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ABSTRACT

The increase in cases of eating disorders, particularly among sportsmen and women, has taken on worrying proportions over recent years. Male and female athletes competing in sports that require the careful control of body weight and link slight builds with high performance (as is often the case in artistic events) are a high risk group for developing eating disorders. The aim of this study was to present the various types of eating disorder and their frequency in the world of sport. It also focused on the root causes of eating disorders, the effect they have on the body and, moreover, measures for their prevention and treatment. In this regard, the experiences of five former competitive rhythmic gymnasts, with years of experience in the sport and medals to their names, were carefully studied. An in-depth phenomenological study was conducted using open, semi-structured interviews in order to explore and understand the ways in which these individuals related to food and nutrition during their time as athletes. The results showed that the sportswomen taking part in the survey ran the risk of suffering from eating disorders for two main reasons. First, they displayed behaviours and personality traits common to people with eating disorders. And second, they submitted to the limitation or complete cessation of their food intake forced upon them by their environment (by coaches, parents, etc.).

KEY WORDS: eating disorders, weight concerns, body image, aesthetic sports, elite rhythmic gymnasts.
INTRODUCTION

In the course of human events the incompatibility between the acquisition of material possessions in the West and deep concern for increased risk of causing disease and mortality is continuously emerging. In recent years we have witnessed an impressive increase in nutrition-linked diseases. Chronic disease, heart disease and strokes are today, according to the World Health Organization (WHO), the main causes of death worldwide. The link between these conditions and eating disorders (ED) render a necessary and imperative early diagnosis as well as a systematic observation and prevention of this syndrome by using dependable and reliable research tools.

In the last years the enhancement of professionalism in sports, combined with constant pressure for better results from coaches, parents, agents, sports fans, lead the athletes to unhealthy eating patterns, in order to meet these increased demands (3). As detected in relevant bibliography, the development of Eating Disorders (ED) syndromes such as anorexia nervosa, bulimia nervosa and eating disorders not otherwise specified (ED-NOS) among sportsmen and women, has received alarming proportions (10, 32, 8).

Food intake disorders, when intense, can cause severe health problems. According to the American Psychiatric Association, psychiatric disorders of this kind, if not treated promptly, can lead directly to death. Only 50% of anorexia incidents seem to be cured. Patients of 5-10% lose their lives within 10 years from the onset of the illness, while 18-20% within the next 20 years (1). Limited performance, immune system malfunction, low hematocrit and stress fractures are some of the food intake disorders symptoms.

Many researchers agree on the fact that ED occurrence in men athletes and especially in women athletes is attributed to many factors and it is not just the result of excessive preoccupation with the weight or personality traits of young sportswomen. Experts’ views converge to the point that every food intake disorder being a person’s “personal response” to the living conditions they face. The multiplex interaction of biological-genetic, familial, psychological and other factors determine if a person eventually develops nutrition malfunctions and nutrition behavior aberrations (26, 34).

Sports in which body weight is an important factor for success like figure skating, diving, artistic and rhythmic gymnastics are considered of high risk, as regards food intake disorders (2, 11, 9, 36). According to Sundgot-Borgen and Torstveit (31) about 42% of women athletes who participate in aesthetic sports present clinical symptoms of eating disorders, since low body weight is linked to aesthetics and performance. Moreover, research conducted to NCAA athletes (National Collegiate Athletic Association) in
1992 showed that the 93% of the athletes who developed ED were women (4, 17). Sports like wrestling or weightlifting which demand frequent body weight alteration during a tournament season increase the risk of developing eating disorders (31, 41, 29). Men and women athletes, in order to control their weight, use inappropriate methods such as self-induced vomiting, laxatives, diuretics, diet pills, even avoiding water and salt consumption altogether to reduce body weight through dehydration (30).

The increased number of subclinical cases of food intake disorders among sportspeople has lead to the introduction of the term “anorexia athletica”, which is indicative of the correlation between sports and anorexia nervosa (31). It is already well-known that the excessive fat burns of an athlete’s training programs combined with mal-nutrition and deficient body supply with the necessary nutrients aggravates the athletes’ health (23).

In international bibliography we also find references to the “female athlete triad syndrome” which is defined by three distinct but often interdependent conditions and involve disordered eating, amenorrhea and osteoporosis. Excessive training combined with exhaustive diets and the stress experienced by elite sportswomen, many times result in hormone disorders with serious health consequences. Physical and mental strain upsets the reproductive function and leads to early and progressive bone mass loss, making the bones brittle with an increased risk of fracture (24, 35).

**Purpose of the study**

The main purpose of the present research is the study of ED syndromes related to sports, the primary causes, as well as the prevention and treatment methods. Towards that direction cases of former elite rhythmic gymnasts with years of experience were studied.

