

AN ABSTRACT OF THE THESIS OF

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The purpose of this study was to determine the major content areas for inclusion in an Eating Disorders prevention-intervention guide for coaches of female college athletes. To achieve this goal the current literature was reviewed to identify the major issues associated with eating disorders and female college athletes. From this information ten potential content areas were identified. Once content areas were identified, several statements were developed which reflected potential sub-areas of information. The content areas were then organized into a two-part questionnaire. The questionnaire was mailed to nine recognized experts representing college athletics, student health services and psychology, for evaluation. Part one of the questionnaire asked experts to indicate how important each item (sub-area) within the given content area was on a five-point Likert-type scale. In part two of

the questionnaire, experts were asked to indicate the relative importance each content area should be given in a guide. Questionnaires were returned by all 9 experts. Comments made by experts on the questionnaires resulted in modifications of 7 content area statements. The information obtained from the study will be used as a basis for the development of an Eating Disorders prevention-intervention guide for coaches of female college athletes.

Eating Disorders Among Female Athletes: Factors To Be
Included in Coaches' Prevention/Intervention Guide

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Eating Disorders Among Female Athletes: Factors To Be Included in Coaches' Prevention/Intervention Guide

CHAPTER I.

INTRODUCTION

Background of the Problem

Throughout history concepts of feminine beauty have varied to reflect the aesthetic standards of the particular period. From the Rubenseque women of the 17th century to contemporary symbols of fashion, different body shapes have been selected for, and associated with, desirable social status (Garner, Garfinkel, Schwartz and Thompson, 1980).

As early as 1952, Ford and Beach suggested that for the majority of societies, plumpness in females was considered attractive. However, within the last decade it has been shown that Western adolescent and college-aged females report more positive attitudes toward a small body size. The impact of this changing idealized female shape has been exemplified by the pervasiveness of dieting among women during the last decade.

A 1978 Nielson survey showed that 56 percent of all American women between ages 25 and 54 were dieting. In 1984, self-report studies indicated that between 50 percent and 75 percent of American women considered themselves overweight (Slurry). Heuhemann et al. found that up to 70% of high school girls were displeased with their bodies and

were interested in dieting (1966). A number of authors have associated this preoccupation with body image with the increasing sociocultural pressure for thinness which is continuously projected by the media (Brunch, 1973, 1978; Palazzoli, 1974; Boskind-White, 1976; Romeo, 1986).

During the last decade an increasing number of reports have occurred concerning anorexia nervosa, and bulimia nervosa behaviors, specifically among high school and college aged women. These behaviors are learned, stem from a preoccupation with food, weight and shape, and are primarily associated with females from middle and upper social classes.

Anorexia nervosa is a disorder characterized by excessive weight loss due to minimal ingestion of calories. This weight loss occurs simultaneously with an attitude and behavior which focuses on maintaining an abnormally low weight.

Increased physical activity has long been recognized as both a common method of weight loss as well as a prevalent symptom of restrictive eating disorders. As the standards to perform increase, the pressure to succeed often provides the athlete with an even stronger incentive to lose weight (Willis 1986). Because female athletes are vulnerable to both society's emphasis on thinness, and the competitive pressures placed on them by their coaches and themselves, it is not surprising that a number of experts have labeled this group an "at risk" population for eating

disorders (Amdur 1983; Overdorf 1987; Rosen, 1986; Slavin 1987; Smith 1980; Willis 1986). Many female athletes have gone to extremes to decrease body fat stores, which has resulted in vital nutritional deficiencies, as well as detrimental effects on performance.

The scope of this problem is not limited however, to the extreme instances of anorexia nervosa or bulimia nervosa. Female athletes may be at an even greater risk for the less severe restrictive eating patterns, often referred to as subclinical eating disorders, or anorexic or bulimic behaviors. These persons exhibit some but not all of the anorexic or bulimic signs and symptoms, thus failing to meet all of the established diagnostic criteria. Slavin summarized some of the combined symptoms representative of athletes who frequently; "do not fit neatly into anorexia nervosa or bulimia nervosa":

- (1) Abnormal social isolation and withdrawal from family and friends,
- (2) Lack of confidence in abilities,
- (3) Ritualistic eating behavior such as organizing food on a plate or "dawdling" over food,
- (4) Obsession with counting calories,
- (5) Excessive exercise in an effort to expend calories, often right before a meal,
- (6) Bulimia, or gorging of food, followed by secretive self-induced vomiting and abuse of laxatives,

- (7) Related disorders, such as malnutrition, amenorrhea, general malaise, or reoccurring injuries,
- (8) Obsession with weighing oneself,
- (9) Overestimation of body size

(Slavin 1987; 35).

Although the scope is broadening, those sports most often associated with eating disorders are: dance, gymnastics, distance running, body building, wrestling, crew, triathlons and figure skating. In endurance events such as distance swimming, running or cycling, a lower percentage of body fat facilitates both a lower energy expenditure because of less weight to transport, and a greater aerobic capacity per kilogram of body weight (Buskirk and Taylor 1957).

Several case histories support that anorexia nervosa and bulimia nervosa may be more symptomatic of over-exercising rather than under-eating. Katz (1980) conducted two case studies which suggested that intense aerobic exercise such as distance running, can serve as a stimulus for anorexia nervosa in persons already at risk. The two runners in the study also developed bulimic behavior when running injuries later began to inhibit their mileage.

Coaches, athletic trainers and health educators are continuing to observe an increasing number of young women in athletics who suffer from restrictive eating disorders.

Coaches and athletic trainers are in a prime position to reverse this situation by acquiring some awareness of the potential hazards associated with conditioning for thinness and increasing their own sensitivity with respect to the needs of the athlete. Coaches are certainly not the source of the problem, but they do promote the concept of optimal performance, which is often interpreted as reducing; "body size to proportions that better fit our idealized shape of the competitive female" (Overdorf 1987; 63).

In summary, although definitive proof has not yet been presented, evidence has accumulated to suggest that for some individuals, sports are a means of attaining self-fulfillment, which has driven them to dangerous extremes. As a result, coaches and athletic trainers are faced with several difficult tasks. First, they should attempt to minimize the potential for the occurrence of eating disorders by re-thinking some of the traditional training approaches. Second, coaches should learn how to recognize the symptoms of eating disorders, as well as how to provide guidance.

Statement of the Problem

Increasing numbers of young women are becoming more seriously committed to competitive sports programs. At the same time athletes and coaches are more aware of the advantage of minimizing body fat stores for improving

performance. For some athletes this drive for optimal performance has lead to "excessive voluntary weight loss associated with a pathological degree of food and fatness aversion" (Smith 1980; 139). Often coaches and trainers have been known to foster the situation by mandating certain weights and even recommending severe weight loss strategies such as extremely restrictive diets, purging, and laxative use.

Excessive exercise has always been associated with eating disorders, even before eating disorders became as prevalent as they have within the past few decades (Slavin 1987; Smith 1980). The current increase in anorexic and bulimic behaviors in athletes may be in part due to the increased numbers of people now engaging in exercise. In addition, the recent upper-middle-class cultural ideal of the sleek, angular woman, is also believed to help account for the growing incidence of eating disorders, and the corresponding increase of females interested in athletics today (Kalucy, Crisp, Lacy, and Harding, 1977).

In the United States approximately one in every 200 female adolescents are thought to develop an eating disorder (Herzog and Copeland 1985). More than 90 percent of anorexics are female, while five percent of all adolescent and young females present symptoms of bulimia nervosa (Slavin 1987). To further enhance the problem, eating disorders in athletes do not normally sustain all the

criteria for either of the preceding disorders, often generating a confusing array of signs and symptoms.

A number of coaches are either unaware or do not understand the ramifications of the problem with eating disorders. Effective and realistic weight loss procedures are frequently not a part of the coaches' educational background, thus providing his/her athletes with a potential risk. Furthermore, the signs and symptoms of anorexia, bulimia nervosa and the related behaviors are often confusing and difficult to assess for even the trained eye.

Purpose of the Study

The purpose of this study was to identify the major potential content areas of an Eating Disorders Prevention/ Intervention guide for coaches of female college athletes. The aim of the guide will be to alert coaches and trainers to the reality, symptoms and preliminary treatment practices for eating disorders.

Objectives of the Study

The study is designed to meet the following objectives:

1. review the literature relative to eating disorders and female college athletes.
2. to review the literature to determine the potential major content areas of an eating

disorders prevention-intervention guide for coaches of female college athletes.

3. develop a research instrument designed to elicit expert opinion about the major content areas identified by the researcher.
4. to utilize the comments and suggestions from experts to determine the major content areas for inclusion in an eating disorders prevention-intervention guide for coaches of female college athletes.

Rationale for the Study

In the last two decades there has been a significant increase in the incidence of restrictive eating disorders among upper-middle-class white females (Garner et al. 1980). The growing number of women suffering from these disorders can be partially attributed to our society's increasing emphasis on thinness. To be thin is to be attractive, healthy, self-disciplined and competent. Today's women also have the added pressure of being expected to compete in a man's world, yet maintain their femininity. For those with a more traditional non-feministic background, this can create a great deal of confusion and anxiety.

Much evidence suggests that female athletes are especially vulnerable to eating disorders (Slavin 1987; Willis

1986; Overdorf 1987; Hamilton et al. 1985). The relationship between eating disorders and athletes is two-fold: First, increasing numbers of young women are seriously committed to competitive sports programs; likewise, minimal fatness for optimal performance is a growing concern; Second, exercise is and has always been characteristic of any serious weight loss attempt, hence many women are entering athletics primarily to lose body fat.

Only recently have studies begun to address the issue of eating disorders and female athletes (Rosen et al. 1986; Willis 1986; Smith 1980; Hamilton et al. 1985; Katz 1986; Yates 1983; Blumenthal and Chang 1985). The focus on prevention and intervention strategies for female athletes has been even less prevalent (Slavin 1987; Overdorf 1987; Willis 1986; Graham 1986; Rosen et al. 1986). With respect to such strategies, Overdorf concludes;

"that it is incumbent upon coaches and trainers to acquire awareness of the potential problems associated with conditioning for thinness. We must swell the ranks with informed, knowledgeable coaches sensitive to the needs of these special female athletes" (1987).

In order to develop successful intervention techniques, these professionals need to be acutely aware of both the behavioral and physical manifestations of the individual with anorexia or bulimia nervosa. Early identification of these disorders is imperative because severe bodily damage can occur quickly with the onset of an eating

disorder. The age of onset for anorexia ranges between 13-22 years, and for bulimia nervosa between 18-25. This data strongly suggests that prevention strategies should be implemented at the high school level, whereas a combined prevention-intervention strategy would serve to benefit this target population at the college level.

At the same time, these disorders are extremely complex because they so often result from deep-seated behavioral patterns which makes them difficult to deal with and almost impossible to completely understand (Comp Care Eating Disorders Unit 1983). Equally critical is the analogy that Willis makes;

Food can be abused just as drugs, alcohol, or any other chemical, and the effect on one's life can be equally devastating. In the past decade, the public sector and various health professionals have begun to recognize that food is "the drug of choice" for literally thousands of individuals.

(1986; 18).

Finally, in selecting the issue of preventive and interventive techniques for opposing eating disorders, it should be mentioned that even in their most chronic stages, anorexia nervosa, and bulimia nervosa have a high incidence of recovery if treated properly.

Limitations

1. Because only nine experts representing three professions were used in the study, results may

have limited generalizability. However, in order to manage the research effectively, recognized experts representing college athletics, student health services, and psychology professions were selected for review of the guide contents.

2. Because of the complexity with which the symptoms of eating disorders manifest themselves, there is often no easy way of identifying them; not even for advanced cases. Therefore, the prevention and intervention of eating disorders among athletes may still be extremely difficult.
3. Female college athletes comprised the population addressed in this study. As a result, the ability to generalize the findings of the study was limited to this group.
4. Because coaches in the study represented only 2 sports, gymnastics and running, results may have limited generalizability.

Definition of Terms

The following terms are defined for use in this study:

Dysponderal

Amenorrhea:

A lack of menstruation in a physically mature female, associated with disorders of weight.

Anorexia Nervosa:

A psychic disorder characterized by a loss of appetite, 15% loss of body weight, fear of becoming obese, and a distortion of body image. Starvation, permanent organ damage and death can occur if severe cases go untreated.

Anorexic Behavior: Eating disorder characterized by some, but not all of the symptoms associated with anorexia nervosa.

Bulimia Nervosa: Morbid fear of becoming obese with uncontrolled bingeing followed by purging, which may be vomiting, laxative use, ipecac, diurectics or even excessive exercise. Body weight does not fall below a minimal normal weight.

