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**REVIEW ARTICLE**

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**EATING DISORDERS IN FEMALE ATHLETES:  
A LITERATURE REVIEW**

**Key words:** eating disorders, anorexia nervosa, bulimia nervosa.

**ABSTRACT**

The purpose of the study is to provide an extensive literature review on eating disorders in female athletes. Eating disorders constitute a serious problem that many male and female athletes face on a daily basis, and the treatment of these disorders depends entirely on one's willingness to overcome them. There are numerous reasons responsible for the development of an eating disorder but some of the most important ones include the family, coaches' and social pressure. The two most common eating disorders are anorexia nervosa and bulimia nervosa. It seems that the most important aspect of prevention of an eating disorder is to be fully informed about it.

**INTRODUCTION**

Eating disorders like anorexia nervosa or bulimia nervosa are usually characterized as disorders affecting younger women [19]. In recent years there has been a serious increase in the number of women suffering from impaired eating habits. In addition, there has been a similar tendency in the athletic community, especially among female athletes. Even though, these disorders do not result from some other diseases, it is important to report that psychological problems, or neurotic attitudes, and personality issues are factors which usually accompany them.

The reasons responsible for the development of an eating disorder are numerous, but the most important ones include the family environment, one's personality, current psychological condition,

and finally social pressure. The family and social pressure seem to be the two most influential factors.

More specifically, it is younger women who remain under constant social pressure created by the media to look thin in order to be attractive. On the other hand, men are pressured to look more masculine and stronger rather than lose weight in order to look thin [12].

Athletes are a group with a higher incidence of eating disorders; however, not all researchers seem to agree on this fact [22]. The majority of experts agree that eating disorders appear in sports which emphasize appearance, sports requiring athletes to have a specific body weight [1], and sports in which athletes wear tight and short uniforms.

## Anorexia Nervosa

Anorexia is an eating disorder characterized by extensive fear of gaining weight and one's feeling of being obese. Anorexia in women is usually accompanied by extreme weight loss and amenorrhea. An anorexic cuts down on her daily food consumption due to her fear of gaining weight. In general, women who suffer from this disorder have a distorted body image in their minds, i.e. they strongly believe they are overweight.

There has been intense debate about the causes of anorexia. Many anorexics come from bonded families that support each other, and they usually tend to bond more with one parent than the other. The anorexics believe that their family will be happier if they look thin, so they try to lose weight and at the same time they lose control of their eating habits. In addition, they deny the existence of the problem.

The most obvious sign of the disorder is extreme thinness, which is caused by the reduction of about one third of normal body weight. Starvation leads to hormonal abnormalities and physiological and behavioral changes. The treatment of anorexia includes controlled eating patterns and psychotherapy. Medication is only administered in the case of depression or some other illnesses [18].

The goal of psychotherapy is to make the anorectic patient feel comfortable with eating, and it continues as long as the patient needs to progress and feel positive about herself. The relationship between the psychologist and the patient is a confidential one, where the former needs to earn the patient's trust before he or she can offer professional help. An important strategy must be followed, consisting of sporadic appointments with the doctor so that the patient can choose on her own when she needs to meet the doctor and depend on herself to make decisions. In that way, if the patient feels that she has a problem and needs to talk to an expert, she can arrange an appointment. This strategy will eventually lead to the termination of the psychotherapy once the patient feels totally confident. It is the psychologist's job to equip the patient with a variety of strategies that would help in case the problem reappears.

Psychotherapy should not be seen as a tragic outcome of the disorder but instead it should be regarded as a helping tool. Therapy varies from patient to patient, depending on the problem, which means the treatment is different for different patients.

## Bulimia Nervosa

Bulimia is a disorder characterized by extreme food consumption and followed by self-caused vomiting. The act of vomiting is often concealed, which makes the disclosure of the disorder difficult. The patient vomits because she is scared of gaining weight by extreme food consumption. Bulimia usually appears in women aged between fifteen and thirty.

Bulimics have normal body weight or they might be slightly thin. In general, there is a fluctuation in their body weight. Extensive eating and vomiting lead to dehydration, sodium decrements and, as a result, the patient feels weak and experiences cramps. Besides, the patient's esophagus and teeth are often damaged.

The first step in bulimia treatment is to accept the problem and then introduce controlled nutrition and psychotherapy. Bulimic patients are often hospitalized for therapy as there is a high risk of returning to the old habits a few weeks after the end of therapy [18].

## EATING DISORDERS AMONG COLLEGIATE ATHLETES

As mentioned before the causes of eating disorders vary and may include low self-esteem and self-efficacy, dissatisfaction with one's body image and social pressure. Even though social pressure has been extensively investigated [13, 23], there has not been yet a satisfactory explanation how social pressure can affect the development of the disorders.

