothesized that some sports may be more attractive to people with a propensity toward these disorders. For example, long distance runners tend to be very thin, as do patients with Anorexia Nervosa. The runners also tend to have compulsive personalities and pride themselves on their self-discipline, characteristics shared by Anorexic patients (Parker, et al., 1994). However, no conclusive evidence has been found to support the idea that certain sports, like long distance running, attract athletes with certain personalities (Nash, 1987).

Studies examining weight-control behaviors and athletes by gender have also been conducted. Differences similar to those reported in the general population exist among athletes (Selby, et al., 1990). For example, female competitive swimmers reported more concern with controlling their weight than male swimmers. In addition, the female swimmers thought about their weight significantly more often, and used inappropriate, unhealthy (pathogenic) weight-control behaviors significantly more often than their male counterparts (Dummer et al., 1987a).

In another study of collegiate women athletes, 32% reported that they had used at least one pathogenic weight-control behavior (e.g., laxative use, self-induced vomiting, diet pills). The female athletes exhibiting these behaviors also reported being overweight, when only a very small percentage actually were (Rosen et al., 1986). In a study that included high school as well as college athletes, 41% reported using at least one pathogenic weight-control behavior (Overdorf, 1991).

It is interesting to note that the opposite is true about use of anabolic steroids among athletes. Males are more likely than females to use steroids. Male athletes who use steroids report using them to promote growth of body mass and to increase strength (Wright & Cowart, 1990). The men also enjoy the perceived benefits steroid use has on their physical appearance, and their attractiveness to women (Chng & Moore, 1990; Selby, et al., 1990; Wright & Cowart, 1990).

Research on athletes and weight-control behavior that focuses on athletes competing in specific sports is extensive (Benson, 1991; Fuller & LaFountain, 1987, Guthrie, 1991; Loosli, Benson, Gillien, & Bourdet, 1986; Smithies, 1991; Thornton, 1990; Ubbes, 1991). Since different sports require different skills and physical attributes, it is reasonable to assume that athletes competing in certain sports may be more or less likely to engage in weight-control behaviors. For example, success in weight lifting, or body building, requires that athletes have large amounts of lean muscle mass and

very little body fat. Use of performance enhancing drugs (anabolic steroids) to increase muscle mass is common among such athletes (Fuller & LaFountain, 1987, Wright & Cowart, 1990). In addition, body builders report high levels of dieting, along with severe weight loss and weight regain (Andersen, Bartlett, Morgan, & Brownell, 1995).

Sports that require athletes to meet weight requirements are also interesting to explore because weight gains as little as one pound can prevent athletes from competing. For example, in the sport of rowing there are light-weight boats and heavy-weight boats. Prior to races, light-weight rowers must be weighed by a judge who determines if they will be allowed to compete. Consistent with previous research on gender differences in WCBs, women rowers engage in more disturbed eating practices, and the light-weight women's weight-control behaviors are the most extreme of all rowers (Sykora et al., 1993). Additionally, the light-weight male rowers experience the largest fluctuation between their in-season and off-season weights (Sykora et al., 1993). This may suggest that male rowers are not as interested in weight-control for reasons other than qualifying for competition. Alternatively, it may indicate that men who compete in light-weight rowing are less likely than their female counterparts to naturally be beneath the qualifying weight.

Other sports that impose weight restrictions include men's light-weight football and men's wrestling. Men's light-weight football is similar to light-weight rowing, in that players must be under a certain weight to compete. The sport of wrestling is unique because it has numerous weight categories. For wrestlers, there is a constant incentive to lose a few more pounds to compete in a lighter weight class. A wrestler who is naturally 140 pounds, based on his height and bone structure, can gain a significant size and, presumably, strength advantage if he can artificially lower his weight to compete against naturally smaller men. Many athletes competing in these sports employ pathogenic and non-pathogenic weight-control behaviors to remain eligible for competition (Depalma, Koszwski, Case, Barile, Depalma & Oliaro, 1993).

Another type of sport that rewards smaller bodies are sports with subjective scoring. In these sports (e.g., gymnastics, diving, ice skating, synchronized swimming), winners and losers are determined by judges who subjectively rate the competitors. Historically, the judges in these sports have rewarded smaller, slimmer body types with higher scores. Pathogenic and non-pathogenic weight-control behaviors are rampant among female competitors in these sports (Guthrie, 1991; Ryan, 1995).

For example, Ubbes (1991) reported that 66% of the gymnasts she surveyed skipped breakfast or lunch daily. Another study of gymnasts found that over 40% consumed diets that provided less than two-thirds of the Recommended Daily Allowance (RDA) for calcium; vitamin B6; iron; and, zinc. All of these deficiencies could lead to serious medical conditions (Loosli et al., 1986). Among one group of elite synchronized swimmers who were surveyed, only 28% were categorized as normal eaters (Smithies, 1991).

Athletes who compete in sports in which people with lean bodies are often successful may also feel pressured to reduce their weight. In the sport of swimming, for example many believe that a lighter body will travel through the water faster (Thornton, 1990). Not surprisingly, a high rate of pathogenic weight-control behaviors have been reported among swimmers. Within one 18-month period in the late 1980s, 12 members of the top ranked University of Texas swim team were diagnosed with eating disorders (Thornton, 1990). In one study, three out of four elite women swimmers reported engaging in at least one potentially dangerous weight-control behavior (Benson, 1991). However, another study of elite swimmers reported a much smaller number (15%) engaging in a pathogenic weight-control behavior (Dummer et al., 1987a).

To date, very few studies have been conducted comparing athletes in groups of sports that require or reward certain body types. In one study on elite female athletes, Borgen (1991) found that of 33% the athletes were engaged in weight-control behavior. Of that 33%, one third were engaged in pathogenic weight control behaviors. The highest incidence of pathogenic weight-control behavior was recorded among athletes competing in sports that were categorized as endurance (e.g., cross country, swimming) aesthetic (e.g., gymnastics, diving) and weight dependent (e.g., rowing). These results are supported by similar findings in other studies (Borgen & Corbin, 1987; Guthrie, 1991; Sullivan & Steel, 1991).

Summary

Many researchers have studied the weight-control behaviors of athletes competing in a single sport. Others have examined the impact of athletes' weight-control perceptions on their behaviors. The present study will expand on that body of knowledge by examining the characteristics of sports that have been shown in previous research to have an effect on weight-control behaviors of athletes. The present study will also build on previous work by including the behaviors of both female and male athletes.

CHAPTER THREE
Methodology

The purpose of this study was to examine the relationship between specific groups of sports and the weight-control behaviors of NCAA Division I college athletes who engage in these sports. Sports were divided into categories based on specific characteristics that may effect the way the athletes perceive the need to control their weights.

First, the WCBs of athletes in sports with weight restrictions or weight classes for competition (e.g., rowing, wrestling) (WR) were compared to the WCBs of athletes in non-weight restriction (NWR) sports. Second, the WCBs of athletes in sports with subjective judging (SJ) sports (e.g., diving, gymnastics) were compared to the WCBs of athletes in objective scoring (OS) sports (e.g., swimming, volleyball). A final comparison between the WCBs of male athletes (MA) and the WCBs of female athletes (FA) was calculated.

The weight-control behaviors of the athletes were measured by a modified version of the Michigan State Weight-Control survey (MSCWS) (Dummer, et al., 1987b), a paper and pencil instrument designed to measure what behaviors athletes engage in and how often they engage in those behaviors.

Research Hypotheses

The present study was designed to examine the weight-control behaviors of student-athletes competing in several categories of sports at a NCAA Division I school. The null hypotheses for this study were:

1. There is no significant relationship between the weight-control behaviors of athletes competing in sports with weight restrictions and sports without weight restrictions.

2. There is no significant relationship between the weight-control behaviors of athletes competing in sports with subjective judging and sports with objective scoring.

3. There is no significant relationship between the weight-control behaviors of male athletes and female athletes.

Sampling Procedures

The target population for this study included all student athletes competing in selected sports at NCAA Division I college and university campuses. The sample consisted of athletes in those selected sports at a

single NCAA Division I university. There were two steps in selecting the sample for this study. First, the sports included in the study were determined. Second, the sample of student athletes from each of the selected sports was identified.

Selection of Sports

The sample of sports for the study was drawn from varsity teams supported by the university under study. The institution is a large, research, land grant university in the mid-Atlantic United States. The sports in the sample included teams selected from NCAA Division I athletic teams considered varsity sports at this institution. The sample also included three teams that did not have varsity status at the university under study, but which are considered varsity sports at many other institutions (gymnastics, rowing, cheerleading). These teams were chosen because they are sports with characteristics that met the selection criteria for this study.

The decision about which teams to select for this study was based on three factors. The first factor was whether or not they fit a category that was examined in this study. The second factor was how each sport had been represented in previous research. The third factor was the desire to have a similar number of athletes in each category.

Weight Restricted Sports

The sports chosen to represent the category of WR sports were wrestling and rowing. These sports both have weight restrictions that athletes are required to meet in order to compete. Previous research on athletes competing in these sports has suggested that weight-control is an issue for these athletes (Depalma et al., 1992; Sykora et al., 1993).

The rowing team was included in the sample population because, even though it is a club sport at the institution under study, it is a varsity sport at many other universities, and because the rowers are subjected to weight restrictions as a routine part of the sport. The rowing team attends a national championship, though it is not a championship exclusively sponsored by the NCAA. There are male and female rowers at the university under study. The rowing team has a season in the fall and spring.

The wrestling team is a varsity team at the university under study. Wrestlers compete in different weight classes. The culture of the sport is such that wrestlers desire to be at the top weight of their weight class. This may either involve losing a few pounds to move down to a lower weight class or gaining a few to be at the top of a weight class. The goal is to increase the

wrestler's power to weight ratio. The wrestling team has a winter competition season. There are only male wrestlers.

Non-Weight Restricted Sports

The NWR sports were chosen because they are sports that do not impose weight restrictions on the athletes. These sports have not been associated in previous research to be sports with large numbers of athletes having weight-control behavior problems (Black & Held, 1991; Borgen, 1991). Efforts were also made to select NWR sports that would render an equal representation of male and female athletes, since there are male and female athletes in the WR sports, and sports with a fall or winter season since the WR sports have fall or winter seasons. The NWR sports selected were: soccer, tennis, and basketball.

Soccer is a varsity sport at the university under study. There is a men's varsity team and a women's varsity team. Competition occurs in the fall season. Tennis, like soccer is a varsity sport at the university under study. It is also a men's and women's sport, and has a fall competition season. Basketball, similarly, is a varsity sport for both men and women at the university under study. Basketball has a winter competition season.

Subjective Judging Sports

The sports chosen to represent the SJ sports were gymnastics, diving, and cheerleading. In all three sports, winners are selected by a panel of judges. The literature indicated that athletes in this category of sport may have weight-control behavior issues (Black & Held, 1991; Borgen, 1991). Several studies have reported that gymnasts have weight-control issues (Loosli et al., 1986; Ryan, 1995; Ubbes, 1991). Divers have not been studied as extensively as gymnasts, but their sport subjects them to similar environments. Chopak and Taylor-Nicholson (1991) have suggested that cheerleaders should be included in future research on the weight-control behaviors of athletes.

At the university where the research was conducted, gymnastics is an extra-mural sport, but the athletes are eligible to attend the NCAA championship meet. The gymnastics team has both male and female members, and the competitive season is in the winter.

Diving is a varsity sport at the university under study. Diving has a winter competitive season, and there are male and female competitors.