Bulimic Behavior: Eating disorder characterized by some, but not all of the symptoms associated with bulimia nervosa.

Intervention: A procedure constructed for the purpose of responding to, and the handling of complex situations; e.g. eating disorders.

Obligatory Runner: Individual who is compelled to run 50 or more miles per week despite injury or weather. Running is ritualistic and takes precedence at times over job, family, and friends.

Subclinical Eating Disorder: Individual who occasionally engages in some anorexic or bulimic practices, but is not yet out of control.

Weighted Mean: An average of the values of a set of items to each of which is accorded a weight indicative of its frequency of occurrence.

CHAPTER II: REVIEW OF LITERATURE

The following review of literature provides an overview of the research associated with anorexia nervosa and bulimia nervosa. Attention has been given to the historical perspective, major characteristics, risk factors, methods of assessment, and treatment of these disorders. These factors have been analyzed to accomplish the following objectives: (1) to establish a foundation of necessary background information as to the nature and extent of the disorders; (2) to identify high risk groups and; (3) to identify potential educational intervention and prevention strategies.

Introduction

Definitions of anorexia nervosa and bulimia nervosa during the past decade have become increasingly controversial. Although the etiology, prognosis and treatment of anorexia and bulimia nervosa remain uncertain, a general profile of the "at risk" population is available. Ninety to ninety-five percent of the population having these disorders are women between the ages of 13 and 30. Within this group as many as one in 200 may develop these disorders (Herzog, et al. 1986). These eating disorders are most common in upper-middle-class white females and are believed to be quite rare in lower social classes and in black adolescents (Hamilton, Brooks-Gunn, and Warren 1985).

The most significant factor contributing to the rise in incidence of restrictive eating disorders is the extreme amount of emphasis which our society places on thinness and dieting. Anorexia and bulimia nervosa have received considerable attention from the media, and for some individuals, have been regarded as successful dieting techniques. The impact of such "acceptable" social values often serves to camouflage the pathological behaviors of these illnesses during their early stages.

Anorexia nervosa has a higher mortality rate than any other psychiatric disease (Whitney 1984). Between 5 and 20 percent of anorexics die. Victims who are not properly treated, can remain chronically ill, as well as suffer permanent brain damage.

Anorexia nervosa is a disorder characterized by a number of complex psychological and physiological processes. The name anorexia nervosa itself is somewhat misleading; it means nervous lack of appetite involving self-starvation. However, anorexics are constantly preoccupied with food, and do not lack an appetite. Furthermore, accompanying the usual 15% or more loss of body weight, the anorexic continues to strive for thinness, identity, and effectiveness, yet denies any sense of ill-being (DSM-III, 1987, Revised). In contrast to the expected symptoms of starvation, is the anorexic's inexhaustible energy level - bordering on hyperactivity. The anorexic may control her weight through either severe food

restriction ("dieters"), or excessive exercise, ("restrictors").

Bulimia literally means "Ox hunger" or ravenous appetite. It has been identified as periodic episodes of uncontrollable rapid ingestion of large amounts of food - as much as 8000 calories in a short time (Romeo 1986; 42). The binge may last from minutes to hours, and normally is done privately. Typically sweet or starchy foods are chosen for a binge. This bingeing phase is then followed by alternating intervals of vomiting, laxative use or fasting. These behaviors are initiated to prevent weight gain and to compensate for feelings of guilt from over-consumption. This is known as the purging phase of the binge-purge cycle. Since the bulimic consumes thousands of calories and some are digested, the patient's weight remains near normal, unlike the extreme low weights of the anoerxic. In addition, the bulimic typically maintains a normal menstrual cycle, in contrast to the anorexic.

The complications of bulimia nervosa are seldom life-threatening, but the effects of bingeing and purging can lead to severe physiological, psychiatric and social problems. As with anorexia nervosa, the criteria most advocated for diagnosing bulimia are found in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Health Disorders, Third Edition, Revised, (DSM III), (Table 1).

Table 1.

DSM III Revised Criteria For Diagnosing
Anorexia Nervosa And Bulimia Nervosa

ANOREXIA NERVOSA

1. Refusal to maintain body weight over a minimal normal weight for age and height, e.g., weight loss leading to maintenance of body weight 15% below that expected; or failure to make expected weight gain during period of growth, leading to body weight 15% below that expected.
2. Intense fear of gaining weight or becoming fat, even though underweight.
3. Disturbance in the way in which one's body weight, size, or shape is experienced, e.g., the person claims to "feel fat" even when emaciated, believes that one area of the body is "too fat" even when obviously underweight.
4. In females, absence of at least three consecutive menstrual cycles when otherwise expected to occur (primary or secondary amenorrhea). (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration.)

BULIMIA NERVOSA

1. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time).
2. A feeling of lack of control over eating behavior during the eating binges.
3. The person regularly engages in either self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise in order to prevent weight gain.
4. A minimum average of two binge eating episodes a week for at least three months.
5. Persistent overconcern with body shape and weight.

(1987)

Despite the fact that the existing research supports that the majority of anorexics and associated cases occur almost exclusively in females, only a relatively small percentage of studies on male anorexics have been conducted. Some authors have stated that anorexia nervosa is never found in males (Selvini 1977), while others (Dally 1969), assert that the disorder cannot be adequately identified in males given that amenorrhea is relied upon as a critical diagnostic sign. At this point in time however, due to the insufficient amount of research available, it is difficult to assess the true prevalence of either anorexia nervosa or bulimia nervosa in males.

Historical Perspective

Restrictive eating disorders are reaching alarming proportions in western society; however they are not new disorders. Lucas (1981), has delineated the history of anorexia nervosa into five major eras, reflecting the dominant theoretical and medical perspectives of each time period. Lucas (1981) developed and labeled these eras to describe the emphasis of each; the Descriptive Era (1868-1914), the Pituitary Era (1914-1940), the Period of Rediscovery (1930-1961), the Psychoanalytic Era (1940-1967) and Modern Era (1960-present).

During the Descriptive Era, the first clinical description of "nervous atrophy" was made by Richard Morton in 1689 (cited in Barlow 1981). Later, William Gull (1868)

encountered several cases of what he initially labeled "apepsia hysteria," later changing the name to "anorexia nervosa" (Barlow 1981). Concurrently, in France, Lasegue described anorexia nervosa in 1873 and named it "anorexic hysterique". Morton, Gull and Lasegue all finally described anorexia nervosa as both a psychological and emotional illness.

In 1914 Simmonds (Barlow 1981), a German physiologist, initiated the Pituitary Era. For the following 45 years anorexia nervosa was often called "Simmonds Disease". Simmonds noted that lesions on the pituitary gland were somehow correlated with severe emaciation, hence during this era, anorexia nervosa was often misdiagnosed as Simmonds disease.

The Period of Rediscovery was first marked by Berkman, an American physician who described 117 cases of anorexia nervosa. In contrast to Simmonds, Berkman found that the primary disturbance of anorexia was psychological, and considered the physiological symptoms as secondary (Barlow, 1981). Other physicians further helped to substantiate these findings in contrast to those of the Pituitary Era (Sheehan 1937; Ryle 1936; Richardson 1939).

The Psychoanalytic Era was characterized by the notion that anorexia nervosa was strictly a psychosomatic illness. Freud, the founder of psychoanalysis, correlated anorexia in girls with sexual fears (Casper et al. 1979). Waller, Kaufman and Deutch (1940) asserted that the unconscious

pregnancy and oral-impregnation fantasies were key components of anorexia (Sours 1980).

The Modern Era, 1960 to the present, has presented a voluminous increase in research and literature on anorexia nervosa. This era was primarily initiated through the contributions of Hilde Brunch of the United States and Arthur Crisp of England. Brunch described anorexia in terms of three developmental disturbances: body image, perception, and effectiveness (1978). Brunch classified anorexia nervosa as a disease found predominantly among the young, beautiful and rich daughters of upper-middle class families (Brunch 1973). She also termed it a "new disease" due to the increasingly dramatic rate of occurrence that has been documented over the past two decades.

More recently, Crisp focused his attention on the diagnostic, treatment and psychobiological issues concerning anorexia nervosa (Sours, 1980). Concurrently, other studies have investigated the relationship between neuro-endocrinologic abnormalities and anorexia. Researchers have noted that an imbalance of the hormone arginine vasopressin has been found to exist in most anorexic patients (Gold, Kaye, Robertson, and Ebert 1983).

In addition, a number of comparisons have been made between the behavior and characteristics of anorexic women to male "obligatory runners" by Yates, Leehey, and Shisslak (1983). Similarities have been found between both groups with respect to obsessive attitudes toward dieting for the

anorexic women and running for the obligatory runner. Similarities were also noted in terms of family background, attitudes toward minimal body fat, socio-economic class, depression, tolerance of physical discomfort and inhibition of anger.

In 1980 Halmi presented a detailed account of the features of anorexia nervosa, which further investigated the psychological and physiological influences of the disorder. As a result, Halmi has categorized the most commonly associated features of anorexia nervosa which have been presented in the third edition of the American Psychiatric Association's Diagnostic and Statistical Manual of Psychiatric Disorders (DSM-III, 1987) (Table 1, p. 16). It should be noted that this diagnostic tool is sometimes difficult to use because patients often deny their symptoms (Halmi 1980).

Restrictive Eating Disorders: Subclinical Forms

A number of individuals do not exhibit all of the diagnostic symptoms of either anorexia nervosa or bulimia nervosa. Brunch describes the presence of a mild form of anorexia nervosa as a "thin-fat" syndrome (1973). This refers to those portraying the psychological characteristics of anorexia, and perhaps some binge-purge tendencies, but having only a slight weight loss. Palmer (1979) referred to this mild form as "dietary chaos syndrome", while

Crisp has suggested the term "abnormal normal weight control syndrome" (1981).

In response to the diagnostical confusion, Fries (1974) proposed a "continuum hypothesis". This hypothesis placed the mild forms of anorexia on a continuum, with normal dieting at one end and anorexia nervosa at the other. This hypothesis was supported by Button and Whitehouse (1981) in their study to determine the incidence of subclinical cases of anorexia nervosa in a technical school. They found that most of the women in their sample exhibiting anorexic behavior had originally dieted for aesthetic reasons. Subsequent to this, they developed marked restrictive eating problems, including anorexia nervosa.

There still remains much debate as to whether or not anorexia nervosa is a distinct entity, or the extreme result of over-dieting (Garner & Garfinkel 1980).

Symptoms: Overview

Anorexia nervosa is characterized by extreme weight loss in the absence of any direct causative physical disease, a disturbed pattern of eating, an intense fear of becoming obese, disturbances in body-image and attempts at rigid control over food intake (Bryant 1985; 94). A number of physical symptoms occur, including, bradycardia, lanugo hair, and sensitivity to cold. Other psychopathological tendencies include: hyperactivity; amenorrhea; excessive

preoccupation with appearance and body; sense of ineffectiveness; denial of illness; and misjudgments regarding food needs and intake.

Bulimia nervosa is characterized by episodes of binge-eating and purging, the use (or abuse) of laxatives, diuretics, and fasting. Again, an intense preoccupation with food exists with recurring fluctuations in body weight. In general, the complications of bulimia are due to effects of binging and purging, whereas those with anorexia are mostly attributed to starvation.

Though diagnostically different, the following similarities have been noted in anorexics and bulimics:

- usually between ages 12 and 40
- 95% women
- usually feel a great need to please others and may live their lives by the standards of others (e.g., parents and peers)
- often fearful of leaving home
- prone to depression, suppressed anger, loneliness and lack of fulfillment
- high degree of impulsive behavior
- lack self-esteem and feel ineffective
- obsessed with food
- distorted body image
- raised in middle to upper class mobile families
- over-involved mothers, preoccupied fathers
- well behaved children (usually), need for constant approval from others.

A number of major differences between the two syndromes have also been identified. For the anorexic, self-

starvation results in a debilitating physiological and psychological state, which thus perpetuates many of the associated bizarre behavior patterns. This in part accounts for the often apathetic and unyielding attitude that the anorexic patient has towards therapy. Anorexics are also usually younger and less socially competent than people with bulimia nervosa. In addition, although both individuals with anorexia nervosa and bulimia nervosa are obsessed with food, the anorexic usually can refrain from the uncontrollable eating rampages associated with bulimia nervosa. While some anorexics do binge and purge, the majority of the time they are predominantly prone to starvation. Finally, in moments of stress, the individual with bulimia nervosa turns toward food, while the anorexic turns away. The binge/purge cycle becomes the ritualistic outlet for the bulimic, whereas starvation is the preferred method for the anorexic.