The specific objectives of the research are:

1. To study whether the particular gymnasts displayed food intake disorder symptoms and specify these symptoms.
2. To determine the causes of food intake disorders.
3. To present the consequences of these disorders on the athletes’ body during their sports career as well as after retirement.

**Method**

The present investigation was carried out by the Lab of Health, Fitness & Disability Management, Faculty of Human Movement and Quality of Life, University of Peloponnese and started on January 2010 and finished at the end of December 2010.
The Peloponnese University Ethics Committee approved the study in January 2010.
All subjects received a written explanation of the trial before entering into the study and then gave signed consent to participate.

Design

An in-depth phenomenological study was conducted, through open, semi-structured interviews, which examined the nature of the phenomenon and focused on the way people understand and explain the world, go through an experience, describe it, evaluate it and convey it to others (20). Since in this study human nature and people’s views were examined, a qualitative investigation was considered more suitable in order to answer the specific study questions (33).

The data that was harvested in the present study deal with ED in the sports world and mainly rhythmic gymnastics, focusing on facts and incidents which shaped the experiences of people involved in the study.

The study sample

Initially a group of experts in rhythmic gymnastics was created, a list of twenty-one former elite gymnasts from which only five were selected, thus making up the final participants’ list for the study.

As the purpose of the present study was the detailed and in-depth presentation of the gymnasts’ experiences in the most comprehensible way possible, the selection of the sample was not made randomly, but was based on the gymnasts’ reputation during their career in rhythmic gymnastics.

The study procedure

The first contact with the female participants was via mail, followed up by a phone conversation with the people agreeing to take part in the study, during which all necessary explanations and information about the interview procedure were offered. The aim of this personal contact was to state the nature of the study and their role in it clear to the participants. To ensure discretion and anonymity, the researcher used alias picked by the participants themselves and the account of the events was given in such a way that the reader will not be able to determine the exact time and place they took place.
Instrument

The data was gathered through scheduled interviews given to the researcher by elite rhythmic gymnasts with credits to their names. An interview guide was prepared by the researcher, which included a series of questions and was given to the expert group for comments and suggestions. Open-ended questions provided the participants with the freedom to determine the conversation style and direct it as they desired, always with a view to probing a subject.

The progress of the process determined the number of questions used during the interview. In some cases additional questions were submitted, which were not included in the interview guide. In the course of the interview the researcher was able to observe and record a variety of useful elements (hand and facial expressions, voice tone) so as to avoid any superficial interpretation (non-verbal communication).

Data processing

First, recurrent data was searched out, which was later classified in categories with similar characteristics. Initially, broader categories were formed while were followed up by categories including specific data aspects.

The first analysis using homogeneity as a criterion took place during the course of interviews. The open-ended questions used gave the researcher the opportunity to pore over the subject, taking into consideration partial parameters, while at the same time throughout the process noting down her observations. The data analysis went on with the editing and indexing of the recorded answers as new subjects came up. Further analysis was conducted while studying the interviews after editing.

RESULTS

Through the discussion with the participants common ground was found among them, which was classified in three main categories. The first category deals with the symptoms of eating disorders, which were, perhaps, developed while being active in sports.

When processing the data it was found that all subjects had extremely low body weight, given that their body mass index at the peak moment of their sport career ranged from 13.7 kg/m² to 17 kg/m². As regards the level of content with their body image, it was observed that only two of the girls seemed satisfied, while the rest, they felt badly in their social life and because of their frailty, they intended on losing more weight. In the
prospect of putting on weight, they stated they felt fear caused mainly by pressure from coaches and parents, as well as from weighing themselves repeatedly and reprimanding that went along with every weight gain. However, none of them mentioned the use of inappropriate methods to control their weight, although they admitted knowing many female gymnasts – members of national teams – who self-induced vomit, to avoid weight gain.

Most of them admitted depriving themselves of much food and especially sweets, since, as they said, in order to achieve their goal had to maintain a low body weight. The consequence of the specific eating pattern, apart from iron deficiency and low hematocrit that some girls experienced, was delayed menarche, as well as secondary amenorrhea as noted in the entire sample.

In the second category possible causes that lead to the development of these symptoms were explored, such as: specific personality traits, social pressure, linking body weight with performance. All participants in the study admitted being dedicated in pursuing perfection, which they thought it as necessary and close-knit with top level sport. Introversion and low self-confidence and self-esteem also characterized four out of the five girls in the sample, while all of them agreed being stress-dominated, especially in periods prior to competitions. Fear of failure and maximum performance anxiety were for the athletes the most important sources of nervousness and stress. “Competitive stress”, which appears more intense in children participating in individual sports (16) was also triggered by the pressure they underwent by coaches and parents combined with what each competition meant for them.