The cheerleading team was selected because it, too, is an SJ sport. Cheerleaders attend an annual national championship at which their

routines are subjectively judged. At the university under study, the cheerleaders are sponsored by the ICA department, but do not have varsity status and are not regulated by the NCAA except for purposes of the national championship. There are male and female cheerleaders. While they work together all year, the NCAA cheerleading competition occurs in the winter.

Objective Scoring Sports

The teams selected to represent OS sports were those where winners and losers are determined by objective measures: a stopwatch; or a meter stick. The OS sports have fall or winter seasons and male and female competitors just as the SJ sports do. The sports chosen were swimming, track and field, and cross country running.

Swimming is a varsity sport at the university under study. The swim team has a winter competition season. An additional reason for including the swim team in the OS sample is that swimmers and divers have the same head coach at the institution under study, and they travel, practice, and compete together. Therefore, the number of factors that could be affecting the weight-control behaviors among swimmers and divers is better controlled.

Indoor track and field has a winter competition season, and is a varsity sport at the university under study. The sport of track and field adds an interesting element because there is wide variety of body types and physical requirements due to the wide variety of events included in track and field (e.g., 100 meter sprint vs. the discus throw). There are male and female athletes on the track and field team.

Cross country is a fall sport at the university under study. It is a varsity sport as well, and there are male and female athletes.

Selection of Athletes

The next step in the sampling procedures was to select the student athletes to be included in this study. All athletes on the selected teams were invited to participate. The study included all athletes to enhance its generalizability, and to increase the likelihood that data from sufficient numbers of subjects in each category for each research hypothesis was collected.

In all cases, the athletes on the teams were students, enrolled full time at the university at the time the study was conducted. The varsity athletes were chosen because they were competing at the highest level of competition for collegiate athletics in the United States, and because they

were intact groups that fell under the authority of one administrative office. The extra-mural teams were chosen because the sports that they represent had characteristics that were important to this study (e.g., WR status, SJ status).

Instrumentation

The Michigan State Weight-Control Survey (MSWCS) (Dummer et al., 1987b) (Appendix A) is an instrument that has been used to measure weight-control behaviors among samples of athletes from all age groups, children through adult (Dummer et al., 1987a; Smithies, 1991). The survey was modified somewhat for use in the present study. For example, one item in the first section of the MSWCS asked subjects to record their age in terms of years and months. The researcher revised this item so that subjects selected one from a range of appropriate ages for collegiate athletes.

Additionally, some questions were modified from a fill-in-the-blank format to a forced-choice, or Likert scale response so that the surveys could be more easily scored electronically. The survey was administered to the sample with the instruction to participants to write their responses directly on the instrument. The researcher then translated the information to a machine readable format which could be electronically scored.

The MSWCS consists of three sections: general information, weight loss behavior; and, weight gain behavior. In all three sections, there are two forms of items; forced-choice items, and items asking subjects to rate themselves along a Likert-type scale.

The first section (general information) contains items designed to elicit general information about participants. There are demographic items (e.g., age, sex) that ask for personal data from subjects. Two items elicit information about coaches, who may influence the way the participants feel about their weight. Fourteen items focus on the subjects' general feelings about their weight and the behaviors they engage in to control their weight. The original MSWCS contained 52 items in the general information section. For the purposes of the present research, 33 items were deemed irrelevant for college-aged students. For example an item asking the females if their menses had started was eliminated. Other items, such as "is your coach a male or female?" were eliminated because the information was already known to the researcher or could be obtained through other means.

Participants were then asked to complete one of the two remaining sections of the MSWCS. The second section was completed by athletes who have tried to lose weight since matriculating in college, and the third section was completed by those athletes who have engaged in behaviors to gain weight since matriculating in college. If the athlete had engaged in both types of behaviors, they were asked to complete the section about the type of behavior they engaged in most often. If they could not determine which section that would be, they were instructed to complete the section on the behavior they had most recently engaged in. Some participants had not tried to loose or gain weight.

The second section of the MSWCS includes items about a number of the most commonly used weight loss methods (e.g., counting calories, fasting, vomiting, diet pills). For each behavior, the survey asked the participants if they had ever engaged in the behavior, how often, when they started, and how it made them feel (e.g., physically better, emotionally better, better results in competition). The survey also asked participants if they were aware that any of these behaviors were dangerous. The original MSWCS contained 78 items in the weight loss section. For the purposes of the present research, 15 items were eliminated from the survey because they were repetitive. In addition, 11 items were combined with other items, or expanded, to accomodate electronic scoring, resulting in a total of 83 items in the revised weight loss section.

For example, in the original MSWCS each of the weight loss methods were listed next to a grid, on which the respondent checked boxes related to feeling physically better or worse. In the modified version, the questions were asked in a manner that only allowed one answer for each question. For example, subjects were asked to respond “yes” or “no” to an item about whether they had ever tried to control wight by counting calories.

The third section of the MSWCS focuses on weight gain behaviors and is similar to the second section. The items follow the same format, but they focus on weight gaining behaviors (e.g., working out with weights, protein drinks, anabolic steroids). The original MSWCS contained 39 items in the weight gain section. For the purposes of the present research, eight (8) items were eliminated from the survey because they were repetitive. In addition, some items were combined with other items, or expanded, in a similar manner to the questions in section II, leaving 45 questions in the revised weight gain section.

In total, the revised MSWCS contained three sections, of which each participant completed no more than two. In Section I, there were 19 forced

choice items. In Section II, there were 44 forced choice items and 39 Likert-type items. In Section III, there were 24 forced choice items and 21 Likert-type items. There were a total of 147 items, 87 forced choice and 60 Likert-type, on the revised instrument. A copy of the revised instrument employed in this study appears in Appendix A.

Reliability and Validity

An important part of quantitative research is determining the reliability and validity of the instrument used to gather data. The Michigan State Weight-Control Survey (Dummer et al., 1987b) has been administered before, but no reliability or validity data on the instrument were calculated after previous administrations. The authors of the original instrument believe that reliability and validity should be determined for each specific sample studied (Dr. Gail Dummer, personal communication, June 5, 1996). Since existing reliability data were not available, the researcher sought to maximize one element of validity by asking a panel of experts to review the revised instrument and ensure that the items on the instrument would elicit data relevant to the hypotheses being studied. The panel unanimously agreed that the items were relevant, hence construct validity of the instrument was reasonably assured.

Procedures

In order to collect data several steps were taken. First the researcher obtained approval from the Institutional Review Board for Research on Human Subjects at the university where the research was conducted.

To gain access to the athletes selected for this research, the researcher met with the Athletic Director (AD) at the university under study who agreed to support the research. The AD's support consisted of assigning an ICA department strength coach to work with the researcher. The strength coach agreed to assist in the administration of the survey. All of the selected varsity teams in the sample have practice and information sessions with the strength coach. The survey was administered by the researcher at one of the routine practice sessions for each sport.

The cheering, rowing, and gymnastics team coaches were also contacted. They also agreed to allow the researcher to collect data from the athletes, under conditions as close as possible to those in which data was collected from the other teams in the study. The researcher was invited to administer the instrument at a routine team meeting for these sports.

In most cases, the athletes were assigned by their respective coaches to complete the survey after they finished a practice session with the coach,

but before they left the room. Tables and chairs were set up for the athletes to complete the questionnaire. The coaches agreed to have no further contact about the project with the researcher. After the coaches instructed the participants to complete the instrument, they left the room, to avoid any possible perception of coachs' involvement that might influence the athletes to be less than candid in their responses. The athletes were instructed not to put their names on any part of the questionnaire, to ensure anonymity. The athletes placed the completed survey in a collection box in random order. The participants also signed an informed consent form that was collected separately.

The data collection took place during approximately a two month time period, beginning October 21, 1996. This period was chosen because it allowed for data collection at a time that would yield information from athletes in the active part of their seasons. The researcher attempted to complete the collection in the shortest possible time frame, to reduce the differences that might have occured between athletes who were farther along in their seasons and those just starting their seasons. It was necessary to collect data over a period of several weeks due to the number of teams in the sample. All of the athletes received the same instructions from the researcher or researcher's designee before completing the instrument (see Appendix B).

Data Analysis Procedures

The items on the modified MSWCS took one of two forms. Some items were forced choice items, asking subjects to select one of two or three options to respond to the item. Other items asked subjects to rate themselves with respect to certain behaviors along a Likert-type scale where 1 equaled "better" and 3 equaled "worse". Overall, the modified MSWCS employed in this study contained 147 items, of which 87 were forced choice and 60 were Likert-type scales.

There were several steps taken to analyze the results of the survey. First, the information was translated to a form that could be electronically scored. Then the response forms were analyzed using SAS® computer software (1989). Surveys with incomplete information were excluded from the sample. The majority of the results reported were based on responses to the forced-choice items since the study was designed to study the frequency of certain behaviors among different groups of athletes.

The second step was to examine the raw data. For the forced-choice items, the raw data was in the form of frequency counts. Frequency counts were calculated for each possible answer for each item. Next, participants

were divided by category (e.g., WR-NWR, SJ-OS, MA-FA). Counts were then made of what behaviors the participants, by sub-group, were practicing.

The third step was to run tests of significance for each pairing: weight restricted sports versus non-weight restrictive sports; subjective judging sports versus objective scoring sports; and male athletes versus female athletes. Chi-square analyses were conducted on forced choice items.

Conclusion

The present study was designed to collect data about the WCBs of student athletes. The steps described in this chapter were deemed reasonable to collect the data necessary to evaluate the research hypothesis posed in the study.

CHAPTER FOUR
Results

This chapter describes the results of the data collection and analysis. The chapter begins by describing the data collection procedures actually employed. Some changes in the planned collection techniques had to be made to accommodate specific teams to maximize the response rate. This is followed by a description of the sample, and an analysis of the data collected. The data analysis is organized around the three research hypotheses which examine weight control behaviors and weight restrictions, type of judging, and gender.

Data Collection Procedures

During the course of data collection, some slight modifications of the procedures outlined in Chapter 3 were necessary. Data was collected in several ways during the fall, 1996 academic term. On October 21, 22, 28, 29, and 31, 1996, data were collected from athletes attending practice sessions in the weight room with the strength coaches. When the athletes had completed their individual workouts, they were directed to a classroom with desks and chairs. The athletes were given instructions and sufficient time to complete the instrument. Data were collected via this method from members of the men's wrestling team (WR sport); the men's soccer, and men's and women's tennis teams (NWR sports); men's and women's track and field teams, men's and women's cross country teams, and men's and women's swim teams (OS sports).

Between October 22 and October 31, 1996, additional surveys were completed by athletes in the above sports and by women divers (SJ sport) and the women's soccer team (NWR sport). These instruments were administered and collected by the strength coach, who was trained to collect data appropriately by the researcher.

Data were collected from the men's and women's rowing teams (WR sports) with the assistance of the rowing coach at an October 22, 1996 team meeting. Data were collected from the men's and women's Cheering teams (SJ sports) in the same manner on October 24, 1996.

The men's and women's gymnastics teams (SJ sports) completed instruments on October 23, 24 and December 3 and 4. The data were collected by the researcher at the beginning of team practices. Given the low attendance at team practices, some instruments were completed by gymnasts outside of the researcher's presence. These were administered by a

member/coach of the gymnastics team who was familiar with the project and research techniques.

Because of time constraints and scheduling problems, the men's and women's basketball teams (NWR sports) were not available for participation after weight room practices. It was determined by the researcher, in conjunction with the basketball coaches, that the best way to collect surveys from these participants was for the basketball coaching staff to be trained on the research design and to administer the instrument while the team was traveling. This task was accomplished for the women's team in November 1996, and the men's team in December 1996.

Two instruments were completed by athletes who were also part of the campus Corps of Cadets (one OS athlete, and one WR athlete). These were completed with the guidance of the Corps leader.