In reference to the relationship between anorexia and bulimia nervosa, seldom does the literature mention one without the other. For example, Herzog et al. define anorexia nervosa as a disease where patients pursue weight loss in one of two ways: by restrictive anorexia nervosa, "where the patient essentially starves him/herself, or by bulimic anorexia nervosa characterized by severe restriction of food often substituted with episodes of binge eating that result in self-induced vomiting or in the use of laxatives and diuretics" (1985; 296). In their

study, the authors compare anorexia with bulimia, emphasizing the higher degree of severity associated with the restrictive anorexics. The latter may be manifested as a fluctuating illness or may progress continuously until death. The bulimic on the other hand, is said to typically encounter weight fluctuations, but not to the dangerously low levels of the anorexic patient. Again, in diagnosing these conditions, Herzog et al. have employed the use of the American Psychiatric Association's Diagnostic and Statistical Manual (DSM III), 1980.

Many of the more consistent medical manifestations of anorexia nervosa and its related subtypes have been listed in Table 2.

Table 2.

ANAD - Anorexia Nervosa And Associated Disorders
(An Association)

PARTIAL LISTING OF PHYSICAL PROBLEMS BROUGHT ABOUT BY
EATING DISORDERS

	EXTERNAL PROBLEMS	INTERNAL PROBLEMS	CAUSE
SKIN	Dryness	Dehydration	Reduced fluid intake. Excessive fluid elimination.
	Fine Rash		Frequent vomiting.
	Pimples		Laxative abuse.

Table 2. (Continued)

ANAD - Anorexia Nervosa And Associated Disorders
(An Association)

PARTIAL LISTING OF PHYSICAL PROBLEMS BROUGHT ABOUT BY
EATING DISORDERS

	EXTERNAL PROBLEMS	INTERNAL PROBLEMS	CAUSE
SALIVARY GLANDS	Swelling Pain Tenderness	Possible infection but usually not.	Frequent vomiting.
CONSTIPATION		Insufficient material. Insufficient fluid.	Failure to take in or retain sufficient food and fluid.
		Dulled intestinal nerves.	Laxative abuse.
EDEMA (water retention)	Swelling and puffiness more frequently ankles and feet.	Electrolyte imbalance. Perhaps general systems problems.	Malnutrition. Frequent vomiting. Excessive laxatives or diuretics.
BLOATING	Swelling over stomach or abdominal area.	Electrolyte imbalance? Time required for body systems to adjust? Insufficient protein intake.	Long periods of starvation and probable excessive vomiting, laxatives or diuretics.
ABDOMINAL PAIN		Hunger pangs? Changes in the bowel.	Failure to identify hunger? Emotional Attitudes? Insufficient intake.
FEELING OF FULLNESS	Slight distention after eating is normal.	Normal feeling after eating for everybody.	Fear? Emotional attitudes.

Table 2. (Continued)

ANAD - Anorexia Nervosa And Associated Disorders
(An Association)

PARTIAL LISTING OF PHYSICAL PROBLEMS BROUGHT ABOUT BY
EATING DISORDERS

	EXTERNAL PROBLEMS	INTERNAL PROBLEMS	CAUSE
TEETH	Frequent caries. Frequent caries plus erosion of enamel.		Inadequate diet. Frequent vomiting or regurgitation Diet limited to citrus fruits, abnormal carbohydrate intake.
AMENOR- RHEA	No menstrual period	Inability to produce hormones.	Lack of body fat. Rigorous athletic training, emotional attitudes, sometimes gorging/purging.

(1981)

Specific Symptoms/Effects

Physiological

Amenorrhea - Amenorrhea, the cessation of menstruation, is a major symptom of anorexia nervosa. It is much less common in the normal-weight individual with bulimia nervosa, according to Emmett et al. (1985). Amenorrhea in

anorexia nervosa is due to hypothalamic dysfunction. The principle hormonal abnormality appears to be a reduced secretion of gonadotropin (luteinizing hormone) (Emmett 1985). It should be noted that 20 percent of patients with anorexia have amenorrhea before weight loss (Herzog 1985). Although this abnormality in gonadotropin secretion is hypothalamic-related, it is still unclear whether these abnormalities are related primarily to the illness or are the result of starvation.

Endorphins - Another neurologically-related study suggests that the endogenous opiate system (endorphin producing), may be one of the neurotransmitters involved in eating behavior (Kaye et al. 1982; 643). When B-endorphins were injected into the hypothalamus of rats, their food intake increased dramatically. B-endorphins were also found to be twice as concentrated in the pituitary tissue of obese mice and rats as compared with the tissue from the leaner laboratory subjects (Kaye et al. 1982). A study using human subjects revealed that higher levels of CSF opioid activity did occur in patients with anorexia nervosa who were severely underweight. In the same study another group of patients who also had chronic anorexia but were not severely underweight, yielded normal levels of CSF opioid activity. The authors of this study, (Kaye et al. 1982) concluded that the association between weight loss and increased CSF opioid activity was either a compensatory

response to weight loss or possibly etiologically related to anorexia nervosa.

Thyroid Dysfunction - Thyroid dysfunction in anorexic patients manifests itself in a number of ways. The irregular conversion of the thyroid hormones has been associated with; cold intolerance, dry skin and hair, slowed relaxation reflexes, hypercarotenemia and bradycardia (Herzog 1985). Other cardiac changes include thinning of the left ventricle, decreased cardiac chamber size and arrhythmias. These changes are due to the decrease in blood pressure and reduced cardiac output.

Renal Abnormalities - Renal abnormalities are usually the result of dehydration. Starvation, diuretic and laxative abuse, and self-induced vomiting all contribute to total body potassium and sodium imbalances associated with anorexia, and especially bulimic disturbances. In addition, people with bulimia nervosa may suffer from gastric dilation and even rupturing, caused by bingeing. Repeated vomiting can also cause parotid enlargement, dental-enamel erosion, esophageal rupture and esophagitis (Herzog 1985; 298).

Osteoporosis - Brotman et al. have shown in a recent study that women with anorexia nervosa may be more susceptible to having a reduced bone mass due to osteoporosis (1985). These authors discuss three cases of young women with chronic anorexia whose illnesses were complicated by the development of osteoporosis and pathological fractures

and claim that the incidence of osteoporosis with anorexia nervosa has been poorly documented. They suspect that this type of complication may be more common than research may indicate. The method of treatment for this problem is under current debate. Some studies suggest that exercise may protect against the development of osteoporosis in older women and anorexic patients (Brotman et al. 1985; 496). Other clinicians caution against exercise since many anorexic patients do so excessively to lose weight. At this point in time, proper diet is said to be the best medicine (Barlow 1981).

Psychological

Numerous psychological and social problems can be associated with eating disorders. These problems may be either the etiology or consequence of the disorder. The current research has been divided into three basic areas pertinent to the psychological features of severe restrictive eating disorders: those focusing on the psychological or personal approach, endocrinological dysfunction, and sociocultural factors.

Many of the perceptual disturbances associated with the psychological or personal approach are said to be a function of an impaired child-maternal environment. Both Brunch and Palazzoli (1974) suggest that:

...due to apathetic mothering, which
demands compliance from the child in
the face of natural bodily impulses

(primarily hunger), the child fails to develop any ego structures, which allow her to accurately perceive internal cues of hunger and satiation. For both Brunch and Palazzoli, anorexia is an effort - a last desperate effort - to gain perfect control over the body as a way of regaining control of self and personhood (Emmett 1985 p. 101).

Brunch's psychological criteria for anorexic help to summarize these deep-rooted psychological disturbances:

1) Misinterpretation of internal stimuli or falsified awareness. Insufficient caloric intake, hyperactivity and denial of fatigue exemplify this. The hyperactivity represents a failure to recognize fatigue and the physiological consequences of starvation and is also an expression of disturbance in body awareness. 2) Delusional or disturbed body image. This refers to the fact that most anorexics as well as many patients with bulimia nervosa, see themselves as overweight, when in reality they are usually severely underweight. 3) Extreme sense of ineffectiveness. This refers to the conviction that the patient is absolutely incapable of changing her life.

Smart (1976), Stonehill, (1977) and Crisp (1980), investigated the personality characteristics of anorexics using three personality inventory tests; the Eysenck Personality Inventory, Cattell's 16 Personality Factor Questionnaire, and the Leyton Obsessional Inventory. In summary, the predominant personality characteristics of the anorexic included highly neurotic, obsessive, anxious, independent, and introvertive tendencies.

Anorexia nervosa has also been viewed as a symbolic means of establishing one's autonomy (Palazzoli 1974). From childhood on, food is seen as a powerful tool, often utilized to manipulate family members, especially the mother. Several studies have attempted to identify characteristics common to "anorexic families" (prognosis of anorexia in one of the family members). Evidence of a dominant mother - passive father syndrome in accordance with many psychosomatic and behavior problems in children typify some of these characteristics. Minuchin (1978), also includes rigidity, overprotection, lack of conflict resolution, and the use of the child to defuse parental conflict and control.

A number of studies have found that depressive symptoms are frequently associated with anorexia nervosa and bulimia nervosa. Various family, genetic and endocrine studies have helped to substantiate these claims (Herzog 1985). This evidence has led some authors to suggest that eating disorders could be a form of affective disorder and suggest treatment with antidepressant medication (Piran et al. 1985; 395). The question of whether or not the risk for affective disorder is common to both patients with bulimia nervosa and anorexia nervosa, has become a recent area of debate.

Herzog et al. found no differences in the rates of affective disorders in people with bulimia nervosa and anorexia nervosa (1981). Piran et al. found depressive

symptoms present among both bulimics and anorexics, but they cited a threefold increase in depression in relatives of bulimics (1985). Piran et al. concluded that the characteristic eating behaviors of the bulimic, such as bingeing and purging, may be a way to regulate "strong depressive affects" (1985; 400).

The influence of sociocultural phenomena suggest that eating disorders result from a number of causes. Schwartz, Thompson and Johnson (1985) assert that just as; "coronary heart disease is the physical illness of a land of abundance", restrictive eating disorders may be a "parallel psychological illness", and may account for the increase in incidence.

Risk Factors

Anorexia nervosa usually occurs in females between ages 12 and 40 with the highest frequencies of onset at 13 to 14 years and at 17 to 18 years (Halmi 1979). Bulimia nervosa typically begins at a later age, usually in late adolescence following unsuccessful attempts at dieting. Willis (1986), estimated that one in 100 to one in 250 teenage American girls are anorexic. Kinoy et al. (1984) reported that bulimic symptoms have been evidenced in 7-9% of a high school population, while Pope cites a 13-18% range for a female college population (1984). Men account for 5% of the reported cases of anorexia and bulimia nervosa (Romeo 1986). Both disorders in men closely

resemble the conditions found in women, although for anorexia, men have reduced testosterone levels instead of amenorrhea (Crisp, et al. 1982). One explanation for the lower incidence of restrictive eating disorders in men is that they are not as subjected to the cultural pressures for thinness as are women (Romeo 1986). The dominant cultural standard of male attractiveness still emphasizes strength and masculinity (Emmett 1985).

There exists a number of competing etiological views on anorexia and bulimia nervosa, most of which are not mutually exclusive. Both disorders appear to be multifaceted, developing in each individual through a complex idiosyncratic combination of factors (Bryant and Bates 1985; 97). In the broadest sense, it could be suggested that these disorders appear in response to situations which the patient is not prepared to handle (Bemis 1978).

Puberty is often seen as a precipitating factor to restrictive eating patterns. These behaviors are also seen as a way of getting attention or handling the stress or rejection involved in adapting to new social environments such as moving from home, going to college, starting a new career or relationship. Crisp et al. (1980) found environmental change to be a precipitating factor in 40% of the 102 anorexic patients studied.

Unlike the anorexic the patient with bulimia nervosa is usually outgoing and has heterosexual relationships, whereas the anorexic is isolated and often asexual (Herzog

et al. 1984). People with bulimia nervosa are also known to have a history of other impulsive behaviors, such as alcohol or drug addictions (Herzog 1985; 296).

Studies have also found a high incidence of eating disorders in broken homes (Brunch 1981; Crisp et al. 1980; Glannini 1981; Jones et al. 1980). Ironically, women who live comfortably are more afflicted with a disorder associated with starvation. One study reported an inverse relationship between obesity and social class of women (Goldblatt et al. 1965). The authors concluded that upper class women perceived themselves as overweight, when they really were not.

Garner et al. conducted a study of Miss America winners over the past 25 years and found that weights have gradually fallen at a rate of approximately one-quarter pound per year (1980). Others have more specifically attributed the problem to a male-dominated society where women define themselves in terms of how they are viewed by men (Bryant and Bates 1985). Furthermore, most studies have shown fairly consistent age, sex and social class biases, which strongly suggest a sociocultural basis for the origins of these eating disorders.

