



Observational Study

Observational study on the eating behavior of a heterogeneous group of young athletes

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Abstract

Eating Disorders represent one of the fastest-growing mental health problems in the world. While a diagnosis of an eating disorder can only be made after careful psychiatric evaluation, the detection of "at-risk" individuals can be conducted through screening programs that use tools such as the Eating Attitude Test (EAT-26), a test used to measure the symptoms and concerns characteristic of eating disorders. This observational study was designed to evaluate the presence of at-risk individuals, using the EAT-26, among young athletes in "lean sports", young athletes in non-"lean sports", young non-athlete sportspeople, and young people who did not practice any sports. In addition, the presence of a correlation between the risk of developing eating disorders, gender, and age was also investigated. The results identified a prevalence of risk of 13% among study participants. None of the subjects who did not engage in any physical activity obtained a test score that could be considered at risk. Furthermore, no correlation was found between gender and the scores obtained. These results should be taken into consideration to emphasize the importance of nutritional intervention by expert and qualified personnel within various sports societies, in order to prevent the development of these pathologies and at the same time increase and improve performance.

Introduction

According to some studies Eating Disorders (ED), defined as abnormal behaviors that alter food intake and negatively affect mental or physical health, have been found to be more prevalent in athletes than in the general population [1-4]. Research suggests that a percentage ranging from 1 to 62% of athletes show a high risk for the development of an eating disorder [5]; such a high variability in the risk percentage may be the result of two factors: gender and sport type [6-8]. Regarding the type of sport, athletes may participate in lean sports, which emphasize thinness or weight reduction to optimize performance, such as gymnastics, skating, dance, and boxing, or non-lean sports, where athletes do not need to be classified as low-weight to be competitive (e.g. soccer, volleyball, and basketball) [9,10].

Several studies demonstrate that athletes in lean sports have an increased risk for the development of eating disorders [11-14], probably due to the dissemination of practices aimed at reducing body weight such as fasting, laxative use, and exercise, which can act as triggering factors, however, it has also been observed that sports defined as "non-lean" are not immune to the risk of eating disorders [5,15,16]. Furthermore, inconsistencies in the prevalence rates of disordered eating in athletes may also depend on whether the interviewed athletes were male or female [17-20].

Most of the research on the risk of eating disorders has shown that women are more likely than men to suffer from eating disorders in the general population [9,21], however, research suggests that the gender gap is narrower in athletic populations [4,16].

The aim of this study is therefore to evaluate the presence of a difference in the risk of developing an eating disorder among young athletes in “lean sports”, young athletes in non-“lean sports”, young non-athlete sportspeople, and young people who do not practice any sports through analysis of the overall scores obtained from the Eating Attitudes Test (EAT-26). Additionally, the objective is to examine gender differences in the scores obtained. All of this is done to understand whether there are risk factors for the development of eating disorders within the sports world, especially in competitive contexts, and whether nutritional intervention by expert and qualified personnel within various sports societies could be useful or even necessary in order to prevent the development of these pathologies and at the same time increase performance [22-25].

Materials and methods

The study conducted is an observational study.

The instrument used for this study was the Eating Attitudes Test, a validated self-administered questionnaire that measures symptoms and assesses the risk of developing an eating disorder.

The EAT-26 was created in 1982 by Garner, Olmsted, Bohr, and Garfinkel and is an improved version of the EAT-40 [26], with 88% sensitivity and 96% specificity compared to a psychiatric interview [27].

Among the various validated questionnaires available for the assessment of dietary behaviour, such as TFEQ [28], DIET [29], and EDI-2 [30]. The EAT-26 test was chosen for the speed of compilation, for the good reliability, and for the rapid quantification of the results.

This test consists of a three-factor structure.

The first factor is the “Diet” factor, which contains 13 items and is characterized by the thorough examination of the subject’s dietary calorie, carbohydrate, and simple sugar content.

Then we have the “Bulimia and food concern” factor, which includes 6 items and is described by the tendency to have elimination behaviors after meals as well as excessive thoughts related to food.

The remaining seven items belong to the “Oral control” factor, which reflects the tendency toward self-control over eating [31].