Although collection procedures varied to some degree from those outlined in Chapter 3, all instruments were completed in settings which provided reasonable supervision and guidance. The researcher believes that the integrity of the data was maintained despite any deviation in planned collection procedures.

Description of Sample

In total, 213 Michigan State Weight-Control surveys were completed. Two instruments were eliminated from data analysis due to incomplete or conflicting information. One subject indicated participation in two sports and was assigned to the group with the smaller sample size. Of the remaining 211 usable surveys, 64 were completed by WR athletes, 65 were completed by NWR athletes, 27 were completed by SJ athletes, 55 were completed by OS athletes, 109 were completed by male athletes, and, 102 were completed by female athletes. Table 1 summarizes the participants by type of sport and sex.

The total population for this study included all the athletes on the men's and women's rowing, soccer, tennis, basketball, gymnastics, cheering, diving, swimming, track and field, cross country, and men's wrestling teams. Of the population, 54% (211 out of 392) participated in the study. The sample included 59 out of 70 rowers (84%); 23 out of 52 soccer players (44%); 18 out of 23 tennis players (78%); 24 out of 25 basketball players (92%); 5 out of 20 wrestlers (25%); 8 out of 13 gymnasts (62%); 15 out of 37 cheerleaders (40%); 4 out of 5 divers (80%); 9 out of 41 swimmers (22%); 38 out of 58 indoor track and field team members (66%); and 8 out of 48 cross country runners (17%).

Other Characteristics of the Sample

Age. The modified survey elicited data about several other factors related to the athletes under study. Aside from the sex of the participant, the only other demographic question that the survey asked was age of the participant.

Table 1

Description of Sample by Type of Sport and Sex of Athlete

	Weight Restricted Sports	Non-Weight Restricted Sports	Subjective Judging Sports	Objective Scoring Sports	Total
Male	36	34	14	25	109
Female	28	31	13	30	102
Total	64	65	27	55	211

Three of the participants (1%) in this study were under the age of 18, 34% were 18, 25% were 19, 17% were 20, and the remaining 22% of the participants were 21 years or older.

Coach. The participants answered two questions about their primary coach. The first asked if the subject's coach was concerned with the athlete's weight, including things like recording weekly weights or suggesting an ideal weight for athletes. Forty-one percent (41%) of the participants answered "yes", while the remaining 59% responded "no" or "don't know."

The second question asked whether coaches were strict about the athlete's weight, including things like punishing athletes who did not reach a certain weight. Eighty-nine percent (89%) of athletes responded "no," 7% responded "yes," and the remaining athletes (4%) responded "don't know."

Body Image. The participants were asked a series of questions related to their body image. These included questions about: how often they weigh themselves; what they think of their weight; and, how often they worry about their weight. Participants were also asked if they have ever been told that they had Anorexia Nervosa or Bulimia Nervosa.

Of the participants in this study, over half (57%) weigh themselves at least once a week, and 16% of those who weigh themselves at least weekly (or 9% of the total sample) weigh themselves at least once a day. Just under 4% responded that they "never" weigh themselves.

In response to the question "what do you think about your weight?", about half (47%) said they were "just about right". One-third (34%) responded that they believed they were at least 5 pounds overweight, and the remaining subjects (19%) responded that they were at least 5 pounds underweight.

The participants were also asked if they worry about their weight. Three quarters (74%) of the participants responded "almost never" or "once in a while", while the remaining quarter (26%) responded "often," or "almost all the time."

In response to the questions, "Have you ever been told that you have Anorexia Nervosa?" or "Bulimia Nervosa?", three and two participants, respectively, answered affirmatively.

Data Analysis

Each of the three research hypotheses was addressed in two ways. First, they were examined by comparing the number of athletes in each sport

classification who were engaging in behaviors to lose weight against the number of those engaging in behaviors to gain weight or not engaging in any weight control behavior. Table 2 summarizes the number of athletes engaging in each type of behavior.

Then, the weight-control behaviors were divided into four groups: pathogenic weight loss (PL); non-pathogenic weight loss (NPL); pathogenic weight gain (PG); and, non-pathogenic weight gain (NPG). This enabled a closer examination of the behaviors by group. Behaviors classified as pathogenic include those that are often done for an immediate effect on an athlete's weight.

PL behaviors are those that reflect potential symptoms of weight related disorders (e.g., Anorexia Nervosa or Bulimia Nervosa). The behaviors classified as PL behaviors are: skipping meals; special diets that may involve eating only one kind of food; saunas or steam baths; fasting; spitting; taking diet pills; taking laxatives; and, vomiting.

The behaviors classified as NPL behaviors are less severe than the PL behaviors. These behaviors include those that would be advised as ways to gradually decrease one's weight, including: exercising more; reducing snacks and junk food; eating smaller meals; eating low calorie food; and, counting calories.

Just over half of the athletes who reported that they were trying to lose weight (53%) were engaging in PL behaviors. Of those who reported engaging in PL behaviors, most of the athletes (56%) responded in the affirmative to one or two PL behaviors. The athletes engaging in PL behaviors represent 20% of the entire sample of athletes in all sports.

The behaviors classified as PG behaviors are those that are engaged in to rapidly increase body weight or size. These behaviors include: special diets; liquid or food supplements; taking weight gain pills; and, using anabolic steroids.The behaviors classified as NPG behaviors are less severe than the PG behaviors. These behaviors include those that would be advised as ways to gradually increase one's weight, including: adding meals or snacks; eating larger meals; and, modifying exercise program.

Of the athletes who reported that they were trying to gain weight, 43%, were engaging in PG behaviors. Of that 43% who were gaining weight, most of the athletes in all sports (76%) reported engaging in only one of the PG behaviors. There was no reported use of anabolic steroids.

Table 2

Number of Athletes in Each Sport Classification by Weight-Control Behavior

Weight Control Behavior	Weight Restricted Sports	Non-Weight Restricted Sports	Subjective Judging Sports	Objective Scoring Sports	Male	Female	Total
Loss	28	19	15	19	25	56	81
Gain	9	21	7	11	42	6	48
Neither	27	25	5	25	42	40	82
Total	64	65	27	55	109	102	211

Weight Restricted and Non-Weight Restricted Sports

There was a significant relationship between the weight-control behaviors of participants and the type of sport the athletes were competing in (WR or NWR sports) ($p < .05$). Of the participants who reported engaging in behaviors to lose weight, a larger proportion of the WR athletes (44%) reported such behaviors than NWR athletes (29%). Fourteen percent (14%) of the WR athletes and 32% of the NWR athletes reported weight gain behavior. The remaining athletes reported engaging in neither loss nor gain behaviors (42% of the WR athletes and 38% of the NWR athletes).

Of the athletes engaging weight loss behaviors, there was no significant relationship between the type of sport (WR and NWR) and the frequency of athletes engaging in pathogenic loss (PL) behaviors. Nor was there a relationship between type of sport (WR and NWR) and pathogenic gain (PG) behavior.

When both the pathogenic behaviors were combined (pathogenic loss and pathogenic gain), there was no significant relationship between the type of sport (WR or NWR) and the degree of loss/gain behavior (pathogenic versus non-pathogenic). The results of the WR and NWR athletes' weight-control behaviors are summarized in Table 3.

Subjective Judging and Objective Scoring Sports

There was a significant relationship between the weight-control behaviors of athletes and the type of judging (subjective) or scoring (objective) employed by the sport (SJ and OS sports) at the $p < .1$ level. Of the athletes who reported engaging in behaviors to lose weight, a larger proportion of the SJ athletes (56%) reported such behaviors than OS athletes (35%). In terms of weight gain behaviors, 26% of the SJ athletes and 20% of the OS athletes reported engaging in such behaviors. Eighteen percent of the SJ athletes and 45% of the OS athletes reported engaging in no weight control behaviors.

Among SJ and OS athletes engaging weight loss behaviors, there was no significant relationship between type of sport and the degree of weight loss behavior (pathogenic versus non-pathogenic).

Among the SJ and OS athletes reporting weight gain behaviors, there was no significant relationship between type of sport and the degree of weight gain behaviors (pathogenic versus non-pathogenic).

When the pathogenic behaviors were combined (pathogenic loss and pathogenic gain), there was no significant relationship between the type of

Table 3
Athletes' Weight-Control Behaviors in Weight Restricted Sports (WR) and Non-Weight Restricted Sports (NWR)

N = 129

Characteristic	WR		NWR		DF	χ2	p
Weight-Control Behavior (n)							
Loss (47)	44%		29%		2	6.59	.037*
Gain (30)	14%		32%				
Neither (52)		42%		38%			
Weight Loss Behavior (n)							
Pathogenic (25)	54%		53%		1	.004	.949
Non-Pathogenic (22)	46%		47%				
Weight Gain Behavior (n)							
Pathogenic (9)	23%		33%		1	.370	.543
Non-Pathogenic (22)	77%		67%				
Combined Loss and Gain Behavior (n)							
Pathogenic (34)	46%		42%		1	.093	.761
Non-Pathogenic (43)	54%		58%				

* significant at the .05 level

sport (SJ or OS) and the degree of weight-control behavior (pathogenic versus non-pathogenic). The results of the SJ and OS athletes' weight-control behaviors are summarized in Table 4.

Male Athletes and Female Athletes

There was a significant relationship between the weight-control behaviors of athletes and the sex of the athletes ($p < .05$). In fact, the relationship was significant at $p < .001$. A greater percentage of females reported attempting to lose weight (55%) than men (23%). By contrast, there was a greater frequency of men (39%) trying to gain weight than women (6%). Among the athletes who were attempting neither weight loss or gain were 39% of the female athletes and 38% of the male athletes.

Of the male and female athletes engaging in weight loss behaviors, there was no significant relationship between sex and the degree of loss behaviors (pathogenic versus non-pathogenic).

For male and female athletes engaging in weight gain behaviors, there was no significant relationship between sex and the degree of gaining behaviors (pathogenic versus non-pathogenic).

When the pathogenic behaviors were combined (the frequency of reported pathogenic loss and pathogenic gain) there was no significant relationship between the sex of the athletes and the frequency of engaging in pathogenic weight-control behavior.

The results of the male and female athletes' weight-control behaviors are summarized in Table 5.

Conclusion

This study has revealed significant relationships between types of sports, sex of athletes, and the weight-control behaviors they engage in. The results enhance understanding of the health of university athletes, and are further discussed in Chapter Five.

Table 4

Athletes' Weight-Control Behaviors in Subjective Judging Sports (SJ) and Objective Scoring Sports (OS)

N = 82

Characteristic	SJ	OS	DF	χ^2	p
Weight Control Behavior (n)					
Loss (34)	56%	35%	2	5.81	.055*
Gain (18)	26%	20%			
Neither (30)	18%	45%			
Weight Loss Behavior (n)					
Pathogenic (16)	67%	42%	1	2.03	.154
Non-Pathogenic (18)	33%	58%			
Weight Gain Behavior (n)					
Pathogenic (21)	57%	73%	1	.468	.494
Non-Pathogenic (27)	43%	27%			
Combined Loss and Gain Behavior (n)					
Pathogenic (37)	68%	53%	1	1.162	.281
Non-Pathogenic (45)	32%	47%			

* significant at the .1 level

Table 5

Male and Female Athletes' Weight-Control Behaviors

N = 211

Characteristic	Male	Female	DF	χ^2	p
Weight-Control Behavior (n)					
Loss (81)	23%	55%	2	38.72	.000*
Gain (48)	39%	6%			
Neither(82)	38%	39%			
Weight Loss Behavior (n)					
Pathogenic (43)	60%	50%	1	.694	.405
Non-Pathogenic (38)	40%	50%			
Weight Gain Behavior (n)					
Pathogenic (21)	48%	17%	1	2.04	.153
Non-Pathogenic (24)	52%	83%			
Combined Loss and Gain Behavior (n)					
Pathogenic (65)	54%	47%	1	.623	.430
Non-Pathogenic (64)	46%	53%			

* significant at the .001 level

CHAPTER FIVE

Discussion and Implications

This study sought to explore the relationships between student-athletes' weight-control behaviors and the type of sport in which the athletes competed. The comparisons were based on the weight restrictions or lack thereof for the sport, the type of judging (subjective or objective) for the sport, and the sex of the participant. The frequency of athletes losing weight, gaining weight, or doing neither were compared, as were degrees of weight loss and gain.