The Women's Liberation Movement has had an enormous cultural impact on the role of women in Western society. As a result, many women are now encouraged to compete more with men in terms of career. This elevated level of competitiveness is often characteristic of patients with eating

disorders. Today's women often see themselves as being subjected to a host of conflicting pressures. The emphasis placed upon women today is to be feminine (attractive), strong (athletic), career oriented, yet still capable of nurturing a family. Many more women now belong to health clubs and are committed to regular fitness regimes, as well as compete in local athletic events such as 10k races and mini triathlons. Our value system teaches that thinness will promote fitness at all levels.

Concerns about diet and exercise have shifted from a growing leisure time hobby to a national obsession (Emmett 1985; 95). Fifty-six percent of all women 24-54 years of age diet, and of these, 76% acknowledge doing so for cosmetic rather than health reasons (Schwartz et al. 1982). The social pressures of dieting are enhanced further by the proliferative diet industry via low calorie diet foods and food fads.

Another popular method that is both commonly used and abused for pursuing thinness involves the use of exercise. Frequently, patients with anorexia or bulimia nervosa are characterized by excessive and ritualistic exercise - typically, running, walking and cycling (Barlow 1981). Because the amount of physical activity done by these patients is extraordinary, both metabolic and caloric changes can be substantial.

The recent growth of the diet and exercise industry further exemplifies the importance placed on the cultural

value of being thin. Consumers are bombarded by fitness products through the media at every turn. Unlike the past, increased physical activity is considered as influential in terms of reducing body fat, as is dieting. The emphasis on percent body fat measuring today has also helped to perpetuate the fear of fatness for many people. A woman's natural body fat composition is normally between 15 and 20 percent, but many are now striving to drop down into the 7 to 10 percent range - that of the athletically thin woman.

It is therefore critical to accurately assess physical activity with respect to the patient with a restrictive eating disorder. In fact, the tendency toward excessive exercise is so strong, that several treatment programs have utilized exercise as a provisional activity to reinforce weight gain (Barlow 1981; Garfinkel et al. 1973). Because the thought of weight gain produces extreme fear in most anorexic and bulimic patients, it has been suggested that a limited amount of physical activity be incorporated into some treatment programs.

Athletes at Risk

Increased physical activity has long been recognized as a common feature of anorexia nervosa and of many patients with bulimia nervosa. Often families of anorexics place a high value on physical fitness and they participate in some form of physical activity on a regular basis (Romeo 1986). It is also common for the parent of the patient to

encourage their daughter to actively participate in competitive sports.

Excessive weight loss is one of the current concerns to be dealt with in athletics today, and as the standards increase, the pressure to succeed often provides an athlete with a stronger incentive to lose weight (Willis, 1986; 18). For example, Crisp et al. (1980) found "intense athleticism" present in 24% of the 102 anorexic patients studied. Coaches often interpret these vigorous exercise patterns to imply dedication and the pursuit of athletic excellence (Sours 1981). On the other hand, losing weight may be seen as an extra challenge or incentive to the athlete. Henry (1982) reports that in some cases, individuals may be attracted to the sport because it provides a "socially sanctioned environment for girls with anorexic tendencies to indulge in their obsessions" (p. 39).

When competitive athletes and females with eating disorders have been compared, both groups frequently exhibit strong similarities in personality traits. Willis (1986) summarizes these traits:

- the drive to excel
- the desire to control mind and body
- the denial of pain
- the denial of fatigue
- the denial of hunger
- the establishment of goals that may be unrealistic
- moments of depression
- anxiety
- deprivation
- the determination to possess the perfect body

McSherry also presents a useful list of diagnostic features for distinguishing between the anorexic and the

athletic female. The list is a helpful guide when making comparisons between the two groups.

Shared Features

- Dietary faddism
- Controlled calorie consumption
- Specific carbohydrate avoidance
- Low bodyweight
- Resting bradycardia and hypotension
- Increased physical activity
- Amenorrhea or oligomenorrhea
- Anemia (may or may not be present)

The Athletic Female

- Purposeful training
- Increased exercise tolerance
- Good muscular development
- Accurate body image
- Body fat level within defined normal range
- Increased plasma volume
- Increased O₂ extraction from blood
- Efficient energy metabolism
- Increased HDL₂

Anorexic

- Aimless physical activity
- Poor or decreasing exercise performance
- Poor muscular development
- Flawed body image (believes herself to be overweight)
- Body fat level below normal range
- Electrolyte abnormalities if abusing laxatives and/or diuretics
- Cold intolerance
- Dry skin
- Cardiac arrhythmias
- Lanugo hair
- Leucocyte dysfunction

(1983)

Recently, a number of comparisons have been made between the similarities in personality traits of anorexic women and male obligatory distance runners (Yates et al.,

1983). Typically anorexic women are athletic, while obligatory runners are known to be extremely diet conscious and "hung up" on the concept of lean body mass. However, it is interesting to note that in some cases when dieting or physical activity become an intense and exclusive focus, the female tends to be categorized as anorexic, which connotes sickness, whereas the male will be viewed as an unusually dedicated athlete (Yates et al. 1983; 254).

Sours (1980) also made comparisons between anorexics and long distance runners. The author concluded that both strive for perfection, a perfect body, feeling special, and being capable of doing something that not many other people can do. In addition, there exists an unexplainable sense of drive and obsession. Both groups also tend to count calories and watch for minor fluctuations in weight. Fat is detested by the excessive runner to such an extreme degree, that some even lapse into anorexia nervosa (Sours, 1980, 1981).

Henry (1982) conducted an informal study involving competitive female runners. The author used the Eating Attitudes Test (EAT) to test track runners from private institutions for anorexic behavior. The EAT was developed by Garner and Garfinkel (1979) to measure and evaluate the range of behaviors and attitudes associated with anorexia nervosa. When distance runners were grouped according to training mileage, those training over 45 miles per week scored in the "anorexic range", while the mean score for

runners training less miles was less. Although more studies are needed, the results do suggest that the distance runners in the study that trained over 45 miles per week were more likely to exhibit anorexic behavior than those training less miles.

Ballet dancers and models also compose a very weight-conscious group as they try to attain an established ideal weight. Garner and Garfinkel (1980) studied a sample of professional ballet students and models and compared them to university students, anorexic patients, and competitive music students for incidence of anorexic behavior. Using the Eating Attitudes Test, the dancers and models scored significantly higher on the test than the university students. Six and one-half percent of the dance group were found to meet the diagnostic criteria for anorexia. In the modeling group, 7 percent were found to meet the criteria. The competitive dancers were also found to score higher on the EAT, with a high percentage in the "anorexic range". None of the competitive music students met the anorexic criteria.

A study by Rosen et al. (1986), was performed in order to try and identify those female college athletes most predisposed to anorexic or bulimic behaviors. A questionnaire was administered to 182 female college athletes. Results indicated that 32% of the athletes practiced at least one type of weight-control behavior defined as pathogenic; "which includes self-induced vomiting; binges more

than twice weekly; and the use of laxatives, diet pills, and/or diuretics" (Rosen et al. 1986; 79). The results from the study suggested that athletes in general were more likely to resort to, "hazardous weight-control techniques if they perceived themselves as obese at any time in their lives or have lost more weight than they originally intended" (1986; 85).

A recent study by Dummer et al. (1987), represented an effort to; "determine the extent to which young competitive swimmers are concerned about body weight, how many use weight-modification techniques, especially pathogenic techniques, and the factors that may influence swimmers' decisions about gaining or losing weight" (Dummer et al., 1987; 76). Nine hundred and ninety-five accomplished competitive swimmers, ages 9 to 18 attending a summer training camp agreed to complete the Michigan State University, (MSU) Weight Control-Survey. The study revealed the following:

- (1) Many young swimmers had misperceptions about their body weights, with girls being particularly at risk;
- (2) Swimmers' decisions to lose or gain weight were based on their perceptions more than on their actual weights;
- (3) Opinions of others strongly influenced swimmers' opinions of their own weights;
- (4) 15.4% of the girls (24.8% of postmenarcheal

girls) and 3.6% of the boys used pathogenic weight-loss techniques.

(Dummer et al. 1987; 75)

The authors suggested that the swimmer's emphasis on thinness was believed to be more related to social reinforcements than to the demands of the sport.

With regard to gymnastics, dance and figure skating, a slim shape is not only essential for certain maneuvers, but is most appealing to the judges and audience. This emphasis on minimal weight is reinforced by many coaches and trainers on a regular basis to increase performance, scored higher on visual appearance in competition, and to make weight categories. In many instances, restrictive eating and bulimic behavior were peer-approved, and thus perpetuated. Furthermore, some female athletes have admitted that their sole reason for training was to achieve a certain athletic look and body size, not to compete (Willis 1986).

Other reports suggested that professional ballet dancers were at a much higher risk for reporting eating disorders than are nonathletic women (Hamilton, Brooks-Gunn, and Warren 1985). When approximately only 1000 calories per day ingested, coupled with exercising six hours per day, six days a week, it was virtually impossible to maintain adequate nutrient levels in the body (Maloney, 1983).

The Olympic gymnast Cathy Rigby McCoy, developed bulimia nervosa as a result of her athletic career. At age

15, her 93 pound frame was considered unacceptable by her coach so she took up bingeing and purging in order to drop her weight down to the recommended 89 pound mark (People Weekly 1984).

Amdur (1983) described a female runner who fell subject to anorexia nervosa as a result of her efforts to become a better college runner. This athlete began to revolve her entire life around training, thus taking her diet and mileage to their limits. Her obsession was fostered by weekly weigh-ins, the pound penalty system at her college, warning of rapid weight gain following physical maturity, and a lack of awareness by her coaches. Her running career ended abruptly due to a suicide attempt which left her permanently disabled.

Other case histories have also been published to support that anorexia nervosa and bulimic behaviors may present themselves as over-exercising, rather than undereating (Slavin 1987; 34); Sours (1980). In a retrospective study by Kron, Katz, Gorzynski, and Weiner, (1978) 21 of 25 anorexic patients were described as "unusually" physically active, "prior to the onset of the disease" (Slavin 1987; 33).

Thus, hyperactivity can be seen as an important clinical feature of restrictive eating disorders and not merely just the result of a conscious weight-loss attempt.

Effects of Eating Disorders on Performance

If permitted to continue, the athlete avoiding food and experiencing extreme weight loss eventually encounters decreased performance levels as well as changes in personality. Anorexia is typically initiated by what might appear to be a hunger strike. Carbohydrate avoidance in conjunction with a significant increase in physical activity also constitute early warning signals. Carbohydrates are the primary source of energy for the endurance athlete and are also needed to metabolize protein. Although protein is a main ingredient in muscle fiber, without carbohydrates, muscles are unable to use the protein for building and maintaining muscle tissue. Studies have thus repeatedly demonstrated that insufficient amounts of carbohydrates in the athletes' diet have detrimental effects on performance, and that there is a positive correlation between muscle glycogen stores and endurance performance (Fox & Mathews 1981). In addition, more than 30 minutes of exercise requires extra carbohydrates to replenish muscle carbohydrates (Costill 1980).

For the bulimic and anorexic patient, the use of laxatives and diuretics frequently causes dehydration, which can greatly hinder performance. Water not only regulates the body's temperature, but chemical reactions in the body also utilize water. Dehydration causes the heart rate to increase due to the decrease in blood volume, putting extra stress on the circulatory system (Saltin,

1963). Continuous fluid restriction, is likely to result in heat exhaustion, cramps or heat stroke.

Self-induced vomiting often characteristic of the athlete trying to "make weight", can result in dehydration, electrolyte and mineral imbalances, urinary infections, renal failure and protein metabolism.

Female athletes are at particular increased risk to iron deficiencies due to menstrual loss of blood. Inadequate iron intake can lead to overall body weakness, fatigue and decreased endurance.

The use of diuretics, as well as frequent vomiting and laxatives, lowers potassium levels in the anorexic or bulimic patient. It is through this reduction of extracellular potassium concentrations that patients can experience abnormalities in cardiac electrical conduction and skeletal muscle weakness (Emmett 1985). Other cardiac changes associated with anorexia and exercise cited by Silber (1985) include decreased heart size and blood volume in addition to decreased aerobic capacity even when diminished cardiac size and reduced body mass are taken into account. In advanced stages, arrhythmias are common, especially in the presence of electrolyte abnormalities (Herzog and Copeland 1985; 297).

In general, as the symptoms (as summarized previously) of both anorexic and bulimic behaviors progress, body functions begin to slow down in order to compensate for the

lack of supply of nutrients to the vital organs (Halloway 1979).