Women who suffer from eating disorders appear to have low self-esteem [9], something that causes them to diet or consume large amounts of food and then vomit in order to maintain their body weight, become more attractive and have other people compliment them. It is supposed to increase the level of their self-esteem [11]. In the case of athletes with eating disorders participation in sport can accelerate their development [19].

One of the groups in particular danger are the collegiate athletes as they often face new lifestyles and new experiences while in college. Participation in collegiate life is something unknown to the freshmen, since it is their first time that they are away from home and the responsibilities they have are numerous. The study results show that collegiate athletes are being pressured by their coaches

to look thinner, and the fact that they want to be accepted in this new world makes them want to lose more weight, thus they adopt new eating habits which then lead to eating disorders. Besides, it was found that coaches had the tendency to ask their female athletes to lose weight and the male athletes to gain weight. It was also shown that the relationship between low self-esteem and eating disorders was a strong one. These observations correspond to those made by other researchers.

However, studies of young female athletes and female students and their attitudes towards eating have yielded different results. Also, the supposition that women athletes practicing specific sports are more vulnerable to eating disorders is not valid, since different studies have produced different results [2, 21]. Kisk et al. [8] in their study of athletes and students found that the latter revealed higher percentages of eating disorders. In addition, they found that individual sports athletes had a slightly higher percentage of eating disorders than team sports athletes, however, the difference was statistically non-significant.

In one of the most extensive studies carried out in the United States by the NCAA, Johnson et al. [7] examined 1445 men and women athletes competing in Division I. The subjects were to fulfill a special questionnaire containing 133 questions. The results showed that women athletes were in greater danger of developing an eating disorder due to the fact that they had lower self-esteem as compared with men athletes. These results were also supported by other researchers.

#### EATING DISORDERS IN ELITE WOMEN ATHLETES

Sport practice improves physical condition, increases self-esteem, and self-efficacy. On the other hand, many female athletes are in danger of developing an eating disorder, which can lead to the so-called "triad", i.e. amenorrhea, osteoporosis, and extreme thinness [10]. All these three conditions are harmful to the athlete's health and life quality.

One of the groups studied in great detail has been the long-distance runners. It has been shown that they look a lot like anorexics in both their psychological characteristics and their attitude. Specifically, both groups (runners and anorexics) are perfectionists; they tend to be depressed, obsessed with their weight and diet, and they run in

order to balance the input and output of energy in order to lose or maintain one's weight [25].

Thompson and Sherman [20] used the above mentioned research as a guideline in their examination of similarities between certain athletes' traits contributing to high-level performances and anorexics' traits. In fact, they found a great number of such similarities. To be specific, both groups of subjects remain extremely focused on their goals until they succeed. The athletes are concentrated on hard training, while the anorexics focus on dieting. Another similarity is the perfection both groups strive for. Both athletes and anorexics want to be socially accepted, so the former want to win, while the latter want to be complimented by others. Finally, both groups make decisions according to what other people want, e.g. coaches and friends, and not what they want. This means that if a coach asks for weight reduction, then the athlete follows the coach's suggestion. Similarly, if an anorexic is told that she is big enough she will try to lose weight. The most interesting similarity is that athletes and anorexics never quit, even when experiencing pain. Many athletes would compete even if they are injured, tired, or sick; and anorexics would deny pain and weakness accompanying their dieting.

It has been found that 16% of female long-distance runners suffer from eating disorders. However, no statistically significant differences were found between anorexic athletes and non-anorexic athletes when their attitude towards practice, injuries or sickness was taken into consideration. The most important finding was that the anorexics were dissatisfied with their body appearance and experienced psychological problems related to this dissatisfaction [6].

A number of ice-skaters were also found to suffer from anorexia, partially, caused by the provocative clothing the sport demands from them to wear. Men and women ice skaters took part in a study on skaters' dieting habits, perception of their own bodies and their daily food consumption [26]. The results showed that 72% of the women and 39% of the men skaters would prefer to be thinner and look thinner. In addition, women who recognized the thinness of their bodies still mentioned their preference to lose weight, and that is why they reduced their daily calorie input. The total calorie consumption was 1,422 kcal for women and 2,477 kcal for men. The type of food preferred by the female ice-skaters was low fat food, while the men preferred high fat food.

Different studies were also carried out to examine whether a given sport could contribute to the development of an eating disorder. The researchers divided their samples into athletes whose sport required them to be thin, and those who must have a particular weight and need to weigh themselves before a match or a race [16]. It was shown that 10.6% of the women and 4.6% of the men were anorexics. The percentage of the women agrees with previous studies but the percentage of the men was significantly higher [4]. Both samples were preoccupied with their body weight, so they tried to avoid high fat foods in order to maintain it.