The data revealed that WR athletes are losing weight more frequently than NWR athletes. While this finding might seem logical given the nature of WR sports, it suggests that weight loss among WR athletes merits monitoring. If an athlete loses more than a pound or two in a few days, it may significantly weaken his or her body, and be detrimental to athletic performance. An additional danger, caused by behaviors such as saunas and spitting, is dehydration. If athletes become dehydrated in order to compete, they will not be able to compete optimally. If it is success that motivates athletes to engage in weight loss behaviors, the message that the behaviors can hurt their performance, may reduce the incidence of unhealthy, dangerous behaviors.

SJ athletes engaged in weight loss more frequently than OS athletes, as well. This finding suggests that athletes who are judged by subjective means may feel an added pressure to lose weight. The difficulty here is not the same as the problems of WR sports. It will be more difficult to change the beliefs and behaviors of these athletes if the connection between thinness and winning is observable. If the athletes are going to continue to lose weight, SJ athletes may need more education about what is healthy and helpful and what is not, and the impairment poor nutrition can impose on their athletic abilities and strength.

The largest difference was found between the frequency of males and females losing weight. Females are losing weight with greater frequency. Given the literature, this is not surprising, however, it indicates that the female athletes may not be getting the information they need on the merits and demerits of some weight loss behaviors. While watching what one eats and cutting out junk food seem harmless, or even helpful, some of these behaviors can be taken to unhealthy extremes. Additionally, diet pills or laxatives can lead to quick, unhealthy weight loss and weaken an athlete to the point of declining athletic performance. Athletes must be given

information from athletic trainers and coaches about the nutritional needs of athletes in training.

There was also a large difference between the frequency of males and females gaining weight. Males are engaging in weight gain behaviors more often. Many are involved in weight lifting behaviors and this can be helpful. Not all gaining behaviors are helpful, however. Though there was no reported use of anabolic steroids, there were several reports of using weight gain pills or supplements. These two behaviors can be abused and athletes should be educated accordingly.

Further comparisons between type of sport and the frequencies of pathogenic and non-pathogenic weight-control behaviors found no significant relationships. However, nearly half of the participants who engaged in either type of weight-control behavior, losing or gaining, were engaging in at least one behavior that was classified as pathogenic for this study. This indicates that there may be some significant misconceptions about the safety of certain behaviors. These athletes may not fully understand the long term effects some of these dangerous behaviors may have. Taking laxatives or vomiting to lose a few pounds quickly may lead to long term problems with eating disorders or nutritional deficiencies.

It also indicates the lengths to which athletes will go in order to be more competitive and more successful. It must be stressed to these athletes by all individuals who have connections with them (i.e., coaches, athletic trainers, team doctors, health services personnel, and, dining services personnel) that in many cases they are making themselves weaker and less competitive by engaging in these dangerous behaviors.

Since weight-control behaviors are closely related to the general health of student-athletes, these results are important. This chapter will consider the results of this study in the context of the related literature. A discussion of the limitations of the research is offered. Finally, an examination of the implications of these results and recommendations for future research and practice is provided.

Connections to the Literature

The proportion of respondents in this study who indicated they thought their weight was “just about right” is less than the frequency of respondents who were trying to lose or gain weight. This would indicate that athletes may be engaging in weight-control behaviors for reasons other than to look better. It may be that they believe being lighter will give them a competitive edge. They may believe that weight-control will increase their performance in their

respective sport. This is consistent with a study completed by Borgen and Corbin (1987) who found an equivalent drive to look thin among athletes and non-athletes. It is also consistent with studies that found that athletes have frequently claimed weight loss has increased their performance, or have reported that weight loss is necessary to successfully compete in their sport (Davis, 1992; Dummer, et al., 1987; Fuller & LaFountain, 1987; Rosen, et al., 1986; Sykora, et. al, 1993).

Many studies (Dummer, et al., 1987; Selby, et al., 1990; Sykora et al., 1993) have reported that female athletes engage in weight loss behavior with more frequency than male athletes. This study supported those findings and reported a significant relationship between sex of athletes and the frequency of engaging in a weight-control behavior. The women in this study engaged in weight loss behavior much more frequently than the men did.

Among studies that examined the frequency of pathogenic weight control behavior among women, one study (Rosen, et al., 1986) reported that 32% of female athletes engage in at least one pathogenic loss behavior. In a similar study, Dummer, et al., (1987) found 15% of women engage in at least one pathogenic weight loss behavior. Other studies have found similar numbers (Borgen & Corbin, 1987; Guthrie, 1991; Sillivan & Steel, 1991). In this study, 28% of the women reported engaging in at least one PL behavior, which is consistent with previous research.

The literature indicates that males are more likely to use anabolic steroids (Chng & Moore, 1990; Selby, et al., 1990; Wright & Cowart, 1990). This results recorded in this study differ. Neither males nor female reported using any anabolic steroids. While it is possible the participants did not respond honestly to questions about anabolic steroid use, the results might also suggest that education about such drugs has had some affect on athletes.

The results of the present study indicate that weight-control is an issue for athletes in weight-restricted sports. Though this study examines these athletes together, it is consistent with previous research that has examined individual weight restricted sports and found that the athletes engaged in weight-control behaviors (Depalma, et al., 1992; Sykora, et al., 1993). This suggests that the weight restrictions imposed by these sports may have an effect on the health of the athletes. Since the sports seem unlikely to change, educational programs that target these athletes should focus on the negative effects these behaviors can have on the athlete's health. Athletes should make informed decisions on the costs and benefits of their weight-control behaviors.

Previous studies have reported that weight-control (specifically weight loss) is prevalent in sports such as gymnastics, diving, synchronized swimming, and ice skating, where winners and losers are determined by a panel of judges (Guthrie, 1991; Loosli, et al., 1986; Ryan, 1995; Smithies, 1991; Ubbes, 1991). In this study, the athletes competing in sports which are judged subjectively engaged in weight-control behaviors to lose weight more frequently than those athletes in sports where objective measures were used to determine the winners (OS). This suggests a need to educate the officials who judge these sports. The desire of an athlete to do "whatever it takes to win" has been shown to have an effect on behavior in these athletes. If the slimmer bodies are no longer rewarded, the athletes may adjust their behaviors accordingly.

Previous studies have found a high rate of weight-control behaviors among competitive swimmers (Benson, 1991; Dummer et al., 1987a; Thornton, 1990). In this study, swimming was considered an OS sport, and results suggested no relationship between OS sports and weight-control behaviors. This finding was inconsistent with prior research. The difference may be that in the previous studies swimmers were studied alone, and in the present study they were studied in conjunction with other athletes (e.g., runners). Perhaps only in comparison with these other athletes are their behaviors more healthy.

There is no conclusive evidence that a particular sport (e.g., distance running) will attract athletes who are prone to eating disorders (Nash, 1987; Parker et al., 1994). The present study would suggest that runners are not prone to eating disorders. Cross country and track and field team members were included in the OS category and were found to engage in weight-control behaviors with less frequency than the athletes in the comparison group (SJ).

Limitations

As with any study, the present research had some limitations. For example, the participation rate for this study was 54%. This was an acceptable number but a higher rate may have established more defensible data. Particularly problematic was the relatively low number of participants from SJ sports (n=27). A larger number of respondents from this group may have made some of the chi-squares less subject to criticism. Additionally. some comparisons within groups could not be conducted (e.g., male and female SJ athletes' WCB's) because of expected cell sizes smaller than five.

Prior to data collection, the length of the instrument (147 questions) was considered a possible limitation. It does not seem to have been a factor. Most participants completed the survey within a reasonable time frame, and only one potential participant did not complete the questions due to time constraints.

The instrument did have other limitations and weaknesses, however. One important limitation is that the instrument did not include any questions for athletes who were involved in two sports, and possibly two kinds of sports (e.g., WR and NWR). The instrument could have asked if the athlete behaves differently when training for each sport. This conclusion was prompted by comments from the participants themselves. Three times during the data collection the researcher observed participants making statements such as "I would have to answer these questions differently if I was still wrestling," and, "Which sport should I fill this out for, because it makes a difference on some of the answers." If the instrument had included questions about athletes' behaviors in each of their sports, the results might have offered a clearer picture of how the type of sport relates to the student-athletes' weight-control behaviors.

Another limitation was the self report nature of the instrument. There were several behaviors (e.g., vomiting, anabolic steroids) that participants may have been reluctant to admit to engaging in due to the sensitive nature of the behaviors and their potential consequences. In the case of steroids, the consequences of the discovery of an athlete's use could range from suspension from the team to legal investigations.

A final limitation was that all of the participants in this study were attending the same university. There may have been something specific to the culture of the athletic department at this institution that led to different results than might be found at other universities.

Implications and Directions for Future Research

Despite these limitations, the implications of this study are numerous. In terms of implications for future professional practice, the results suggest members of different teams in a university's athletic program have different needs. Weight-control issues are not universal for all student-athletes and some athletes and teams may need more attention. Among the teams examined in the present study, special attention may be provided to student-athletes in weight restricted sports. The high frequency of athletes reporting losing weight may indicate that unhealthy habits are being encouraged or reinforced by some aspect of the culture of the sports or the teams. Perhaps the older athletes on the team, or the more successful, are

engaging in unhealthy behaviors and directly or indirectly influencing younger team members to do the same. It may be a cycle on certain teams that must be broken through intervention by a coach or team captain.

Female athletes in general report more weight-control issues (i.e., frequency of participants reporting engaging in weight loss behaviors is greater than the number of participants who reported being overweight). Perhaps there needs to be more programs for these female athletes and more special attention paid to this matter for the women. Perhaps previous educational programs on weight control were not designed specifically for women. A woman's physiology is different than a man's. Women naturally have higher percentages of body fat. If a woman's body fat is too low, she may discontinue menstruation. This can have serious and long term effects on a woman's health. Women also have different nutritional needs than men. For example, calcium is crucial for women's health and many unhealthy weight-loss behaviors (e.g. fasting, vomiting) preclude a woman from ingesting enough calcium. Specific programs addressing women's nutritional needs should be developed by women's coaches in conjunction with team doctors and campus nutritionists.

Though no significant relationship was found between type of sport and the frequency of participants engaging in pathogenic behaviors, the overall number of athletes reporting at least one pathogenic behavior exceeds 30% of the sample. This result suggests that some athletes may not be healthy and may require help and attention. Though this study did not examine eating disorders or other weight-related diseases (e.g., Anorexia Nervosa, Bulimia Nervosa), the results suggest that there may be some athletes with these diseases. Early education programs on the dangers of these behaviors and the benefits of healthy diets may prevent severe situations from occurring. Since no steroid use was reported, it may be assumed that educational programs have worked but continuing education to prevent future abuse may still be warranted. These programs should be examined and modified to address other unhealthy behaviors such as self-induced vomiting and abuse of weight-gain pills.