Methods of Assessment

Few assessment devices specific to anorexia nervosa or bulimia have been developed. Until recently, assessment has not even been considered an important factor in the treatment of restrictive eating disorders. It is finally being acknowledged that anorexia and bulimia nervosa are multifaceted disorders and that assessment of their origins and associated factors are important (Halimi 1980; Stunkard 1972). Without adequate assessment, the selection of appropriate intervention and treatment techniques becomes increasingly difficult.

Anorexia nervosa and bulimia nervosa can be diagnosed in a standardized manner by use of the third edition of the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-III), Revised, (1987). (Table 2, p. 16). Although these criteria are the most up-to-date, diagnosis is sometimes difficult. Nathan (cited in Barlow 1985) asserts that the DSM III, which may be used to categorize dysfunctional behavior, is more useful in diagnosing non-psychiatric disorders. He suggests that due to the complex etiological nature of eating disorders, and high incidence of subclinical cases, that a more comprehensive assessment strategy inclusive of diverse behavioral variables would prove effective. Nathan concludes:

Behavioral analysis may be the only categorization system capable of identifying the environmental and cognitive variables necessary to change, variables which have less to do with "symptoms" than with the factors on which these symptomatic behaviors are contingent (Barlow 1985; 9).

Brownell (1981) on the other hand, summarized the major components of a behavioral assessment plan into the following categories; the topography of eating, hunger, and the constitution of diet.

Eating Topography constitutes an individual's eating habits or characteristics. These include; number of calories consumed per meal, rate of eating, and size of mouthfuls. Unfortunately however, accurate calculations of these are difficult to achieve due to the fact that self-reporting is the primary assessment method. The tendency for anorexic and bulimic individuals to deny their behavior is great.

Hunger and Satiety - as with eating topography, self-reporting techniques represent the primary means of measuring hunger and satiety. Questionnaires have proven useful in assessment but have not yet been adequately validated (Brownwell 1981).

Constitution of Diet/Nutritional Assessment

The purpose of nutritional assessment is to discover what the patient's present intake-related characteristics are, to make eating-related observations which may be helpful in psychotherapy, to reassure the patient that her proposed intake will not be allowed

to get out of control and that it will be nutritious, and to develop an appropriate plan for dietary treatment which must include control over eating as well as weight gain (Dwyer 1970; 30).

Nutritional assessment in non-hospitalized patients is again difficult, yet at this point is best accomplished through self-reporting measures. The denial of unusual eating patterns by both the anorexic and bulimic patient is a major deterrent.

Assessment of the patient's physical activity level is also considered very important. A number of methods have been employed to measure the increased activity level of the anorexic patient. These include; self-report, heart rate calculations, direct observation, metabolic rate calculations, water vaporization from lungs and pedometer testing.

Assessment in restrictive eating disorders provides the basis by which treatment strategies can be developed and evaluated. Many of the assessment techniques developed for the assessment in restrictive eating disorders have been derived from those used in obesity assessment.

The type of treatment an anorexic or bulimic patient receives may depend very much on the individual who is treating them. The variation in treatment approaches is, "partly due to the fact that those offering help hold different views on the nature of anorexia and bulimia nervosa, and partly due to the lack of consistently good results with any one method" (Bryant 1985; 97). Drug

therapy, unlimited feeding (e.g. intravenous), bed rest, and exercise have all been advocated methods of treatment. Numerous behavior approaches utilizing operant conditioning techniques, support groups, and family therapy have also been employed. The primary objective in severe cases, is to first restore the patient's physiological state, then attention can be given to her/his mental state - which often reflects the reasons, influences and motivations behind the development of the disorder. Successful treatment involves long-term outpatient psychotherapy including individual, group, or family meetings. Treatment can take up to several years (Slavin 1987).

The patients' motivation for seeking therapy will often greatly influence how well they receive treatment. Many patients only seek help because they are pressured to by friends or family members. They usually don't perceive themselves as ill or as being too thin. It is for these reasons that many experts stress that ascertaining the attitudes of friends and family members toward the patient's appearance and behavior might help in designing the treatment specific to that patient's needs (Branch 1980; 631). In addition, patients have admitted to their therapists that they used their condition, or were even encouraged to use it to gain rewards from friends or family members. These types of influences are becoming increasingly more recognized, and many feel that without this recognition, therapy is ineffective.

Prevention/Intervention Strategies

Despite the recent amount of attention given to the relationship between eating disorders and athletes, few publications have addressed the issue with respect to prevention or intervention strategies. In fact, very little has been written on general prevention/intervention for the anorexic or bulimic patient. Such strategies are crucial because the earlier the symptoms can be identified in the course of the illness and treated, the more favorable is the patient's prognosis (Romeo 1986). Early identification of these disorders is also imperative because severe bodily damage can occur quickly with the onset of an eating disorder. The medical complications of anorexia or bulimia nervosa are often reversible if identified during the early stages of the illness. This can only be accomplished if individuals are informed concerning the symptoms of these illnesses.

Due to the high incidence of eating disorders found among adolescent and young adult women, reports suggest that prevention/intervention programs are most effective when initiated in the school system. Educators, counselors and coaches have the opportunity to play an important role in preventing these disorders by addressing the topic in the curriculum. This may start as early as the elementary level. The topic of eating disorders can be included in such subject areas as; health, home economics, nutrition

and physical education. At present, there are workshops and reference guides available to school faculty members geared towards early prevention. Warning signs, medical complications, at risk groups, long-range risks and sources of information/referrals, are the topics addressed.

In addition, there are a number of people with sub-clinical eating disorders; those who may engage in these practices occasionally but are not yet out of control, or noticable. Special sensitivity to this population may help to prevent further complications.

Because many athletes go to great lengths to reduce their body fat, Rosen et al. (1986) have suggested a series of steps to advise athletic trainers how to identify symptoms and obtain treatment for athletes suffering from subclinical and clinical forms of anorexia nervosa or bulimia nervosa. Coaches are advised to observe dieting behavior, attitudes, participation and performance levels, and general peer interactions of their athletes. Other authors assert that coaches should be more sensitive to weight issues and not make careless references that someone "looks fat" or has "gained weight" (Slavin 1987; 36; Overdorf 1987). Furthermore, it is becoming more and more evident that in many sports, the athlete does not have to be excessively thin to perform well (Drummer et al. 1987).

Unfortunately these findings suggest that few coaches have acquired the necessary background in nutrition and weight-control strategies to adequately recognize many of

the early warning signs of restrictive eating disorders. A well-informed coach will be able to aid in early diagnosis of what can become a severe medical problem.

Finally, because patients, family members, peers and educators all need assistance in dealing with the anorexic or bulimic patient, a number of community organizations are available to dispense helpful information pertaining to prevention, intervention and treatment guidelines.

Appendix A (p. 84) contains a list of community organizations.

CHAPTER III

DESIGN OF STUDY

The purpose of this study was to determine the major content areas believed to be most important for inclusion in an Eating Disorders prevention-intervention guide for coaches of female college athletes. This chapter considers the methods and procedures related to the development of the instrument.

Methods

The instrument utilized in this investigation was a questionnaire which requested 9 recognized experts to indicate those content areas that they deemed most important to include in an Eating Disorders prevention-intervention guide for coaches of female college athletes.

To insure that the content areas selected were reflective of contemporary research in eating disorders, the investigator completed carefully designed steps:

1. Current literature on eating disorders was reviewed to determine major facts, issues and problems typically experienced by persons with eating disorders. Additional research relating to the unique dietary problems of female athletes was also considered. From this information, 10 potential content areas likely to have relevance for persons coaching female athletes were identified.

2. Once content areas were identified, several statements were developed which reflected potential sub-areas of information. These statements were placed with corresponding content areas. The content areas were then organized into a two-part questionnaire that was mailed to the 9 expert respondents (Appendix B).

3. The group of respondents consisted of 9 recognized experts who represented college athletics (coaches), student health services, and psychology professions (Appendix C). The list of experts was compiled through literature and research organizations. To be categorized as an expert, individuals were carefully screened to determine if they met the following criteria:

- (1) held current membership in a professional organization which addressed issues of restrictive eating disorders.
- (2) referred by a recognized medical organization dealing with anorexia nervosa or bulimia.
- (3) published in recognized journals on issues of anorexia nervosa and bulimia.
- (4) directed research or related activities in the area of female athletes and/or eating disorders.

4. In part-one of the questionnaire, experts were asked to indicate how important each item within the given content area was on the following five-point Likert-type scale, where 1.0 was "definitely important" and 5.0 was "definitely not important."

1. This item was considered definitely important in the Eating Disorders prevention-intervention guide for coaches of female college athletes
2. This item was considered important in the Eating Disorders prevention-intervention guide for coaches of female college athletes
3. This item was considered neutral in the Eating Disorders prevention-intervention guide for coaches of female college athletes
4. This item was considered not important in the Eating Disorders prevention-intervention guide for coaches of female college athletes
5. This item was considered definitely not important in the Eating Disorders prevention-intervention guide for coaches of female college athletes

Experts were also encouraged to state reasons why an item was given a 3, 4, or 5.

In part-two of the questionnaire, experts were asked to rank the identified content areas according to the relative importance each should be given in the guide on a scale of 1 to 10, with 1 representing the high, and 10 the low. In addition, experts were asked to indicate what percent of the guide should be devoted to each of the content areas.

5. Prior to administering the survey, it was reviewed for structure and readability by both committee members and the Oregon State University Survey Research Center.

6. The survey questionnaire was administered to each of the expert respondents by mail on September 27, 1987. The experts were asked to reply within approximately one week's

time. A cover letter, self-addressed, stamped envelope and survey-reply form were mailed to each of the experts (Appendix D and E).

7. The criterion for retaining or eliminating specific items within a content area were based on the weighted means of collective scores for each item (Graham 1983;36). Items were deleted if their weighted means exceeded 2.50. All other recommendations (e.g. modifications or restructuring), by the expert respondents were incorporated into a revised instrument, where possible. Modifications were made based on recommendations by 2 or more of the expert respondents. Additional content area statements not on the list suggested by the experts were also included in the final instrument.

8. Because the expert respondents evaluation of the identified content areas resulted in evoking few changes, the final stage involved refinement of several guide items.

9. This acquired information was used to create the final instrument, which consisted of 10 content areas relating to eating disorders and female college athletes. The completed instrument will be used as the basis for further development of the Eating Disorders prevention-intervention guide for coaches of female college athletes.

CHAPTER IV
PRESENTATION OF FINDINGS

The purpose of this study was to: (1) identify the potential content areas of an eating disorders prevention-intervention guide for coaches of female college athletes and to; (2) report differences in judgement of 9 recognized experts about the level of importance of the identified potential content areas for an eating disorders prevention-intervention guide for coaches of female college athletes (background on the 9 expert respondents, Appendix C).

All 9 of the experts returned the mail-questionnaire; however, 2 experts did not complete the entire survey as requested. Instead of responding to the questionnaire as directed, one expert wrote an extensive explanation in reference to each question. It was also explained by two experts, that the percentage section in part two of the questionnaire was difficult to complete. Additions of content area items ranged from none to extensive.

The results of the study are broken down into four main categories: collective expert means (weighted) for content area statements; means by profession for content area statements; content areas ranked in importance to the guide (part two of the questionnaire) and changes to the guide recommended by experts; e.g. modifications (See Table 3 for a listing of content area statements prior to modifications).

Table 3. Listing Of Content Areas And Supporting Statements Prior To Modification By Experts

1. DISTINGUISHING FEATURES:

- a. Anorexia Nervosa: A psychic disorder characterized by a loss of appetite, 15% loss of body weight, fear of becoming obese, and a distortion of body image.
- b. Bulimia: Morbid fear of becoming obese with uncontrolled binging followed by purging, which may be vomiting, laxative use, ipecac, diurectics or even excessive exercise.
- c. Bulimarexia: Self-induced starvation and the binge-purge syndrome are both present.

2. THE RELATIONSHIP BETWEEN EATING DISORDERS AND ATHLETES:

- a. Athletes have been referred to as an 'at risk' population due to the advantages gained in performance by minimizing body fat.
- b. Eating disorders in athletes do not always develop into acute cases. Recognition of subclinical cases of restrictive eating disorders can result in early intervention.

3. EARLY SIGNS AND SYMPTOMS OF RESTRICTIVE EATING DISORDERS:

- a. Physiological: for example; fluctuation in weight, bloating, dry skin.
- b. Behavioral: for example; excessive training, decreased performance, fluctuation in mood, anti-social behavior.

4. ADVANCED SIGNS AND SYMPTOMS:

Many symptoms of restrictive eating disorders have been associated with the effects of starvation:

Starvation Response:

- a. Medical complications include: utilization of glycogen stored in liver and muscles; utilization of stored fat; spells of nausea and diminishing acuteness of sensation of hunger; suspected increase in cerebrospinal fluid opiod activity, and destruction of body protein.