In their study, Smolak et al. [15] tried to answer three important questions: 1. whether specific sports are more conducive to developing eating disorders; 2. whether elite women athletes are more likely to develop eating disorders than recreational athletes; 3. whether participation in sport can prevent recreational athletes from developing eating disorders. All the three hypotheses were confirmed. Athletes tend to be in greater risk of development of eating disorders than non-athletes, mainly because of the requirement to maintain a specific body weight. It is interesting that even though the athletes showed signs of anorexia the differences were non-significant.

A similar study of students, athletes of judged sports and athletes of refereed sports revealed that the judged sports athletes displayed a much higher tendency to develop eating disorders since their body image was part of their score. The refereed sports athletes displayed a lower risk of developing eating disorders, thus, it can be concluded that sports like basketball can prevent, in a way, the development of eating disorder.

It is common knowledge that sports, which require athletes to wear provocative clothing since their entire appearance is evaluated and is part of their score, tend to exert pressure on the athlete to look thin. Three types of clothing were examined in order to check how they affected the development of eating disorders. The first type included tight uniforms such as those worn by figure skaters; the second type were baggie uniforms, such as those worn by basketball players; and the last type were mixed uniforms, such as tennis players' and golfers'. The results showed that the type of uniform had nothing to do with the athletes' body satisfaction and their will to lose weight or to develop dysfunctional eating habits.

Another group of athletes who feature high percentages of eating disorders are rowers as they have to be weighed before each race. Female rowers tend to use unhealthy ways of losing weight as compared with their male counterparts. The main difference between light and heavy weight rowers is not their tendency to become anorexic or bulimic, but the way they choose to lose weight, something that leads them to develop bad eating habits. In addition, men rowers' weight fluctuates more during the year, which means that they gain weight during off-season and lose weight just before competition [17].

Tennis players, on the other hand, are not athletes featuring a specific somatotype. However, in recent years, because of introduction of new tennis clothing the players tend to become thinner and thinner. This results in athletes being at greater risk than they used to be. Parents, coaches, and women athletes were three groups of subjects that took part in a study assessing the importance of body weight in tennis. It was found that all of these groups had a normal weight and healthy eating habits even though all of them wanted to be thinner. Mothers worried more about their daughters' weight than fathers, and they valued the importance of being thin even if it meant not being healthy. Following this line of reasoning, coaches asked their athletes to lose weight in order to perform at a higher level, even though they knew that female athletes were in great risk of developing eating disorders [5].

## PREVENTION OF EATING DISORDERS

Prevention of eating disorders is a multi-dimensional issue because of the needs, pressure and demands of each sport. Since enhancement of athletic performance is the main purpose of competitive sports both coaches and athletes try to find ways to improve their performance, and the first thing they aim at is weight reduction. Even though the relationship between weight reduction and enhanced performance has been proven before [24], some researchers disagree with this finding [14]. This proves that the relationship between weight reduction and performance requires further examination. In that way athletes will have general eating guidelines and they will be able to protect themselves in a better way.

Besides coaches, athletes, and other groups still support the idea of losing weight in order to enhance performance. So if an athlete is in a slump and she has some extra weight on then the first impulse is to lose weight. Because of this athletes become strict about eating which then leads them to develop an eating disorder.

Therefore, the first thing that needs to be addressed is the importance of health, especially, when the athlete wants to compete. On the other hand, competing should not remain the athlete's first priority. Instead the number one concern should be being healthy. In addition, everyone who works with the athlete should communicate with her on a daily basis and discuss upcoming problems in order to help her avoid developing a disorder. Thus, it is important that athletes, coaches, and other individuals should be informed in great detail about eating disorders and their consequences.

Another thing that should be taken into consideration is that many athletes, who suffer from an eating disorder because of their low self-esteem and their athletic identity equaling their personal identity, have enormous difficulties accepting the problem. As a result, these athletes fail to realize that extreme practice harms them and that they keep practicing and competing out of fear of losing their identity. The psychologist's job, always in cooperation with the coach, is to persuade the athlete to distance herself from competition and practice until she is perfectly healthy.

Eating disorders, especially anorexia, are common in women's sports. Social pressure and performance enhancement are the most important factors that contribute to the development of these disorder.

Even though the majority of researchers agree that women athletes of specific sports have the tendency to develop an eating disorder more frequently than others, some experts still claim that all athletes face the same risk of developing the disorder. To be perfectly clear, the precise causes of why women are more vulnerable than men to develop the eating disorders are still under investigation.

Even though there are many similarities among women with disordered eating habits each person is unique and she needs special attention and psychological treatment in order for the therapy to be successful.

In conclusion, the problem of eating disorders is an increasing one and currently, the best solution is being informed about it. Becoming

a great athlete might be a great goal, but unless the athlete is healthy this goal will never be attained.