The present study also suggests a need for additional research. For example, future studies may explore different combinations of sports in the same four categories that were included in this study (WR, NWR, SJ, OS). The NWR sports used in this study (basketball, tennis, and, soccer) could be replaced with sports like volleyball, baseball, and, golf, to examine for the same relationships. Additionally, other categories of sports might also be examined to determine which types of sport have the greatest effect on the athletes. One study might include endurance sports (e.g., long distance

swimming and running) versus spurt sports (e.g., swimming and running sprinters); or revenue sports (football and basketball) versus non-revenue sports (lacrosse, softball, and, field hockey).

The instrument could be modified to include questions that compare athletes' behaviors in different sports. It would be important to know if an athlete engages in different behaviors in different sport seasons. Such data might be an indication of the degree to which the type of sport effects weight-control behaviors.

Still other scholars may wish to replicate the present study at multiple institutions, or on other types of campuses. This would eliminate any potential bias that occurred in the present sample, and could include studies at NCAA Division II or III colleges, or single-sex institutions.

In summary, this study revealed some significant relationships between type of sport and weight-control behavior and sex and weight-control behavior. The findings suggest that the type of sport or sex of the participant does have an effect on weight-control behavior of the athlete. They further suggest that coaches, trainers, and others associated with student athletes may wish to pay greater attention to athletes participating in particular types of sport (e.g., WR) and female athletes to ensure that their weight-control behaviors are healthy and that potential problems from unhealthy weight-control behaviors are avoided. The cost of success for student-athletes should not be their health.

References

American Council on Education. (1937). The Student Personnel Point of View. Washington, DC: Author.

American Council on Education. (1949). The Student Personnel Point of View. Washington, DC: Author.

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Andersen, R. E., Barlett, S. J., Morgan, G. D., & Brownell, K. D. (1995). Weight loss, psychological, and nutritional patterns in competitive male body builders. International Journal of Eating Disorders 18(1), 49-57.

Benson, R. (1991). Weight control among elite women swimmers. In D. R. Black (Ed.), Eating disorders among athletes: Theory, issues, and research (pp. 97-110). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Berg, K. M. (1988). The prevalence of eating disorders in co-ed versus single sex residence halls. Journal of College Student Development, 29, 125-131.

Black, D. R. (Ed.). (1991a). Eating disorders among athletes: Theory, issues, and research. Reston, VA.: American Alliance for Health, Physical Education, Recreation and Dance.

Black, D. R. (1991b). Eating disorders among athletes: Current perspective. In D. R. Black (Ed.), Eating disorders among athletes: Theory, issues, and research (pp. 1-10). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Black, D. R., & Burckes-Miller, M. E. (1988). Male and female college athletes: Use of Anorexia Nervosa and Bulimia Nervosa weight loss method. Research Quarterly for Exercise and Sport, 59(3), 252-256.

Black, D. R., & Held, S. E. (1991). Eating disorders and athletes: Current issues and future research. In D. R. Black (Ed.), Eating disorders among athletes: Theory, issues, and research (pp. 27-42). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Borgen, J. S. (1991, October). Pathogenic weight control behavior and self-reported eating disorders in Norwegian female elite athletes. Paper presented at the University of Windsor, Windsor, Canada.

Borgen, J. S., & Corbin, C. B. (1987) Eating disorders among female athletes. The Physician and Sportsmedicine, 15(2), 89-95.

Bradley, J. L., Banta, T. W., & Bryant, J. A. (1992). Sharing assessment data: An example from a national professional association. San Francisco: American Educational Research Association. (ERIC Document Reproduction Service No. ED 344 927).

Burckes-Miller, M. E., & Black, D. R. (1991). College athletes and eating disorders: A theoretical context. In D. R. Black (Ed.), Eating disorders

among athletes: Theory, issues, and research (pp. 11-26). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Chng, C. L., & Moore, A. (1990). A study of steroid use among athletes: Knowledge, attitude and use. Health Education, 21(6). 12-17, 11.

Chopak, J. S., & Taylor-Nicholson, M. (1991). Do female college athletes develop eating disorders as a result of the athletic environment? In D. R. Black (Ed.), Eating disorders among athletes: Theory, issues, and research (pp. 87-96). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Collins, J. R., Hurst, J. C., & Jacobson, J. K. (1987). The blind spot extended: Spirituality. Journal of College Student Personnel, 28(5), 274-276.

Dai, S., & Papalia, A. S. (1983). A cooperative model for women's health care on the college campus. Journal of College Student Personnel, 24(2), 148-151.

Davis, C. (1992). Body Image, dieting behaviours, and personality factors: A study of high-performance female athletes. The International Journal of Sports Psychology, 23, 179-192.

Depalma, M. T., Koszewski, W. M., Case, J. G., Barile, R. J., Depalma, B. F., & Oliaro, S. M. (1993). Weight control practices of lightweight football players. Medicine and Science in Sports and Exercise, 696-701.

Dick, R. W. (1990, September 17). NCAA eating disorder survey. NCAA News.

Dolan, B. (1994). Why women? Gender issues an eating disorders: Introduction. In B. Dolan & I. Gitzinger (Eds.), Why women? Gender issues and eating disorders (15-20). London: The Athlone Press.

Dolan, B., & Gitzinger, I. (Eds.). (1994). Why women? Gender issues and eating disorders. London: The Athlone Press.

Dummer, G. M., Rosen, L. W., Heusner, W. W., Roberts, P. J. & Counsilman, J. E. (1987a). Pathogenic weight-control behaviors of young competitive swimmers. The Physician and Sportsmedicine, 15(5), 75-84.

Dummer, G. M., Rosen, L. W., Heusner, W. W., Roberts, P. J. & Counsilman, J. E. (1987b). Michigan State Weight-Control Survey. The Physician and Sportsmedicine, 15(5), 75-84.

Erickson, E. H., & Erickson, J. M. (1981). On generativity and identity: From a conversation with Erik and Joan Erickson. Harvard Educational Review, 51(2), 249-269.

Fedorovich, S. E., & Boyle, C. R. (1992). Recommendations for using research as a means of individualizing campus wellness programs. College Student Affairs Journal, 11(3), 38-43.

Fenske, R. H. (1989a). Historical foundations of student services. In U. Delworth, G. R. Hanson, & Associates (Eds.), Student Services: A Handbook for the Profession (pp. 5-24). San Francisco: Jossey Bass.

Fenske, R. H. (1989b). Evolution of the student services profession. In U. Delworth, G. R. Hanson, & Associates (Eds.), Student Services: A Handbook for the Profession (pp. 25-56). San Francisco: Jossey Bass.

Fuller, J. R., & LaFountain, M. J. (1987). Performance-enhancing drugs in sport: A different form of drug abuse. Adolescence, 22(88), 969-976.

Gilligan, C. (1982). In a different voice (pp. 1-23). Cambridge, MA: Harvard University Press.

Gilligan, C. (1988). Moral development. In A. W. Chickering & Associates (Eds.), The modern American college (pp. 139-157). San Francisco: Jossey-Bass.

Guthrie, S. R. (1991). Prevalence of eating disorders among intercollegiate athletes: Contributing factors and preventive measures. In D. R. Black (Ed.), Eating disorders among athletes: Theory, issues, and research (pp. 43-66). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Guttman, A. (1991). The anomaly of intercollegiate athletics. In J. Andre & D. N. James (Eds.), Rethinking college athletics (pp. 17-30). Philadelphia: Temple University Press.

Hettler, B. (1980). Wellness promotion on a university campus. Family and Community Health, 3(1), 77-95.

Johnson, K. L., & Wernig, S. R. (1986). Life directions: A comprehensive wellness program at a small college. In F. Leafgren (Ed.) Developing campus recreation and wellness programs (New Directions for Student Services No. 34) (pp. 33-42). San Francisco: Jossey Bass.

Kalsner, L. (1992). The influence of developmental and emotional factors on success in college. Higher education extension service review, 3(2), 1-13.

Klesges, R. C., Mizes, J. S., & Klesges, L. M. (1987). Self-help dieting strategies in college males and females. International Journal of Eating Disorders, 6 (3), 409-417.

Kohlberg, L. (1976). Moral stages and moralization. In T. Lickona, Moral development and behavior: Theory, research and social issues (pp. 31-53). New York: Hot, Rinehart and Winston.

Koszewski, W. M., Newell, G. K., & Higgins, J. J. (1990). Effect of a nutrition education program on the eating attitudes and behaviors of college women. Journal of College Student Development, 31(3), 203-210.

Krivoski, J. F., & Warner, M. J. (1986). Implementing strategies for high-level wellness programs in student housing. In F. Leafgren (Ed.) Developing campus recreation and wellness programs (New Directions for Student Services No. 34) (pp. 53-66). San Francisco: Jossey Bass.

Leafgren, F. & Elsenrath, D. E. (1986). The role of campus recreation programs in institutions of higher education. In F. Leafgren, (Ed.), Developing

campus recreation and wellness programs (New Directions for Student Services No. 34) (pp. 3-18). San Francisco: Jossey Bass.

Lerner, J. R. (1985). Stress management and weight control. Journal of College Student Personnel, 26, (1), 86-87.

Loosli, A. R., Benson, J., Gillien, D. M., & Bourdet, K. (1986). Nutrition habits and knowledge in competitive adolescent female gymnasts. The Physician and Sportsmedicine, 14(8), 118-119, 128-130.

Mayo, J. R., Murguia, E., & Padilla, R. V. (1995). Social integration and academic performance among minority university students. Journal of College Student Development, 36(6), 542-552.

Miller, M., Coffman, J. G., & Linke, R. A. (1980). Survey on body image, weight, and diet of college students. Journal of the American Dietetic Association, 77, 561-566.

Moriarty, D. & Moriarty, M. (1994). Eating disorders and sports. Windsor, Ontario, Canada: BANA-Can/Am. (ERIC Document Reproduction Services No. ED 375 362)

Nash, H. L. (1987). Do compulsive runners and anorectic patients share common bonds? The Physician and Sportsmedicine 15(12), 163-167.

National Collegiate Athletic Association. (1994). 1994-1995 NCAA Manual. Overland Park, KS: Author.

Overdorf, V. G. (1991). Eating related problems in female athletes. In D. R. Black (Ed.), Eating disorders among athletes: Theory, issues, and research (pp. 67-86). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Parker, R. M., Lambert, M. J., & Burlingame, G. M. (1994). Psychological features of female runners presenting with pathogenic weight control behaviors. Journal of Sport & Exercise Psychology, 16, 119-134.

Paul, E. L., & Kelleher, M. (1995). Precollege concerns about losing and making friends in college: Implications for friendship satisfaction and self-esteem during the college transition. Journal of College Student Development, 36(6), 513-521.

Pelletier, D. M. & Peterson, K. E. (1986). Intercollegiate athletics or student activities and recreation programs: One college's decision. NASPA Journal, 23(6), 50-57.

Perry, W. G. (1968). Forms of intellectual and ethical development in the college years: A scheme. New York: Holt, Rinehart, and Winston.

Perry, W. G. (1988). Cognitive and ethical growth: The making of meaning. In A. W. Chickering & Associates (Eds.), The Modern American College (pp. 76-116). San Francisco: Jossey-Bass.

Phelps, L., Andrea, R., Rizzo, F. G., Johnston, L., & Main, C. M. (1993). Prevalence of self-induced vomiting and laxative/medication abuse among female adolescents: A longitudinal study. International Journal of Eating Disorders 14(3), 375-378.

Puryear, J. B. (1982). Student health services: Similarities and differences within a university system. College Student Affairs Journal, 4(3), 25-28.

Pyle, R. L., Halvorson, P. A., Neuman, P. A., & Mitchell, J. E. (1986). The increasing prevalence of Bulimia in freshman college students. International Journal of Eating Disorders, 5(4), 631-647.