Table 3. Listing Of Content Areas And Supporting Statements Prior To Modification By Experts (Continued)

- b. Behavioral complications include: decreased mental concentration; depression; bizarre food tastes; irritability; dizzy spells; loss of hunger and strength; an increased preoccupation with food; e.g. food fantasies.

5. REFERRALS/REFERENCES:

Sources of Help and Information:

- a. Within the academic institution; e.g. student health services; administration counseling center.
- b. Within the community or state health services department.
- c. National Organizations.

6. INTERVENTION STRATEGIES:

Subsequent to contacting appropriate sources of information:

- a. Confront the athlete confidentially and nonthreateningly.
- b. Contact family members when the psychological and/or physiological well being of the athlete is in question.
- c. Consistent support to the athlete and family.

7. ACTIONS TO BE AVOIDED BY COACHES:

- a. Associate weight loss with increased performance levels.
- b. Mention weight gain/loss in presence of athlete's peers.
- c. Stress absolute weight value; e.g. weigh-ins.
- d. Advocate personal dietary preferences or unsafe eating habits.

8. FAD DIETS AND QUACKERY:

Increase coaches' awareness of:

- a. Procedures and methods encouraged by diet establishments/clinics.
- b. Current weight-loss trends.
- c. The necessity to encourage the athletes to critically assess dietary trends.
- d. Diets which claim to be 'performance increasing'; e.g. carbo-loading.

Table 3. Listing Of Content Areas And Supporting Statements Prior To Modification By Experts (Continued)

9. NUTRITION AND ATHLETES:

- a. Balanced and regularly consumed meals; e.g. selected from the four major food groups.
- b. Non-restrictive fluid intake to avoid heat exhaustion and heat stroke.
- c. Increased carbohydrate consumption promotes muscle's fuel supply.
- d. Sufficient iron intake to avoid anemia.

10. GAINING AND LOSING WEIGHT IN ATHLETICS:

When weight loss or gain is necessary:

- a. The appropriate methods should be employed and encouraged.
- b. Recognition of accelerated fluctuations in weight is critical.
- c. It must be stressed that rapid changes in weight are detrimental to performance.
- d. The use of drugs should be discouraged and coaches should be aware of indications of their misuse and abuse.

Collective Expert Means for Content Area Statements:

Data from part-one of the questionnaire indicate that based on the collective scores for each statement within the given content area, all should be retained. Items were deleted if their weighted means exceeded 2.50. Modifications were made based on a recommendations by 2 or more of the experts. Here, a high weighted mean represented a low score indicative of some lack of agreement. None of the mean scores exceeded 2.50. The weighted means range from 1.00 (items, 5a and 6a) to 1.89 (item 1c) (Table 4, p. 61). Items 1a through 2a were completed by all of the experts, therefore the weighted means for these items was

Table 4. Collective Expert Means for Content Area Statements.

Content Area Statement	EXPERTS										Weighted Mean	Retain/Delete
	A	B	C	D	E	F	G	H	I			
1. DISTINGUISHING FEATURES:												
a. Anorexia Nervosa: A psychic disorder characterized by a loss of appetite, 15% loss of body weight, fear of becoming obese, and a distortion of body image.	1	1	1	2	1	1	1	1	1	1	1.11	retain
b. Bulimia: Morbid fear of becoming obese with uncontrolled binging followed by purging, which may be vomiting, laxative use, ipecac, diurectics or even excessive exercise.	1	1	1	2	1	1	1	1	1	1	1.11	retain
c. Bulimarexia: Self-induced starvation and the binge-purge syndrome are both present.	1	1	1	4	4	1	1	3	1	1	1.89	retain M
2. THE RELATIONSHIP BETWEEN EATING DISORDERS AND ATHLETES:												
a. Athletes have been referred to as an 'at risk' population due to the advantages gained in performance by minimizing body fat.	1	2	1	1	1	1	1	1	1	1	1.11	retain M
b. Eating disorders in athletes do not always develop into acute cases. Recognition of subclinical cases of restrictive eating disorders can result in early intervention.	1	3	1	1	1	x	1	1	1	1	1.25	retain
3. EARLY SIGNS AND SYMPTOMS OF RESTRICTIVE EATING DISORDERS:												
a. Physiological: for example; fluctuation in weight, bloating, dry skin.	1	2	1	1	1	x	1	1	1	1	1.13	retain M
b. Behavioral: for example; excessive training, decreased performance, fluctuation in mood, anti-social behavior.	1	2	1	1	1	x	1	1	1	1	1.13	retain M

*M - Indicates a modification. Modifications were based on the recommendation by 2 or more experts.
 xDid not respond according to directions.

Table 4. (Cont.) Collective Expert Means for Content Area Statements.

Content Area Statement	EXPERTS									Weighted Mean	Retain/Delete	
	A	B	C	D	E	F	G	H	I			
4. ADVANCED SIGNS AND SYMPTOMS: (Many symptoms of restrictive eating disorders have been associated with the effects of starvation:) Starvation Response:												
a. Medical complications include: utilization of glycogen stored in liver and muscles; utilization of stored fat; spells of nausea and diminishing acuteness of sensation of hunger; suspected increase in cerebrospinal fluid opioid activity, and destruction of body protein.	1	2	1	1	1	x	1	1	1	1.13	retain	
b. Behavioral complications include: decreased mental concentration; depression; bizarre food tastes; irritability; dizzy spells; loss of hunger and strength; an increased preoccupation with food; e.g. food fantasies.	1	2	1	1	1	x	1	1	1	1.13	retain M	
5. REFERRALS/REFERENCES: (Sources of Help and Information:)												
a. Within the academic institution; e.g. student health services; administration counseling center.	1	1	1	1	1	x	1	1	1	1.00	retain	
b. Within the community or state health services department.	2	1	1	1	1	x	1	1	2	1.25	retain	
c. National Organizations.	2	2	2	1	1	x	1	1	2	1.50	retain	
6. INTERVENTION STRATEGIES: (Subsequent to contacting appropriate sources of information:)												
a. Confront the athlete confidentially and nonthreateningly.	1	1	1	1	1	x	1	1	1	1.00	retain M	
b. Contact family members when the psychological and/or physiological well being of the athlete is in question.	2	2	1	1	1	x	1	1	4	1.63	retain	
c. Consistent support to the athlete and family.	1	2	1	1	4	x	1	1	2	1.63	retain	
7. ACTIONS TO BE AVOIDED BY COACHES:												
a. Associate weight loss with increased performance levels.	2	2	2	1	1	x	1	1	1	1.38	retain	
b. Mention weight gain/loss in presence of athlete's peers.	1	2	1	1	1	x	1	1	1	1.13	retain	

*M - Indicates a modification. Modifications were based on the recommendation by 2 or more experts.
 xDid not respond according to directions.

Table 4 (Cont.) Collective Expert Means for Content Area Statements.

Content Area Statement	EXPERTS										Weighted Mean	Retain/Delete
	A	B	C	D	E	F	G	H	I			
7. ACTIONS TO BE AVOIDED BY COACHES: (Continued)												
c. Stress absolute weight value; e.g. weigh-ins.	2	3	3	1	1	x	1	1	1		1.63	retain
d. Advocate personal dietary preferences or unsafe eating habits.	1	1	3	1	1	x	1	1	1		1.25	retain
8. FAD DIETS AND QUACKERY: (Increase coaches' awareness of:)												
a. Procedures and methods encouraged by diet establishments/clinics.	1	1	1	1	3	x	2	2	2		1.63	retain
b. Current weight-loss trends.	1	2	2	1	3	x	2	2	2		1.88	retain
c. The necessity to encourage the athletes to critically assess dietary trends.	1	2	1	1	3	x	1	1	1		1.38	retain
d. Diets which claim to be 'performance increasing'; e.g. carbo-loading.	2	2	1	1	3	x	1	1	2		1.63	retain
9. NUTRITION AND ATHLETES:												
a. Balanced and regularly consumed meals; e.g. selected from the four major food groups.	1	2	1	1	1	x	2	1	3		1.50	retain
b. Non-restrictive fluid intake to avoid heat exhaustion and heat stroke.	1	2	1	1	1	x	2	1	3		1.50	retain
c. Increased carbohydrate consumption promotes muscle's fuel supply.	1	2	1	1	1	x	2	1	3		1.50	retain
d. Sufficient iron intake to avoid anemia.	1	2	1	1	1	x	2	1	3		1.50	retain
10. GAINING AND LOSING WEIGHT IN ATHLETICS: (When weight loss or gain is necessary:)												
a. The appropriate methods should be employed and encouraged.	1	2	1	1	1	x	1	1	1		1.13	retain M
b. Recognition of accelerated fluctuations in weight is critical.	1	2	1	1	1	x	1	1	1		1.13	retain
c. It must be stressed that rapid changes in weight are detrimental to performance.	1	3	1	1	1	x	1	1	3		1.50	retain
d. The use of drugs should be discouraged and coaches should be aware of indications of their misuse and abuse.	1	2	1	1	1	x	1	1	1		1.13	retain

*M - Indicates a modification. Modifications were based on the recommendation by 2 or more experts.

*Did not respond according to directions.

based on 9 responses. Items 2b through 10d were completed by 8 of the 9 experts, thus the weight means for these items was based on 8 responses rather than 9.

Means by Profession

The data collected from part one of the questionnaire was used to make comparisons between the three represented expert professions, (e.g. coaches, psychologists, and student health services) regarding the importance of each content area statement. Part one of the questionnaire was completed by two of the three expert respondents representing psychology and all expert respondents representing student health services and coaching.

The scores for content area statements were tabulated. From these scores the weighted means for each statement were then calculated by profession. The weighted means for content areas statements by coaches ranged from 2.67 (item 7c) to 1.00 (items 1a-c, 5a, 6a, 8a, Table 5). The weighted means for content area statements by psychologists ranged from 1.00 (items 2a, b, 3a, b; 4a, b; 5a-c; 6a, b; 7a-d; 9 a-d; 10a-d), to 3.00 (item 1c), Table 5. Two of the three psychologists completed part one of the questionnaire, therefore the weighted means are based on two responses rather than three. Among health services the weighted means for content area statements ranged from 1.00 (items 1a, b; 2a, b; 3a, b; 4a, b; 5a, 6a; 7a-d; 8c; 10a, b,d) to 2.00 (items 6b; 8a, b; 9a-d), (Table 5).

Table 5. Relative Importance Of Content Area Statements By Profession

Content Area Statement	Coaches \bar{x}	Psychologists \bar{x}	Student Health Services \bar{x}
1a	1.00	1.33	1.00
1b	1.00	1.33	1.00
1c	1.00	3.00	1.67
2a	1.33	1.00	1.00
2b	1.67	1.00	1.00
3a	1.33	1.00	1.00
3b	1.33	1.00	1.00
4a	1.33	1.00	1.00
4b	1.33	1.00	1.00
5a	1.00	1.00	1.00
5b	1.33	1.00	1.33
5c	2.00	1.00	1.33
6a	1.00	1.00	1.00
6b	1.67	1.00	2.00
6c	1.33	2.50	1.33
7a	2.00	1.00	1.00
7b	1.33	1.00	1.00
7c	2.67	1.00	1.00
7d	1.67	1.00	1.00
8a	1.00	2.00	2.00
8b	1.67	2.00	2.00
8c	1.33	2.00	1.00
8d	1.67	2.00	1.33
9a	1.33	1.00	2.00
9b	1.33	1.00	2.00
9c	1.33	1.00	2.00
9d	1.33	1.00	2.00
10a	1.33	1.00	1.00
10b	1.33	1.00	1.00
10c	1.67	1.00	1.67
10d	1.33	1.00	1.00

A $\bar{x} < 3$ indicates the item is important to the guide.

A $\bar{x} > 3$ indicates the item is not important to the guide.

In part one of the questionnaire there was a sizable difference between the three groups of experts pertaining to the number of weighted mean calculated as 1.00. Among coaches, six content area statements had a weighted mean of 1.00; 16 content area statements had a weighted mean of 1.33; 6 content area statements had a weighted mean of 1.67; 2 content area statements had a weighted mean of 2.00; and one content area statement had a weighted mean of 2.67 (Table 5).

For psychologists there were 23 content area statements with a weighted mean of 1.00; 2 content area statements with a weighted mean of 1.33; 4 content area statements with a weighted mean of 2.00; one content area statement with a weighted mean of 2.50; and one content area statement with a weighted mean of 3.00 (Table 5).

Student health services had 18 content area statements with a weighted mean of 1.00; 4 content area statements with a weighted mean of 1.33; 2 content area statements with a weighted mean of 1.67; and 7 content area statements with a weighted mean of 2.00 (Table 5).