Emotionally unstable is how three girls defined themselves articulating however, different interpretations, as regards the causal factors for sudden mood changes. Extreme stress, pressure and bad treatment by coaches and parents and pursuing perfection were, as they said, the main reasons for their moody behavior.

All participants in the study confessed that they were subjected to a lot of pressure mainly by their coaches. In order to keep the athletes’ weight low, they weighed them often and reprimanded those who put on weight. On the other hand, parents were in most cases supportive of their children’s effort, with the exception of one athlete who, two years ago, with the aid of a psychologist, realized that her emotional instability derived from the extreme pressure she received by her parents and the internalization of her own desires throughout the whole period of her athletic pursuits.

The five rhythmic gymnastics champions considered low body weight an essential prerequisite to enhance their performance and accomplish their winning objective. According to their opinion, precision in executing the exercises, minimizing injuries because of limited weight burden, greater phys-
ical endurance and generally better athletic performance, are some of the reasons for which low body weight has a positive effect on performance and leads to competition winning.

In the third category the emotions developed in athletes due to pressured management of their body weight and the impact of it in their later life and their role as coaches were examined. From the conversation it was detected that, while to a different extent, all girls were influenced by the excessive preoccupation with body weight, although each of them experienced it in her own way. Fear, sadness, stress and guilt are some of the emotions from that period the athletes described. Today, even if they seem relatively satisfied with their body image, most of them show aversion when hearing the word “diet”. They wish to stay away from any form of exercise and especially away from coaching.

When questioned what they would do if they worked as coaches, they suggested monitoring their gymnasts by diet specialists, getting updated themselves on dietary issues, in order to guide their gymnasts properly. Particularly important was considered the athletes’ support by their family environment. Out of the five champions who were the study’s sample, only one is today an active coach and although she states she is making an effort to avoid certain established practices of the field, knowing their negative effect on the athletes’ health, it seems she is not always successful.

Finally, especially interesting were facts narrated by the athletes regarding weight control. Shocking is the case of a gymnast who resorted to retrieving food from the trash, secretly from the rest of the family.

DISCUSSION

Undoubtedly, athleticism and especially champion athleticism has in common with food intake disorders not only behavioral patterns, such as a strict diet program and excessive physical exercise, but also personality traits, such as perfectionism, competitiveness, performance anxiety and intense preoccupation with body image. Within the frame of a higher physical self-consciousness, weight and aesthetics blend in a dead end way with health and performance. The competitive nature of sports and the strong desire for excellence leads to adopting traits of people with ED. Therefore, sportsmen and sportswomen compared to the general public, face a bigger danger to develop ED (38, 27).

A greater risk in developing food intake disorders is faced by women of younger age and especially sportswomen with increased stress for their physical appearance. Precursors of extreme concern for body image are factors such as dissatisfaction for one’s body and a tendency for slimness
In this category we find male and female athletes of sports in which the emphasis is on low body weight and slim build (2, 11, 36).

A high risk group for developing ED symptoms is female athletes of rhythmic gymnastics compared to female athletes in other aesthetic sports (7, 14, 18, 9). At a very young age they show a keen interest in their body, undergo pressure from coaches, parents, judges and co-gymnasts and display behaviors and personality traits consistent with anorexic people such as perfectionism, low self-confidence and self-esteem, stress etc (21, 5, 13).

The five Greek champion rhythmic gymnasts taking part in the present study laid out their experiences devoid of fears for reprimanding or expulsion from the team and quite detached from that period’s pursuit of performance. It was shown from the discussion that many results of studies mentioned above are confirmed, like those of Sundgot-Borgen and Torstveit (31), who argued that female athletes of aesthetic sports display a predisposition for developing eating disorders.

Through data analysis it came up that at the peak moment of the sample’s sporting career their Body Mass Index (BMI) was estimated at an average of 15.16 kg/m², a rate much lower to that of normal weight and it stands as one criterion for diagnosing anorexia nervosa. Although most of them said they were satisfied with their appearance viewing themselves as quite slim, they believed that in order to maximize their performance they had to keep on trying to have and maintain the “ideal” for the specific sport body weight. An important factor in shaping this mentality was their social environment and mainly the pressure or influence they underwent by coaches, parents and co-gymnasts.