Rand, C. S. W., & Kuldau, J. M. (1991). Restrained eating (weight concerns) in the general population and among students. International Journal of Eating Disorders, 10(6), 699-708.

Round Table, A. (1985). Eating disorders in young athletes. The Physician and Sportsmedicine, 13(11), 89-104.

Rosen, L. W., McKeag, D. B., Hough, D. O., & Curley, V. (1986). Pathogenic weight-control behavior in female athletes. The Physician and Sportsmedicine, 14(1), 79-83, 86.

Ryan, J. (1995). Little girls in pretty boxes: The making and breaking of elite gymnasts and figure skaters. New York: Doubleday.

SAS® (release 6.07) [computer software]. (1989). Cary NC: SAS Institute Inc.

Selby, R., Weinstein, H. M., & Bird, T. S. (1990). The health of university athletes: Attitudes, behaviors, and stressors. Journal of American College Health, 39, 11-18.

Smithies, C. S. (1991). Disordered eating behaviors among synchronized swimmers. In D. R. Black (Ed.), Eating disorders among athletes: Theory, issues, and research (pp. 111-122). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Striegel-Moore, R. H., Silberstein, L. R., Frensch, P., & Rodin, J. (1989). A prospective study of disordered eating among college students. International Journal of Eating Disorders, 8(5), 499-509.

Sullivan, K. T. & Steel, D. H. (1991). An exploratory study of eating disorder characteristics among adult female noncollegiate athletes. In D. R. Black (Ed.), Eating disorders among athletes: Theory, issues, and research (pp. 123-142). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Sykora, C., Grilo, C. M., Wilfley, D. E., & Brownell, K. D. (1993). Eating, weight, and dieting disturbances in male and female lightweight and heavyweight rowers. International Journal of Eating Disorders, 14(2), 203-211.

Taub, D. E., & Blinde, E. M. (1992). Eating disorders among adolescent female athletes: Influence of athletic participation and sport team membership. Adolescence, 27(108), 833-848.

Thornton, J. S. (1990). Feast or famine: Eating disorders in athletes. The Physician and Sportsmedicine, 18(4), 118-122.

Ubbes, V. A. (1991). Relationship of self-concept, eating behavior, and success of female collegiate gymnasts from big ten conference teams. In D. R. Black (Ed.), Eating disorders among athletes: Theory, issues, and research (pp. 143-172). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.

Walters, P. R., & Sedlacek, W. E. (1984). Sex and race differences in dieting and exercise among university students. College Park, MD: University of Maryland Counseling Center. (ERIC Document Reproduction Services No. ED 252 152)

Weeda-Mannek, W. (1994). Female sex-role conflicts and eating disorders. In B. Dolan & I. Gitzinger (Eds.), Why women? Gender issues and eating disorders (15-20). London: The Athlone Press.

Williams, R. L., Schaefer, C. A., Shisslak, C. M., Gronwaldt, V. H., & Comerci, G. D. (1986). Eating attitudes and behaviors in adolescent women: Discrimination of normals, dieters, and suspected bulimics using the Eating Attitudes Test and Eating Disorder Inventory. International Journal of Eating Disorders, 5(5), 879-894.

Wright, J. E., & Cowart, W. S. (1990). Anabolic steroids: Altered states. Dubuque, IA: Brown & Benchmark.

Zuckerman, D. M., & Colby, A., Ware, N. C., & Lazerson, J. S. (1986). The prevalence of Bulimia among college students. The American Journal of Public Health, 76(9), 1135-1137.

APPENDIX A

Modified Michigan State Weight-Control Survey

Modified Michigan State Weight-Control Survey

Instructions: Check the appropriate answer for each question in Part I. Then complete Part II if you are currently or have in the past attempted to lose weight for your sport. Or complete Part III if you currently or have in the past attempted to gain weight for your sport. Only answer Part II **OR** Part III. If you are unsure about which section you should answer, ask the researcher.

Part I - General Information

1. Sex (check one) (1)
   _____1. male
   _____2. female
2. Age (check one) (2)
   _____1. under 18
   _____2. 18
   _____3. 19
   _____4. 20
   _____5. 21
   _____6. 22
   _____7. over 22
3. Sport that you compete in (choose only one sport) (3)
   _____1. soccer
   _____2. tennis
   _____3. basketball
   _____4. wrestling
   _____5. rowing
   _____1. gymnastics (4)
   _____2. cheering
   _____3. diving
   _____4. swimming
   _____5. indoor track and field
   _____6. cross country

Your Coach

4. Is your coach concerned about how much you weigh? For example, does your coach keep a record of your weight, suggest that athletes in your sport should be a certain weight, or provide you with suggestions about what to eat ? (Check one) (5)
   _____1. Yes
   _____2. No
   _____3. Don't Know
5. Is your coach strict about how much you should weigh? For example, does your coach tell you how much to weigh, put pressure on you about your weight, or punish you in any way about your weight? (check one) (6)
   _____1. Yes
   _____2. No
   _____3. Don't Know

What Do You Think

6. How often do you weigh yourself ? (check one) (7)
   _____1. more than once a day
   _____2. once a day
   _____3. more than once a week
   _____4. once a week
   _____5. about once a month

_____6. every few months
_____7. never

7. What do you think about your weight? (check one) (8)
_____1. I am more than 10 pounds overweight
_____2. I am 5 - 10 pounds overweight
_____3. I am just about right
_____4. I am 5 - 10 pounds underweight
_____5. I am over 10 pounds underweight

8. Do you worry about your weight? (check one) (9)
_____1. Almost never
_____2. once in a while
_____3. often
_____4. almost all the time

9. How often do you measure any parts of your body? (check one) (10)
_____1. more than once a day
_____2. once a day
_____3. more than once a week
_____4. once a week
_____5. about once a month
_____6. every few months
_____7. never

10. Does your weight go up or down often? (check one) (11)
_____1. Yes, if I am not careful I gain weight
_____2. Yes, if I am not careful I lose weight
_____3. No, I stay about the same weight without much effort

11. Does your weight go up or down often when you are actually training for your sport (in season)? (check one) (12)
_____1. Yes, if I am not careful I gain weight
_____2. Yes, if I am not careful I lose weight
_____3. No, I stay about the same weight without much effort

12. Does your weight go up or down often when you are not training for your sport (off-season)? (check one) (13)
_____1. Yes, if I am not careful I gain weight
_____2. Yes, if I am not careful I lose weight
_____3. No, I stay about the same weight without much effort

Bingeing (Bingeing means eating so much that you feel physically uncomfortable. When people binge they are eating out of control. For example, eating 2 - 3 pizzas at one time)

13. How many days a week do you go on eating binges? (check one) (14)
_____1. 0
_____2. 1
_____3. 2
_____4. 3
_____5. 4
_____6. 5
_____7. 6
_____8. 7

14. What is the longest number of days in a row that you have binged? (check one) (15)
_____1. 0
_____2. 1-3
_____3. 4-6
_____4. 7-9

_____5. 10-12
_____6. 13-15
_____7. over 15

15. How old were you when you started to binge? (check one) (16)
_____1. under 18
_____2. 18
_____3. 19
_____4. 20
_____5. 21
_____6. 22
_____7. over 22

16. In the past 4 months, have you tried to lose weight? (check one) (17)
_____1. Yes
_____2. No (if No, skip to question 18)

17. Why did you want to lose weight? (check one) (18)
_____1. To look better
_____2. To improve my health
_____3. To perform better in my sport
_____4. To please or satisfy other people
_____5. To make weight for my sport
_____6. All of the above

18. In the past 4 months, have you tried to gain weight? (check one) (19)
_____1. Yes
_____2. No (if No, skip question 19)

19. Why did you want to gain weight? (check one) (20)
_____1. To look better
_____2. To improve my health
_____3. To perform better in my sport
_____4. To please or satisfy other people
_____5. To make weight for my sport
_____6. All of the above

Part II Weight Loss
Answer this section only if you are attempting or have attempted to lose weight since you began competing in your sport.

1. At what age did you start using weight loss methods? (check one) (21)
_____1. under 18
_____2. 18
_____3. 19
_____4. 20
_____5. 21
_____6. 22
_____7. over 22
2. What is the usual duration of each of your weight loss methods? (check one) (22)
_____1. Less than 1 week
_____2. 1 to 2 weeks
_____3. 2 to 3 weeks
_____4. 3 to 4 weeks
_____5. 1 to 6 months
_____6. More than 6 months
3. How often do you lose weight loss methods? (check one) (23)
_____1. Once a year or less
_____2. Twice a year
_____3. 3 to 4 times a year
_____4. 5 to 6 times a year
_____5. Almost constantly
4 When do you use weight loss methods? (check one) (24)
_____1. I use weight loss methods primarily when I am in-season
_____2. I use weight loss methods primarily when I am out-of-season
_____3. I use weight loss methods both in-season and out-of-season
5. In order to lose or maintain weight, have you ever tried exercising more as a weight-control behavior? (check one) (25)
_____1. Yes
_____2. No (if no skip to question 9)
6. How did exercising more as a method of weight-control make you feel physically? (check one) (26)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. not applicable (n/a)
7. How did exercising more as a method of weight-control make you feel emotionally? (check one) (27)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a
8. How did exercising more as a method of weight-control affect your athletic performance? (check one)(28)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a
9. In order to lose or maintain weight, have you ever tried cutting down on snacks or junk food as a weight-control behavior? (check one) (29)

_____1. Yes
_____2. No (if no skip to question 13)

10. How did cutting down on snacks or junk food as a method of weight-control make you feel physically? (check one) (30)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

11. How did cutting down on snacks or junk food as a method of weight-control make you feel emotionally? (check one) (31)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

12. How did cutting down on snacks or junk food as a method of weight-control affect your athletic performance? (check one) (32)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

13. In order to lose or maintain weight, have you ever tried skipping meals more than once or twice a week as a weight-control behavior? (check one) (33)
_____1. Yes
_____2. No (if no skip to question 17)

14. How did skipping meals more than once or twice a week as a method of weight-control make you feel physically? (check one) (34)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

15. How did skipping meals more than once or twice a week as a method of weight-control make you feel emotionally? (check one) (35)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

16. How did skipping meals more than once or twice a week as a method of weight-control affect your athletic performance? (check one) (36)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

17. In order to lose or maintain weight, have you ever tried eating smaller meals as a weight-control behavior? (check one) (37)
_____1. Yes
_____2. No (if no skip to question 21)

18. How did eating smaller meals as a method of weight-control make you feel physically? (check one) (38)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

19. How did eating smaller meals as a method of weight-control make you feel emotionally? (check one)(39)

_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

20. How did eating smaller meals as a method of weight-control affect your athletic performance? (check one) (40)

_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance

21. In order to lose or maintain weight, have you ever tried using low calorie or diet foods or drinks as a weight-control behavior? (check one) (41)

_____1. Yes
_____2. No (if no skip to question 25)

22. How did using low calorie or diet foods or drinks as a method of weight-control make you feel physically? (check one) (42)

_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

23. How did using low calorie or diet foods or drinks as a method of weight-control make you feel emotionally? (check one) (43)

_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

24. How did using low calorie or diet foods or drinks as a method of weight-control affect your athletic performance? (check one) (44)

_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

25. In order to lose or maintain weight, have you ever tried using special diets which involve eating mostly one kind of food as a weight-control behavior? (check one) (45)

_____1. Yes
_____2. No (if no skip to question 29)

26. How did using special diets which involve eating mostly one kind of food as a method of weight-control make you feel physically? (check one) (46)

_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

27. How did using special diets which involve eating mostly one kind of food as a method of weight-control make you feel emotionally? (check one) (47)