Content Areas Ranked in Importance to the Guide: (part two of the questionnaire)

In part two of the questionnaire, 7 of the 9 experts ranked the content areas according to the relative importance that each should be given in the guide, on a scale of 1 to 10, with 1 being the high (Table 6).

Table 6. Ranking Of Content Areas According To Relative Importance

Content Areas	Experts									Weighted Means
	A	B	C	D	E	F	G	H	I	
1. Distinguishing Features	7	1	4	6	1	X	1	X	8	4.00
2. Relationship Between Eating Disorders and Athletes	3	3	3	7	2	X	4	X	6	4.00
3. Early Signs and Symptoms of Restrictive Eating Disorders	4	2	5	4	4	X	2	X	1	3.14
4. Advanced Signs and Symptoms	5	5	6	5	5	X	3	X	5	4.86
5. Referrals/References	10	6	9	9	7	X	7	X	3	7.29
6. Intervention Strategies	9	7	7	8	6	X	5	X	4	6.57
7. Actions To Be Avoided By Coaches	8	10	8	2	3	X	6	X	2	5.57
8. Fad Diets and Quackery	6	9	10	10	10	X	9	X	9	9.00
9. Nutrition and Athletes	1	4	1	3	8	X	8	X	10	5.00
10. Gaining and Losing weight in athletics	2	8	2	1	9	X	10	X	7	5.57

X - did not respond according to directions.

Six of the 9 experts also indicated what percent of the guide should be devoted to each of the content areas (Table 7). The remaining 2 experts did not rank the content areas. The remaining 3 experts did not assign percentages to the content areas. The means of these percentages ranged from a high of 13.3%, (content areas: 3, Early Signs and Symptoms of Eating Disorders; 9, Nutrition and Athletes) to a low of 5.8%, content area 5, Referrals and

References. Based on these responses content areas 3 and 9, (Early Signs and Symptoms; and Nutrition and Athletes) should be given the most attention in the guide, whereas content area 5, (Referrals and References) deserves the least amount of attention.

Table 7. Mean Percentages Assigned To Each Content Area By Experts

Content Area	Expert									Weighted Means
	A	B	C	D	E	F	G	H	I	
1	10	15	10	5	X	X	10	X	5	9.2%
2	15	10	10	5	X	X	20	X	5	10.8%
3	15	15	10	15	X	X	5	X	20	13.3%
4	10	10	5	15	X	X	5	X	10	9.2%
5	5	5	5	5	X	X	5	X	10	5.8%
6	10	10	10	5	X	X	15	X	20	11.7%
7	10	5	10	15	X	X	10	X	20	11.7%
8	10	5	5	5	X	X	10	X	5	6.7%
9	10	15	25	15	X	X	10	X	5	13.3%
10	5	10	10	15	X	X	10	X	0	8.3%

X - did not respond according to directions.

The order of importance is shown in the first half of Table 8, according to the weighted means of those experts who ranked the content areas. According to the 9 experts the first content area discussed in the guide should be Early Signs and symptoms of Eating Disorders, while Fad

Diets and Quackery should be discussed last. Also in Table 8 are the weighted means of the percentages assigned to each content area. The percentage assigned do not necessarily reflect the order of importance of the content areas according to the weighted means of the experts. Although a given content area may require a great deal of attention devoted to it, it may not warrant being the first topic discussed in the guide.

Table 8. Order Of Importance And Percentages Assigned To Content Areas According To Weighted Means Of Experts

Rank	Content Area	Mean Percentage
1	3. Early Signs and Symptoms of Eating Disorders	13.3%
2	2. The Relationship Between Eating Disorders and Athletes	10.8%
3	1. Distinguishing Features	9.2%
4	4. Advanced Signs and Symptoms	9.2%
5	9. Nutrition and Athletes	13.3%
6	10. Gaining and Losing Weight in Athletics	8.3%
7	7. Actions to Be Avoided By Coaches	11.7%
8	6. Intervention Strategies	11.7%
9	5. Referrals/References	5.8%
10	8. Fad Diets and Quackery	6.7%
		100.0%

Changes to the Proposed Guide Recommended by Experts

None of the collective weighted means of the content area statements exceeded 2.50, (pre-set criteria, see p. 57) thus all items were retained (Table 4, p. 61). Comments made on the questionnaire by the experts resulted in modifications to the following items (See Table 9). Item 1c was changed from bulimarexia to bulimia nervosa due to recent publication of the DSM IIIR (Diagnostic Statistical Manual - revised; October 1987). The remaining modifications were made as a result of 2 or more similar written/verbal comments by experts.

For a list of the final content areas arranged in order of importance, for inclusion in an eating disorders prevention-intervention guide, see Appendix F.

Table 9. Changes To The Proposed Guide Recommended By Experts

Content Area Statement	Original	Modification
1c	Bulimarexia: Self-induced starvation and the binge-purge syndrome are both present.	Bulimia Nervosa: Self-induced starvation and the binge-purge syndrome are both present.
2a	Athletes have been referred to as an 'at risk' population due to the advantages gained in performance by minimizing body fat.	Athletes have been referred to as an 'at risk' population due to the advantages gained in performance by minimizing body fat, (depending on how one

Table 9. Changes To The Proposed Guide Recommended By Experts. (Continued)

Content Area Statement	Original	Modification
2a (Cont.)		practices the eating disorder, they may not lose fat although weight loss may occur, e.g. water).
3a	Physiological: for example; fluctuation in weight, bloating, dry skin.	Physiological: for example; fluctuation in weight, bloating, dry skin, recurring injuries.
3b	Behavioral: for example; excessive training, decreased performance, fluctuation in mood, anti-social behavior.	Behavioral: for example; excessive training, decreased performance, fluctuation in mood, depression, self-deception, anti-social behavior.
4b	Behavioral complications include: decreased mental concentration; depression; bizarre food tastes; irritability; dizzy spells; loss of hunger and strength; and increased preoccupation with food; e.g. food fantasies.	Behavioral complications include: decreased mental concentration; depression, bizarre food tastes; ritualistic eating habits; secrecy about eating; irritability; dizzy spells; loss of hunger and strength; an increased preoccupation with food; e.g. food fantasies.
6a	Confront the athlete confidentially and nonthreateningly.	Confront the athlete confidentially and nonthreateningly, (e.g. "I am concerned" vs. "you're performance was not up to par...is something wrong?").
10a	The appropriate methods should be employed and	The appropriate methods should be employed and encouraged; e.g. terms

Table 9. Changes To The Proposed Guide Recommended By Experts. (Continued)

Content Area Statement	Original	Modification
10a (Cont.)	encouraged.	such as "weight used with discretion; set-point mechanism emphasized; and appropriate referral efforts.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Summary and Conclusions

The central purpose of this study was to identify the content areas believed to be most important for inclusion in an Eating Disorders prevention-intervention guide for coaches of female college athletes. Based on the objectives of the study the major findings are summarized in the following section:

Review of the Literature

The Review of Literature revealed that an increasing amount of attention has been given to the area of restrictive eating disorders. However, the majority of emphasis is still placed on the most extreme manifestations of these disorders. The problem with this, is that a number of individuals do not exhibit all the diagnostic symptoms of either anorexia nervosa, or bulimia nervosa, yet many are still obsessed with eating. Because the subclinical patient does not always display distinct symptoms, they often go unrecognized. Female athletes in particular have been referred to as an 'at risk' group for subclinical eating disorders because the majority of those concerned do not neatly fit the definitions for eating disorders, with the exception of bulimia (Pengelly 1987; personal communication).

Although the relationship between eating disorders and female athletes is recognized, the number of publications available is limited. Even less attention has been given to prevention and intervention strategies.

Finally, the literature indicates that due to the increase in incidence of eating disorders among female college athletes, it is critical that coaches and trainers attempt to: (1) minimize the potential for the occurrence of eating disorders by rethinking some of the traditional training approaches; and (2) learn how to recognize the symptoms of eating disorders.

Research Instrument Development and Survey Procedure

As a result of the reviewed literature, 10 potential content areas were identified in addition to 31 supporting statements for inclusion in an Eating Disorders prevention-intervention guide for coaches of female college athletes. The content areas and supporting statements were used to create the survey-questionnaire which was administered by mail to a panel of nine recognized experts representing coaching, student health services and psychology professions. The experts' task involved evaluating the importance of the identified potential content areas. Upon the recommendation of panel experts, a total of seven changes were made to the instrument, all of which were additions to the pre-existing content area statements. (For final listing of content areas and supporting statements see Appendix F).

Recommendations

- (1) This study suggests that the number of eating disordered female athletes is on the rise; "paralleling the increasing numbers in society in general" (Overdorf 1987; 63). Furthermore, based on the positive feedback provided by panel experts and the limited information available pertaining to eating disorders and female athletes, the proposed guide would prove to be extremely beneficial.
- (2) From both the verbal and written comments made by panel members it appears that there should be a greater amount of emphasis on the subclinical manifestations of eating disorders in the literature.
- (3) Due to the nature of the relationship that exists between the coach and the athlete, frequently athletes will go to great lengths to please their coach. Therefore, coaches need to be extremely sensitive to how they deal with the issue of weight control.
- (4) Because restrictive eating disorders involve a great deal of self-deception, diagnosis is often extremely difficult, even in advanced cases. A greater effort needs to be made in an attempt to educate coaches and athletes about the subtly with which the symptoms often occur. Both coaches and athletes need to be aware of how and where they can seek professional help, e.g. nutritionists, counselors and physicians.

(5) The need for an Eating Disorders prevention-intervention guide has been clearly identified. A future study should involve the testing of the proposed guide, inclusive of the 10 identified content areas by a number of randomly selected coaches of female college athletes. This could be accomplished by the following procedure:

- A) The information within each content area would be re-written in narrative style. Examples would be included under each content area statement.
- B) The purpose of the guide would be addressed in an introductory section. A list of recommended references and referrals would appear in the final section of the guide.
- C) The guide would then be submitted for evaluation to a delphi panel of experts representing expertise in the area of eating disorders and athletics. Once a consensus was reached by experts about the structure of the guide, it would then be ready for submission to coaches.
- D) Prior to receiving the guide, the random sample of coaches would be asked to complete a questionnaire designed to yield information regarding their attitudes about the subject and their current level of knowledge of the subject.
- E) Subsequent to the questionnaire, the guide would then be presented to the selected random sample

of coaches.

- F) Finally, a follow-up questionnaire would be mailed to coaches designed to assess changes in attitudes and/or knowledge levels of the subject matter addressed in the guide. The follow-up questionnaire would prove to be most useful if presented no earlier than 6 months following the administration of the guide.

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APPENDICES

APPENDIX A
SOURCES OF INFORMATION

APPENDIX A

SOURCES OF INFORMATION

American Anorexia/Bulimia Association, Inc.
133 Cedar Lane
Teaneck, New Jersey 07666

Anorexia Nervosa and Related Eating Disorders, Inc.
P.O. Box 5102
Eugene, Oregon 97405

National Association of Anorexia Nervosa and
Associated Disorders, Inc.
Box 271
Highland Park, Illinois 60035

The Center for the Study of Anorexia and Bulimia
Institute for Contemporary Psychotherapy
1 West 91st Street
New York, New York 10024

Anorexic Aid
The Priory Centre
11 Priory Road
High Wycombe, Bucks

(Romeo, 1986, p. 80).