## REFERENCES

- [1] Beals K.A., Manore M.M., The prevalence and consequences of subclinical eating disorders in female athletes, *International Journal of Eating Disorders*, 1994, 4: 175-195.
- [2] Benson J.E., Allemann Y., Theintz G.E., Howard T.H., Eating problems and calorie intake levels in Swiss adolescent athletes, *International Journal of Sport Medicine*, 1990, 11: 249-252.
- [3] Berry T.R., Howe B.L., Risk factors for disordered eating in female university athletes, *Journal of Sport Behavior*, 1998, 23: 207-218.
- [4] Button E.J., Whitehouse A., Subclinical anorexia nervosa, *Psychology Medicine*, 1981, 11: 509-516.
- [5] Harris M.B., Foltz S., Attitudes toward weight and eating in young women tennis players, their parents, and their coaches, *Eating Disorders*, 1999, 7: 191-205.
- [6] Hulley A.J., Hill A.J., Eating disorders and health in elite women distance runners, *International Journal of Eating Disorders*, 2001, 30: 312-317.
- [7] Johnson C., Pauline S.P., Dick R., Athletes and eating disorders: The national collegiate athletic association study, *Journal of College Counseling*, 1999, 3: 179-188.
- [8] Kirk G., Singh K., Hildy G., Risk of eating disorders among female college athletes and non-athletes, *Journal of College Counseling*, 2001, 4: 122-132.
- [9] Lindeman A.K., Self-esteem: Its application to eating disorders and athletes, *International Journal of Sport Nutrition*, 1994, 4: 237-252.
- [10] Nattiv A., Agostini R., Yeager K.K., The female athlete triad: The inter-relatedness of disordered eating, amenorrhea, and osteoporosis, *Clinical Sports Medicine*, 1994, 13: 4-5.
- [11] Neumark-Sztainer D., Beutler R., Palti H., Personal and socio-environmental predictors of disordered eating among adolescent females, *Journal of Nutritional Education*, 1996, 28: 195-201.
- [12] Petrie T.A., Austin L.J., Crowley B.J., Helmcamp A., Johnson C.E., Lester R., Rogers R., Turner J., Walbrick K., Sociocultural expectations of attractiveness for males, *Sex Roles*, 1996, 35: 581-602.
- [13] Rosen L.W., Hough D.O., Pathogenic weight control behaviors in female college gymnasts, *Physician and Sports Medicine*, 1998, 16: 141-146.

- [14] Sherman R.T., Thompson R.A., Rose J., Body mass index and athletic performance in elite female gymnasts, *Journal of Sport Behavior*, 1996, 19: 338-346.
- [15] Smolak L., Murnen S.K., Ruble A.E., Female athletes and eating problems: A meta-analysis, *International Journal of Eating Disorders*, 2000, 27: 371-380.
- [16] Stoutjesdyk D., Jevne R., Eating disorders among high performance athletes, *Journal of Youth and Adolescence*, 1993, 22: 271-282.
- [17] Sykora C., Grilo C.M., Wilfley D.E., Brownell K.D., *International Journal of Eating Disorders*, 1993, 14: 203-211.
- [18] The American Medical Association, *Encyclopedia of Medicine*, Random House, New York 1989.
- [19] Thomson R.A., Sherman R.T., Helping athletes with eating disorder, Human Kinetics, Bloomington, IN 1993.
- [20] Thomson R.A., Sherman R.T., Good athlete' traits and characteristics of anorexia nervosa: Are they similar?, *Eating Disorders*, 1999, 7: 181-190.
- [21] Warren B.J., Stanton A.L., Blessing D.L., Disordered eating patterns in competitive female athletes, *International Journal of Eating Disorders*, 1990, 9: 565-569.
- [22] Wilkins J.A., Boland F.J., Albinson J., A comparison of male and female university athletes and non-athletes on eating disorder indices: Are athletes protected?, *Journal of Sport Behavior*, 1991, 14: 129-143.
- [23] Williamson D.A., Netemeyer R.G., Jackman L.P., Anderson D.A., Fusch C.L., Rabalais J.Y., Structural equation modeling of risk factors for the development of eating disorders in female athletes, *International Journal of Eating Disorders*, 1995, 17: 387-393.
- [24] Wilmore J.H., Costill D.L., *Training for sport and activity: The physiological basis of the conditioning process*, Allyn & Bacon, Boston 1987.
- [25] Yates A., Leehey K., Shisslak C.M., Running – an analog of anorexia?, *New England Journal of Medicine*, 1983, 308: 251-255.
- [26] Ziegler P.J., Khoo C.S., Sherr B., Nelson J.A., Larson W.M., Drewnowski A., Body image and dieting behaviors among elite figure skater, *International Journal of Eating Disorders*, 1998, 24: 421-427.