As it was indicated by the answers of the participants in the study, they often gave in to restricting or stopping food altogether, with all the known consequences for their health. As they said, the demands of the sport, the expectations of parents and coaches and in some cases peer pressure by co-gymnasts, made them believe that diets are not only normal but also necessary in order to achieve their goals. The findings of the present study coincide with findings of previous studies, according to which, being aware of the pressure to maintain a slim build, concern for sport performance, as well as self-evaluation of that performance, may constitute high risk factors (18, 19, 37). At the same time, the quality of the relationships athletes form with their parents and coaches, along with acceptance by sport fans, mainly in elite sports, may lead to assuming a disordered stance against food itself (25).

Weighing frequently and the ensuing reprimanding due to the slightest weight gain lead the gymnasts to a greater food deprivation. As they maintained, pressure and bad treatment by coaches and parents, were some of the root causes for their moody behavior. Even if sometimes parents seem to support the effort made by their children, to all intents and purposes they adopted and applied the coaches’ advice and motivation.
Although none of them mentioned using inappropriate methods of controlling their body weight, they did not conceal the fact, however, that they were seized by fear of gaining some. The frequent use of self-induced vomit by other gymnasts-members of national teams was, of course, a common secret, as they said. The strict control of a diet program, which in some cases was to excess, resulted not only in iron deficiency and low hematocrit that most girls displayed, but also delayed menarche and secondary amenorrhea as noted in the whole sample.

Searching for possible causes for the development of these symptoms, certain personality traits were traced and also a correlation between body weight and performance. Introversion, low self-confidence and self-esteem, stress, perfectionism were displayed by the largest part of the sample, traits that are characteristic in the personality of an anorexic individual (2). According to the clinical psychologist Pavlatou (22), perfectionist people are also susceptible to suffer by lack of contentedness, high levels of stress, anger, disappointment, grimness, low self-esteem, guilt and shame for possible failures, symptoms that seemed to be displayed by athletes participating in the present study.

As it was established from the interviews, an important parameter and a point of reference for developing eating disorders, mainly in aesthetic sports, are achievement goal orientation and the motivational climate that prevails. What could act as an umbrella is orientation towards personal improvement and progress combined with an appropriate motivational environment by coaches and parents (6). For Jackson and Roberts (12), task orientation and high perceived competence are positively related with the Ideal Psychological Condition. In these cases the ability is evaluated based on the ability of the others, “ego orientation”, people evaluate their performance as good only when they win. On the other hand, task orientated people feel successful and are highly motivated for a long time, regardless of their performance.

Without question, the environment is a crucial factor in designing prevention programs (7). An early diagnosis and treatment I determinative for the individual’s progress and treatment requires the cooperation of coaches, parents and specialists (doctors, psychologists, dieticians). The main aims of treatment is adopting proper diet routines, body weight recovery and modifying emotions and thoughts that lead to the disorder, through psychotherapeutic observation.

Towards that direction constant education and updating is required for coaches so as to offer better counseling to their male and female athletes. At the same time, apart from coaches, an ideal approach would include educating the athletes themselves about the negative effects of ED, so that they become aware of the fact that nutrition is not only the means to achieve a better performance, but mainly an instrument to maintain and im-
prove their psychophysical health. Since the terminus is performance, male
and female athletes ought to know that it is achieved only if they have the
ideal body weight and if they acknowledge the important role of nutrition in
enhancing performance. Taking for granted that the proper diet for elite
sportsmen and sportswomen should have as principle the peculiarities of
the sport and the personal and biological needs of the athletes, the effec-
tive cooperation of those involved in youth’s education by bringing down
traditional barriers is considered imperative. Cultivating a model of healthy
and quality life may have long term improvement results and a concomitant
positive effect in every field.

Suggestions for a future study

Based on the results of the present study it would be advisable in the
future to examine similarities and differences among male and female ath-
etes in different sports, as far as the risk of developing eating disorders is
concerned. Quite interesting is the study of sports which are divided ac-
cording to weight classes such as wrestling, weight lifting, rowing etc, since
the need to vary weight increases the risk of developing these syndromes.

At the same time, it could be useful for a future study, to have a deep-
er understanding of the mechanism developing the tendency for eating dis-
orders in the passing of time, depending on the sport, compared to the
general public. Towards that direction it would be valuable to index relevant
ratings in one database so as to assess the tendency of sportspeople to
develop eating disorders.

Last but not least, it is particularly important for the coach related di-
rectly to the male or female athletes, but also for all parties involved, on
one hand to recognize eating disorder symptoms before they advance, on
the other hand to be capable of dealing with them when manifested. For
this reason, it is essential to examine up to which point these people have
the necessary knowledge and skill to handle such serious conditions.

REFERENCES

1. American Psychiatric Association. Practice guidelines for eating disor-
How anorexic-like are the symptom and personality profiles of aesthet-
3. Byrne, S and McLean N. Eating disorders in athletes: A review of lit-


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