_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

28. How did using special diets which involve eating mostly one kind of food as a method of weight-control affect your athletic performance? (check one) (48)

_____1. helped athletic performance
_____2. hurt athletic performance

_____3. made no difference in athletic performance
_____4. n/a

29. In order to lose or maintain weight, have you ever tried counting calories as a weight-control behavior? (check one) (49)
_____1. Yes
_____2. No (if no skip to question 33)

30. How did counting calories as a method of weight-control make you feel physically? (check one) (50)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

31. How did counting calories as a method of weight-control make you feel emotionally? (check one) (51)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

32. How did counting calories as a method of weight-control affect your athletic performance? (check one) (52)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

33. In order to lose or maintain weight, have you ever tried using saunas or steam baths as a weight-control behavior? (check one) (53)
_____1. Yes
_____2. No (if no skip to question 37)

34. How did using saunas or steam baths as a method of weight-control make you feel physically? (check one) (54)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

35. How did using saunas or steam baths as a method of weight-control make you feel emotionally? (check one) (55)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

36. How did using saunas or steam baths as a method of weight-control affect your athletic performance? (check one) (56)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

37. In order to lose or maintain weight, have you ever tried fasting as a weight-control behavior? (check one) (57)
_____1. Yes
_____2. No (if no skip to question 41)

38. How did fasting as a method of weight-control make you feel physically? (check one) (58)
_____1. physically better

_____2. physically worse
_____3. physically no different
_____4. n/a

39. How did fasting as a method of weight-control make you feel emotionally? (check one) (59)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

40. How did fasting as a method of weight-control affect your athletic performance? (check one) (60)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

41. In order to lose or maintain weight, have you ever tried spitting as a weight-control behavior? (check one) (61)
_____1. Yes
_____2. No (if no skip to question 45)

42. How did spitting as a method of weight-control make you feel physically? (check one) (62)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

43. How did spitting as a method of weight-control make you feel emotionally? (check one) (63)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

44. How did spitting as a method of weight-control affect your athletic performance? (check one) (64)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

45. In order to lose or maintain weight, have you ever tried using diet pills as a weight-control behavior? (check one) (65)
_____1. Yes
_____2. No (if no skip to question 49)

46. How did using diet pills as a method of weight-control make you feel physically? (check one) (66)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

47. How did using diet pills as a method of weight-control make you feel emotionally? (check one) (67)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

48. How did using diet pills as a method of weight-control affect your athletic performance? (check one)(68)
_____1. helped athletic performance

_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

49. In order to lose or maintain weight, have you ever tried using laxatives as a weight-control behavior? (check one) (69)
_____1. Yes
_____2. No (if no skip to question 53)

50. How did using laxatives as a method of weight-control make you feel physically? (check one) (70)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

51. How did using laxatives as a method of weight-control make you feel emotionally? (check one) (71)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

52. How did using laxatives as a method of weight-control affect your athletic performance? (check one)(72)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

53. In order to lose or maintain weight, have you ever tried vomiting as a weight-control behavior? (check one) (73)
_____1. Yes
_____2. No (if no skip to question 57)

54. How did vomiting as a method of weight-control make you feel physically? (check one) (74)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

55. How did vomiting as a method of weight-control make you feel emotionally? (check one) (75)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

56. How did vomiting as a method of weight-control affect your athletic performance? (check one) (76)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made difference in athletic performance
_____4. n/a

The following five (5) questions are about the weight control method that you use the **most often**.

57. Which weight-control method do you use *most often*? (check one) (77)
_____1. exercising more
_____2. cutting down on snacks or junk food
_____3. skipping meals more than once or twice a week
_____4. eating smaller meals

_____5. using low calorie or diet foods and drinks
_____6. using special diets which involve eating mostly one kind of food
_____7. counting calories
_____8. using saunas or steam baths
_____9. fasting
_____10. spitting
_____11. using diet pills (78)
_____12. using diuretic pills
_____13. using laxatives
_____14. vomiting

58. How many days per week do you use that weight-control method? (check one) (79)
_____1. 1
_____2. 2
_____3. 3
_____4. 4
_____5. 5
_____6. 6
_____7.7

59. What is the longest number of days in a row that you have used this weight-control method? (check one) (80)
_____1. 1-3
_____2. 4-6
_____3. 7-9
_____4. 10-12
_____5. 13-15
_____6. 15-21
_____7. over 21

60. How old were you when you started this weight-control behavior? (check one) (81)
_____1. under 18
_____2. 18
_____3. 19
_____4. 20
_____5. 21
_____6. 22
_____7. over 22

61. During the last 4 months, have you used this weight-control method? (check one) (82)
_____1. Yes
_____2. No

The following five (5) questions are about the weight control method that you use the **next most often.**

62. Which weight-control method do you use the *next most* often? (check one) (83)
_____1. exercising more
_____2. cutting down on snacks or junk food
_____3. skipping meals more than once or twice a week
_____4. eating smaller meals
_____5. using low calorie or diet foods and drinks
_____6. using special diets which involve eating mostly one kind of food
_____7. counting calories
_____8. using saunas or steam baths
_____9. fasting
_____10. spitting

_____11. using diet pills (84)
_____12. using diuretic pills
_____13. using laxatives
_____14. vomiting

63. How many days per week do you use that weight-control method? (check one) (85)
_____1. 1
_____2. 2
_____3. 3
_____4. 4
_____5. 5
_____6. 6
_____7.7

64. What is the longest number of days in a row that you have used this weight-control method? (check one) (86)
_____1. 1-3
_____2. 4-6
_____3. 7-9
_____4. 10-12
_____5. 13-15
_____6. 15-21
_____7. over 21

65. How old were you when you started this weight-control behavior? (check one) (87)
_____1. under 18
_____2. 18
_____3. 19
_____4. 20
_____5. 21
_____6. 22
_____7. over 22

66. During the last 4 months, have you used this weight-control method? (check one) (88)
_____1. Yes
_____2. No

67. If you have ever tried exercising more to lose or maintain weight, please indicate how you usually exercised more (check one) (89)
_____1. Increase the amount of time you exercise each day
_____2. Increase the number of days you exercise each week
_____3. Increase the intensity of the exercise which you do (work harder)
_____4. Increase the amount of exercise or the number of repetitions that you usually do
_____5. Add training in an additional sport
_____6. n/a

68. If you have ever tried skipping meals to lose or maintain weight, which meal do you skip most often? (check one) (90)
_____1. breakfast
_____2. lunch
_____3. dinner
_____4. n/a

69. If you have ever tried restricting calories to lose weight or maintain weight, how many calories do you usually limit yourself to (check the one that is closest) (91)
_____1. less than 600
_____2. 600 - 900
_____3. 900-1200
_____4. 1200- 1500
_____5. 1500-1800

_____6. 1800-2200
_____7. more than 2200
_____8. n/a

70. If you have ever tried saunas or steam baths to lose weight or maintain weight, how long are each of your saunas or steam baths? (check one) (92)

_____1. 10 minutes or less
_____2. 11-15 minutes
_____3. 16-20 minutes
_____4. 21-25 minutes
_____5. more than 25 minutes
_____6. n/a

71. If you have ever tried fasting to lose weight or maintain weight, which liquids do you usually drink when you are fasting? (check one) (93)

_____1. water
_____2. fruit juices
_____3. soda
_____4. tea or coffee
_____5. milk
_____6. alcoholic beverages
_____7. sports drinks (e.g., Gatorade)
_____8. n/a

72. If you have ever tried vomiting to lose weight or maintain weight, have you ever made yourself vomit more than once a day? (check one) (94)

_____1. yes, often
_____2. yes, a few times
_____3. no
_____4. n/a

73. If you have ever tried laxatives to lose weight or maintain weight, how many pills or spoonfuls do you take each day? (check one) (95)

_____1. 1
_____2. 2
_____3. 3
_____4. 4
_____5. 5
_____6. 6
_____7. 7 or more
_____8. n/a

74. If you have ever tried diuretics to lose weight or maintain weight, how many pills do you take each day? (check one) (96)

_____1. 1
_____2. 2
_____3. 3
_____4. 4
_____5. 5
_____6. 6
_____7. 7 or more

75. If you have ever tried diet pills to lose weight or maintain weight, how many pills do you take each day? (check one) (97)

_____1. 1
_____2. 2
_____3. 3
_____4. 4
_____5. 5

_____6. 6
_____7. 7 or more

76. Did you ever continue a weight loss method because you were afraid that you would gain too much weight if you stopped? (check one) (98)
_____1. Yes
_____2. No (if No skip to question 78)

77. If you answered yes to question 46, which weight loss method did you use when you were afraid of gaining too much weight? (check one) (99)
_____1. exercising more
_____2. cutting down on snacks or junk food
_____3. skipping meals more than once or twice a week
_____4. eating smaller meals
_____5. using low calorie or diet foods and drinks
_____6. using special diets which involve eating mostly one kind of food
_____7. counting calories
_____8. using saunas or steam baths
_____9. fasting
_____10. spitting
_____11. using diet pills (100)
_____12. using diuretic pills
_____13. using laxatives
_____14. vomiting

78. Were you ever afraid that you would lose too much weight if you continue to use weight loss methods? (check one) (101)
_____1. Yes
_____2. No

79. Did you ever lose more weight than you wanted to lose? (check one) (102)
_____1. Yes
_____2. No

80. Did you ever decide to lose a certain number of pounds and then change your mind and try to lose more than that amount? (check one) (103)
_____1. Yes
_____2. No

81. Did you ever decide to lose a certain number of pounds, achieve your goal, and then gain most or all of the weight right back? (check one) (104)
_____1. Yes
_____2. No

82. Have you ever been told that you have Anorexia Nervosa? (check one) (105)
_____1. Yes
_____2. No

83. Have you ever been told that you have Bulimia Nervosa? (check one) (106)
_____1. Yes
_____2. No

Part III Weight Gain
Answer this section only if you are attempting or have attempted to gain weight since you began competing in your sport.

1. At what age did you start using weight gain methods (check one) (107)
_____1. under 18
_____2. 18
_____3. 19
_____4. 20
_____5. 21
_____6. 22
_____7. over 22
2. What is the usual duration of each of your weight gain methods? (check one) (108)
_____1. Less than 1 week
_____2. 1 to 2 weeks
_____3. 2 to 3 weeks
_____4. 3 to 4 weeks
_____5. 1 to 6 months
_____6. More than 6 months
3. How often do you use weight gain methods? (check one) (109)
_____1. Once a year or less
_____2. Twice a year
_____3. 3 to 4 times a year
_____4. 5 to 6 times a year
_____5. Almost constantly
4 When do you use weight gain methods? (check one) (110)
_____1. I use weight gain methods primarily when I am in-season
_____2. I use weight gain methods primarily when I am out-of-season
_____3. I use weight gain methods both in-season and out-of-season
5. In order to gain or maintain weight, have you ever tried adding meals or snacks as a weight-control behavior? (check one) (111)
_____1. Yes
_____2. No (if no skip to question 9)
6. How did adding meals or snacks as a method of weight-control make you feel physically?(check one)(112)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. not applicable (n/a)
7. How did adding meals or snacks as a method of weight-control make you feel emotionally? (check one) (113)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a
8. How did adding meals or snacks as a method of weight-control affect your athletic performance? (check one) (114)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

9. In order to gain or maintain weight, have you ever tried eating larger meals or eating high-calorie or high-fat foods or drinks as a weight-control behavior? (check one) (115)

_____1. Yes
_____2. No (if no skip to question 13)

10. How did eating larger meals or eating high-calorie or high-fat foods or drinks as a method of weight-control make you feel physically? (check one) (116)