APPENDIX B

SURVEY INSTRUMENT

SURVEY INSTRUMENT

Part I

This part of the survey lists potential content areas (items 1-10) for inclusion in an Eating Disorders Prevention-Intervention Guide for coaches of female of college athletes. Please indicate how important a discussion of each of the following statements within specific content areas is with respect to inclusion in the guide. Please also state reasons why you feel an item is not important; e.g. items given a 3,4, or 5. (Circle one number for each item)

(1)	(2)	(3)	(4)	(5)
Definitely				Definitely
Important	Important	Neutral	Not Important	Not Important

1. DISTINGUISHING FEATURES:

- a. Anorexia Nervosa: A psychic disorder characterized by a loss of appetite, 25% loss of body weight, fear of becoming obese, and a distortion of body image..... 1 2 3 4 5
- b. Bulimia: Morbid fear of becoming obese with uncontrolled bingeing followed by purging, which may be vomiting, laxative use, ipecac, diuretics or even excessive exercise..... 1 2 3 4 5
- c. Bulimarexia: Self-induced starvation and the binge-purge syndrome are both present..... 1 2 3 4 5

(Additional comments)

2. THE RELATIONSHIP BETWEEN EATING DISORDERS AND ATHLETES:

- a. Athletes have been referred to as an 'at risk' population due to the advantages gained in performance by minimizing body fat..... 1 2 3 4 5
- b. Eating disorders in athletes do not always develop into acute cases. Recognition of subclinical cases of restrictive eating disorders can result in early intervention.... 1 2 3 4 5

(Additional comments)

	(1) Definitely Important	(2) Important	(3) Neutral	(4) Not Important	(5) Definitely Not Important
3. EARLY SIGNS AND SYMPTOMS OF RESTRICTIVE EATING DISORDERS:					
a. Physiological: for example; fluctuation in weight, bloating, dry skin.....	1	2	3	4	5
b. Behavioral: for example; excessive training, decreased performance, fluctuation in mood, anti-social behavior.....	1	2	3	4	5
(Additional comments)					

4. ADVANCED SIGNS AND SYMPTOMS:

Many symptoms of restrictive eating disorders have been associated with the effects of starvation:

Starvation Response:

a. Medical complications include: utilization of glycogen stored in liver and muscles; utilization of stored fat; spells of nausea and diminishing acuteness of sensation of hunger; suspected increase in cerebrospinal fluid opiod activity, and destruction of body protein.....	1	2	3	4	5
b. Behavioral complications include: decreased mental concentration; depression; bizarre food tastes; irritability; dizzy spells; loss of hunger and strength; an increased preoccupation with food; e.g. food fantasies.....	1	2	3	4	5

(Additional comments)

	(1)	(2)	(3)	(4)	(5)
	<u>Definitely</u>	<u>Important</u>	<u>Neutral</u>	<u>Not Important</u>	<u>Definitely</u>
	<u>Important</u>	<u>Important</u>	<u>Neutral</u>	<u>Not Important</u>	<u>Not Important</u>

5. REFERRALS/REFERENCES:

3 Sources of Help and Information:

a. Within the academic institution; e.g. student health services; administration counseling center....	1	2	3	4	5
b. Within the community or state health services department.....	1	2	3	4	5
c. National Organizations.....	1	2	3	4	5

(Additional comments)

6. INTERVENTION STRATEGIES:

Subsequent to contacting appropriate
sources of information:

a. Confront the athlete confidentially and nonthreateningly.....	1	2	3	4	5
b. Contact family members when the psychological and/or physiological well being of the athlete is in question.....	1	2	3	4	5
c. Consistent support to the athlete and family.....	1	2	3	4	5

(Additional comments)

	(1)	(2)	(3)	(4)	(5)
	<u>Definitely</u>	<u>Important</u>	<u>Neutral</u>	<u>Not Important</u>	<u>Definitely</u>
	<u>Important</u>	<u>Important</u>	<u>Neutral</u>	<u>Not Important</u>	<u>Not Important</u>

7. ACTIONS TO BE AVOIDED BY COACHES:

a. Associate weight loss with increased performance levels.....	1	2	3	4	5
b. Mention weight gain/loss in presence of athlete's peers.....	1	2	3	4	5
c. Stress absolute weight value; e.g. weigh-ins.....	1	2	3	4	5
d. Advocate personal dietary preferences or unsafe eating habits....	1	2	3	4	5

(Additional comments)

8. FAD DIETS AND QUACKERY:

Increase coaches awareness of:

a. Procedures and methods encouraged by diet establishments/clinics.....	1	2	3	4	5
b. Current weigh-loss trends.....	1	2	3	4	5
c. The necessity to encourage the athletes to critically assess dietary trends.....	1	2	3	4	5
d. Diets which claim to be 'performance increasing'; e.g. carb-loading.....	1	2	3	4	5

(Additional comments)

	(1)	(2)	(3)	(4)	(5)
	Definitely Important	Important	Neutral	Not Important	Definitely Not Important

9. NUTRITION AND ATHLETES:

a. Balanced and regularly consumed meals; e.g. selected from the four major food groups.....	1	2	3	4	5
b. Non-restrictive fluid intake to avoid heat exhaustion and heat stroke.....	1	2	3	4	5
c. Increased carbohydrate consumption promotes muscles fuel supply.....	1	2	3	4	5
d. Sufficient iron intake to avoid anemia.....	1	2	3	4	5

(Additional comments)

10. GAINING AND LOSING WEIGHT IN ATHLETICS:

When weight loss or gain is necessary:

a. The appropriate methods should be employed and encouraged.....	1	2	3	4	5
b. Recognition of accelerated fluctuations in weight is critical.....	1	2	3	4	5
c. It must be stressed that rapid changes in weight are detrimental to performance.....	1	2	3	4	5
d. The use of drugs should be discouraged and coaches should be aware of indications of their misuse and abuse.....	1	2	3	4	5

(Additional comments)

Part II

Please rank the items below according to the relative importance that each content area should be given in an Eating Disorders Prevention-Intervention Guide for coaches of female college athletes. The top ranked should be assigned the number 1 and the lowest ranked the number 10. After ranking these items, please indicate what percent of the guide should be devoted to each of the content areas. (Please assign a percentage to each of the following so the sum total is 100 percent)

	<u>Rank</u>	<u>Percent</u>
1. Distinguishing Features.....	_____	_____
2. The Relationship Between Eating Disorders and Athletes.....	_____	_____
3. Early Signs and Symptoms of Restrictive Eating Disorders.....	_____	_____
4. Advanced Signs and Symptoms.....	_____	_____
5. Referrals/References.....	_____	_____
6. Intervention Strategies.....	_____	_____
7. Actions To Be Avoided By Coaches.....	_____	_____
8. Fad Diets and Quackery.....	_____	_____
9. Nutrition and Athletes.....	_____	_____
10. Gaining and Losing Weight In Athletics.....	_____	_____
	Total	100%

APPENDIX C

LIST OF PANEL EXPERTS

APPENDIX C

LIST OF PANEL EXPERTS

PANEL OF EXPERTS

Student Health Services: Dr. Mariette Brouwers
 Counselor
 Counseling and Testing Center
 Oregon State University
 Corvallis, Oregon 97331

 Cheryl Graham
 Health Educator
 Student Health Center
 Oregon State University
 Corvallis, Oregon 97331

 Dr. Marc Taylor
 Staff Psychologist-Lane County
 Mental Health Department
 Counselor-Student Health Center
 University of Oregon
 Eugene, Oregon 97403

College Athletics:
(coaches)

 Dave Bakely
 Women's Cross Country Coach
 Department of Athletics
 Linn-Benton Community College
 Albany, Oregon 97321

 Mike Chriss
 Women's Track Coach
 Department of Athletics
 Oregon State University
 Corvallis, Oregon 97331

 Jim Turpin
 Women's Gymnastics Coach
 Department of Athletics
 Oregon State University
 Corvallis, Oregon 97331

Psychologist: Dr. Jean Rubel
 Psychiatrist
 Department of Psychiatry
 and Behavioral Medicine
 Sacred Heart Hospital
 Eugene, Oregon 97401

Dr. Scott Pengelly
Sports Psychologist
Private Practice
Eugene, Oregon 97405

Dr. Cindy Tucker-Engel
Psychologist
Benton County Mental Health
Family Outpatient Program
Corvallis, Oregon 97330

APPENDIX D

COVER LETTER AND FOLLOW-UP LETTER
MAILED TO EXPERTS

Department of Health



Corvallis, Oregon 97331-6406

(503) 754-2686

September 26, 1987

I am a graduate student at Oregon State University in the process of developing a guide for coaches of female college athletes. This guide will focus on strategies for prevention/intervention of restrictive eating disorders. I have prepared an instrument for identifying the major content areas to be included in this guide.

Development of the instrument involves the solicitation of information from professionals with expertise in the area of athletics, student health services, and psychology who will provide input regarding guide content.

Your name was among those selected on the basis of recommendations from various professional organizations or individuals from related areas. Your participation would be greatly appreciated. Responses will be confidential and survey results will be available to you if desired.

I have enclosed a self-addressed, stamped envelope and reply form which I would appreciate receiving from you by October 5th. Thank you for your time.

Sincerely,

Lisa Roe

October 14, 1987

Dear

Thank you for your assistance in reviewing my instrument. Your completion of the survey and all comments made, were most helpful in finalizing the eating disorders prevention-intervention guide for coaches of female college athletes.

Following the testing of the guide, a copy will be sent to you.

It is my hope that the development of the guide will provide valuable information for all interested in health and physical education.

Thank you again for your contribution.

Sincerely,

Lisa Roe

APPENDIX E

SURVEY REPLY FORM

REQUEST FOR EXPERT PARTICIPATION

Please indicate whether or not you would be willing to complete the aforementioned survey.

___ Yes, I will participate.

___ No, I will not participate.

APPENDIX F

LIST OF THE FINAL CONTENT AREAS AND STATEMENTS
IN ORDER OF IMPORTANCE

FINAL CONTENT AREAS IDENTIFIED AND ORDERED FOR INCLUSION
IN AN EATING DISORDERS PREVENTION-INTERVENTION GUIDE
FOR COACHES OF FEMALE COLLEGE ATHLETES

1. EARLY SIGNS AND SYMPTOMS OF RESTRICTIVE EATING DISORDERS:
 - a. Physiological: for example; fluctuation in weight, bloating, dry skin, recurring injuries.
 - b. Behavioral: excessive training; decreased performance; fluctuation in mood; depression; self-deception; anti-social behavior.
2. THE RELATIONSHIP BETWEEN EATING DISORDERS AND ATHLETES:
 - a. Athletes have been referred to as an 'at risk' population due to the advantages gained in performance by minimizing body fat, (depending on how one practices the eating disorder, they may not lose fat although weight loss may occur, e.g. water).
 - b. Eating disorders in athletes do not always develop into acute cases. Recognition of subclinical cases of restrictive eating disorders can result in early intervention.
3. DISTINGUISHING FEATURES:
 - a. Anorexia Nervosa: A psychic disorder characterized by a loss of appetite, 15% loss of body weight, fear of becoming obese, and a distortion of body image.
 - b. Bulimia: Morbid fear of becoming obese with uncontrolled binging followed by purging, which may be vomiting, laxative use, ipecac, diuretics or even excessive exercise.
 - c. Bulimia Nervosa: Self-induced starvation and the binge-purge syndrome are both present.
4. ADVANCED SIGNS/SYMPTOMS:

Many symptoms of restrictive eating disorders have been associated with the effects of starvation:

 - a. Medical complications include: utilization of glycogen stored in liver and muscles; utilization of stored fat; spells of nausea and diminishing acuteness of sensation of hunger; suspected increase in cerebrospinal fluid opiod activity, and destruction of body protein.

- b. Behavioral complications include: decreased mental concentration; depression; bizarre food tastes; ritualistic eating habits; secrecy about eating; irritability; dizzy spells; loss of hunger and strength; an increased preoccupation with food; e.g. food fantasies.

5. NUTRITION AND ATHLETES:

- a. Balanced and regularly consumed meals; e.g. selected from the four major food groups.
- b. Non-restrictive fluid intake to avoid heat exhaustion and heat stroke.
- c. Increased carbohydrate consumption promotes muscle's fuel supply.
- d. Sufficient iron intake to avoid anemia.

6. GAINING AND LOSING WEIGHT IN ATHLETICS:

When weight loss or gain is necessary:

- a. The appropriate methods should be employed and encouraged; e.g. terms such as "weight loss/gain" should be used with discretion; set-point mechanisms emphasized; and appropriate referral efforts.
- b. Recognition of accelerated fluctuations in weight is critical.
- c. It must be stressed that rapid changes in weight are detrimental to performance.
- d. The use of drugs should be discouraged and coaches should be aware of indications of their misuse and abuse.

7. ACTIONS TO BE AVOIDED BY COACHES:

- a. Associate weight loss with increased performance levels.
- b. Mention weight gain/loss in presence of athlete's peers.
- c. Stress absolute weight value; e.g. weigh-ins.
- d. Advocate personal dietary preferences or unsafe eating habits.

8. INTERVENTION STRATEGIES:

Subsequent to contacting appropriate sources of information:

- a. Confront the athlete confidentially and non-threateningly, (e.g. "I am concerned" vs "Your performance is not up to par... is something wrong?").

- b. Contact family members when the psychological and/or physiological well being of the athlete is in question.
- c. Consistent support to the athlete and family.

9. REFERRALS/REFERENCES:

Three sources of Help and Information:

- a. Within the academic institution; e.g. student health services; administration counseling center.
- b. Within the community or state health services department.
- c. National Organizations.

10. FAD DIETS AND QUACKERY:

Increase coaches' awareness of:

- a. Procedures and methods encouraged by diet establishments/clinics.
- b. Current weight-loss trends.
- c. The necessity to encourage the athletes to critically assess dietary trends.
- d. Diets which claim to be 'performance increasing'; e.g. carbo-loading.