_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

11. How did eating larger meals or eating high-calorie or high-fat foods or drinks as a method of weight-control make you feel emotionally? (check one) (117)

_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

12. How did eating larger meals or eating high-calorie or high-fat foods or drinks as a method of weight-control affect your athletic performance? (check one) (118)

_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

13. In order to gain or maintain weight, have you ever tried using special diets which involve eating one type of food as a weight-control behavior? (check one) (119)

_____1. Yes
_____2. No (if no skip to question 17)

14. How did using special diets which involve eating one type of food as a method of weight-control make you feel physically? (check one) (120)

_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

15. How did using special diets which involve eating one type of food as a method of weight-control make you feel emotionally? (check one) (121)

_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

16. How did using special diets which involve eating one type of food as a method of weight-control affect your athletic performance? (check one) (122)

_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

17. In order to gain or maintain weight, have you ever tried modifying your exercise program as a weight-control behavior? (check one) (123)

_____1. Yes
_____2. No (if no skip to question 21)

18. How did modifying your exercise program as a method of weight-control make you feel physically?
(check one) (124)

_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

19. How did modifying your exercise program as a method of weight-control make you feel emotionally?
(check one) (125)

_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

20. How did modifying your exercise program as a method of weight-control affect your athletic performance? (check one) (126)

_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

21. In order to gain or maintain weight, have you ever tried using liquid or food supplements such as Tigers's milk, or Mus-1-on as a weight-control behavior? (check one) (127)

_____1. Yes
_____2. No (if no skip to question 25)

22. How did using liquid or food supplements such as Tigers's milk, or Mus-1-on as a method of weight-control make you feel physically? (check one) (128)

_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

23. How did using liquid or food supplements such as Tigers's milk, or Mus-1-on as a method of weight-control make you feel emotionally? (check one) (129)

_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

24. How did using liquid or food supplements such as Tigers's milk, or Mus-1-on as a method of weight-control affect your athletic performance? (check one) (130)

_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

25. In order to gain or maintain weight, have you ever tried using weight gain pills, or tablets, or other medications as a weight-control behavior? (check one) (131)

_____1. Yes
_____2. No (if no skip to question 29)

26. How did using weight gain pills, or tablets, or other medications as a method of weight-control make you feel physically? (check one) (132)

_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

27. How did using weight gain pills, or tablets, or other medications as a method of weight-control make you feel emotionally? (check one) (133)

_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

28. How did using weight gain pills, or tablets, or other medications as a method of weight-control affect your athletic performance? (check one) (134)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

29. In order to gain or maintain weight, have you ever tried using anabolic steroids as a weight-control behavior? (check one) (135)
_____1. Yes
_____2. No (if no skip to question 33)

30. How did using anabolic steroids as a method of weight-control make you feel physically? (check one) (136)
_____1. physically better
_____2. physically worse
_____3. physically no different
_____4. n/a

31. How did using anabolic steroids as a method of weight-control make you feel emotionally? (check one) (137)
_____1. emotionally better
_____2. emotionally worse
_____3. emotionally no different
_____4. n/a

32. How did using anabolic steroids as a method of weight-control affect your athletic performance? (check one) (138)
_____1. helped athletic performance
_____2. hurt athletic performance
_____3. made no difference in athletic performance
_____4. n/a

The following five (5) questions are about the weight-control method that you use the **most often**.

33. Which weight-control method do you use *most often*? (check one) (139)
_____1. adding meals or snacks
_____2. eating larger meals or eating high-calorie or high-fat foods or drinks
_____3. using special diets which involve eating one type of food
_____4. modifying exercise program (more weight training or cutting conditioning)
_____5. using liquid or food supplements such as Tigers's milk, or Mus-1-on
_____6. using weight gain pills or tablets or other medications
_____7. using anabolic steroids

34. How many days per week do you use that weight-control method? (check one) (140)
_____1. 1
_____2. 2
_____3. 3
_____4. 4
_____5. 5
_____6. 6
_____7. 7

35. What is the longest number of days in a row that you have used this weight-control method? (check one) (141)

_____1. 1-3
_____2. 4-6
_____3. 7-9
_____4. 10-12
_____5. 13-15
_____6. 15-21
_____7. over 21

36. How old were you when you started this weight-control behavior? (check one) (142)

_____1. under 18
_____2. 18
_____3. 19
_____4. 20
_____5. 21
_____6. 22
_____7. over 22

37. During the last 4 months, have you used this weight-control method? (check one) (143)

_____1. Yes
_____2. No

38. If you have ever tried to gain or maintain weight by counting calories, how many calories do you usually eat each day? (check the closest) (144)

_____1. 1800-2000
_____2. 2000-2250
_____3. 2250-2500
_____4. 2500-2750
_____5. 2750-3000
_____6. 3000-3250
_____7. over 3250
_____8. n/a

39. If you have ever tried to gain or maintain weight by using liquid supplements, how many do you take each day? (check one) (145)

_____1. 1 cup
_____2. 2 cups
_____3. 3 cups
_____4. more than 3 cups
_____5. n/a

40. If you have ever tried to gain or maintain weight by using food supplements, how many do you take each day? (check one) (146)

_____1. 1 cup
_____2. 2 cups
_____3. 3 cups
_____4. more than 3 cups
_____5. n/a

41. If you have ever tried to gain or maintain weight by using weight gain pills or medications, how many do you take each time? (check one) (147)

_____1. 1 pill
_____2. 2 pills
_____3. 3 pills
_____4. 4 pills
_____5. 5 pills
_____6. more than 5 pills

_____7. n/a

42. If you have ever tried to gain or maintain weight by using anabolic steroids, how many steroids (pills, tablets, shots, etc.) do you take each time? (check one) (148)

_____1. 1 dose
_____2. 2 doses
_____3. 3 doses
_____4. 4 doses
_____5. 5 doses
_____6. 6 doses
_____7. more than 6 doses
_____8. n/a

43. Do you do weight training when you are not trying to gain or maintain weight? (check one) (149)

_____1. Yes
_____2. No

44. If you use weight training to gain or maintain weight, do you **most** often? (check one) (150)

_____1. Add new or different exercises to the weight training which you already do
_____2. do more repetitions of the same exercise which you already do
_____3. lift heavier weights
_____4. use weight training more days per week
_____5. n/a

45. If you have ever tried cutting back on exercise to gain or maintain weight, indicate how you **most** often cut back on exercise. (check one) (151)

_____1. cut back on the total amount of time you exercise each day
_____2. cut back on the number of days you exercise each week
_____3. cut back on the intensity of the exercise you do (how hard you work)
_____4. eliminate one component of your training
_____5. n/a

APPENDIX B

Instructions from Researcher

Instructions from Researcher

Hello, my name is Amy Spelke. I am a graduate student from the College of Human Resources and Education. I am conducting research on the weight-control behaviors of athletes in order to write my thesis and graduate.

I am asking you to help me today by completing the survey. It is called the Modified Michigan State Weight Control Survey. I have spoken to Dave Braine and the strength coaches and they support this research.

I will protect your identity completely. I will not ask for your names. Once you have handed me your completed survey, there will be no way for anyone to tell whose it is. I, therefore, cannot give anyone in the athletic department any information about you. My results will report only the number of athletes who engage in certain kinds of behavior. The athletic department will be given a copy of my final results but the results will report only numbers. I repeat there will be no names on any results.

Please read the questions and check the best answer for each question. Everybody will answer the questions in Part I. Then, you will follow the written directions and they will tell you if you should answer the second or third section. If you have a question about which section you should answer, just ask me. When you have finished answering the questions in Part II or III, place your survey in the box by the door.

Do you have any other questions?

AMY ELAINE MULHOLLAND SPELKE
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Blacksburg, VA 24060
552-4923 (h) - 231-3793 (w)
aspelke@vt.edu

EDUCATION

Virginia Polytechnic Institute and State University, Blacksburg, VA (1995-present)
Candidate for a M.A.Ed., College Student Affairs. G.P.A.: 3.9. Phi Kappa Phi.
Thesis: Winning at all Costs?: The Weight-Control Behaviors of Student Athletes.

Amherst College, Amherst, MA (1989-1993)
B.A., History major with a concentration in Psychology. G.P.A.: 3.3.

WORK EXPERIENCE

Virginia Polytechnic Institute and State University, (Virginia Tech) Blacksburg, VA.
Orientation Programs Coordinator. May 1996-present.
Graduate Assistant in the Dean of Students Office. Plan, implement, and evaluate fall orientation programs. Produce Student Guide to Fall Orientation. Plan and implement Spring orientation program. Assist with coordination and planning for Black Student Preview weekend. Assist with grant writing. Trained as Judicial hearing officer. Assist with Student Success Seminars. Coordinate Dean's Council. Plan special events. Taught Orientation Leader class.

Coordinator of Special Projects and Research Assistant. August 1995-May 1996.
Graduate Assistant in Education Leadership and Policy Studies (ELPS). Collected data for "Concepts of College," developed and distributed Newsletter, participated in recruiting, assisted professors in research. Member of Leadership Review Committee, Staff Development Committee.

Practicum Project in the Dean of Students Office. Summer 1996.
Assisted with all administrative aspects of Summer Orientation program.

Practicum Project in Athletic Academic Coordinating Office. Spring 1996.
Assisted students with class choices, updated files from academic offices, supervised study hall, facilitated focus groups on sexual assault issues, assistant instructor for Peer Education class.

Independent Study at International Sports Properties. Spring 1996.
Created electronic data base for company contact lists, wrote report of marketing ideas for media guides for non-revenue sports at Virginia Tech.

L.E. Peabody and Associates Inc., Alexandria, VA (1993-1995)
Economic Analyst. Responsible for conducting economic analyses and economic research, drafting testimony, producing documents, conducting archival research. Manager of document catalogs. Developed and maintained computer data bases and spreadsheets.

L.E. Peabody and Associates Inc., Alexandria, VA (Summer 1990-1992)
Intern. Performed variety of research projects and phone surveys, maintained computer data bases.

PRESENTATION EXPERIENCE

Minority Recruitment: Strategies for Diversifying the Profession, March 22, 1997, NASPA- ACPA National Conference, Chicago, IL.; February 25, 1997, Food For Thought, Blacksburg, VA.

Transfer Success Seminars: A New Approach to Transfer Student Orientation, Accepted for presentation April 5, 1997, NODA Regional Conference, Washington, D.C..

COLLEGE ATHLETICS

Amherst Varsity Swimming, Amherst College (1989-1993)
Elected captain for 1992-1993 season. Recipient of Friends of Amherst College Athletics award. Amherst College record holder.

Amherst Women's Water Polo, Amherst College (1989-1993)
Elected captain for 1993 season. Managed budget. Scheduled games and tournaments. Prepared, conducted, and participated in practices.

Amherst Coed Water Polo, Amherst College (1989-1993)
Managed team at tournaments, officiated scrimmages. Competed in games.

Amherst College Triathlon, Amherst College (1990-1992)
Competitor as team member and individual. Women's individual runner up 1992.

COLLEGE ACTIVITIES

President, Dickenson Deme, Amherst College (1991-1992)
Treasurer, Carpe Deme, Amherst College (1990-1991)
Elected by school-wide vote. Managed budget and bank account. Planned, organized and scheduled all-campus social events. Attended weekly officers' and deme meetings. Organized and directed weekly meetings with deme representatives and delegated responsibilities within the deme.

Student Finance Committee, Amherst College (1990-1992)
Selected as member of Athletics and Tournaments Sub-committee. Responsible for assessing proposed budgets and allocating $30,000 in funding for club teams at Amherst College.

PERSONAL

Enjoy reading, cooking, and traveling. Also, running and weight training, water skiing. Beginner tennis player. CPR course completion, February 1997.