The 26 items of the test are evaluated on a six-point Likert scale relative to the frequency with which an individual engages in certain behaviors (“Always”, “Usually”, “Often”, “Sometimes”, “Rarely”, and “Never”) and subsequently, the responses for items 1-25 are coded using a 4-point scale with “Always” receiving three points, “Usually” receiving two points, “Often” receiving one point, and “Sometimes”, “Rarely”, and “Never” receiving zero points”.

Item 26 has a reverse score, and the final score is calculated by summing all items from 1 to 26 [31]. Scores of 20 or higher on the EAT-26 are frequently associated with abnormal eating attitudes and behaviors and can identify individuals with an eating disorder or at higher risk for developing one [26].

The EAT-26 test was administered to a sample of young athletes and non-athletes ($n = 142$) through an online questionnaire developed with Google Forms.

The questionnaire included a section with four questions asking for gender, age, type of physical exercise/sport, and weekly frequency. The sample was recruited totally randomly. The Google form was sent to several sports associations and coaches who have proposed it to their athletes through instant messaging apps. The questionnaire was also sent to a group of individuals who did not perform any sports and recruitment was done through word-of-mouth.

The inclusion criteria were athletes, non-athletes, and individuals who do not engage in any physical activity, are in good health, are aged between 12 and 30 years, able to read, write, and provide accurate information.

Exclusion criteria included any person who did not meet the aforementioned conditions.

Participation was voluntary, and the questionnaire was administered anonymously.

Descriptive statistics were used to describe the data, including mean and standard deviation, count, and proportion. The data were analyzed using statistical coding software (GraphPad Prism version 9.5.1), t-test, and the One-Way ANOVA test. A p-value of less than 0.05 was set as statistically significant.

Results

The questionnaire was completed by 148 subjects, of whom 6 were excluded because they did not meet the inclusion criteria, so the study was conducted on a total sample of 142 subjects.

The descriptive characteristics of the participants are shown in Table 1, the average age of the sample, expressed as mean \pm Standard Deviation (SD), was 21.7 ± 5.7 years (from 12 to 30). 29% were males, 70% were females, while 1% were other.

Of all participants, 57% were represented by competitive athletes, and of this percentage, 41% practiced a “lean sport” (specifically, 23% boxing, 23% aerobic gymnastics, and 5% ice skating), while 16% practiced a non-lean sport (volleyball).

The remaining percentage of the total was made up of 35% of subjects who practiced any non-competitive physical activity and 8% of subjects who did not practice any activity.

Following the calculation of the score obtained from the EAT-26, it was found that 13% of the sample was at high risk of developing an eating disorder as they scored ≥ 20 , while the remaining 87% scored ≤ 20 (Table 1).



Within the high-risk group (13% of the total), 4.7% were represented by athletes practicing a “lean sport” (0.7% aerobics, 4% boxing), 2.8% by athletes practicing volleyball, while the remaining 5.5% were non-competitive young sportspeople practicing other types of activities.

None of the participants who did not engage in any physical activity obtained a score of ≥ 20 on the test (Table 2).

The mean score obtained with the EAT-26 in the sample was 8.2 ± 8.5 .

The average age of participants who scored ≥ 20 was 21.4 ± 5.9 years, a value very close to the overall sample average age.

The results of the statistical analyses performed using the One-Way ANOVA test and t-test showed that there was no statistically significant difference in the means of the scores obtained from the EAT-26 among different genders ($p = 0.19$).

Similarly, it was found that there was no significant difference in the scores obtained by the group of subjects practicing a lean sport compared to the group practicing a non-

lean sport and the group of young non-competitive athletes ($p = 0.84$).

On the contrary, the difference between the mean scores of the participants who did not practice sports and the mean scores of the participants who practiced any physical activity, either competitively or non-competitively, was statistically significant ($p = 0.03$).

Discussion

In this study, we investigated the presence of risk factors for the development of eating disorders within the sporting context [32-34]. This need arises from the fact that the expansion of such disorders raises an alarming and prevalent issue among different levels of the community, particularly among athletes [12,35,36]. From the analysis of the results, there is no significant difference between genders in the scores obtained on the EAT-26 test, this highlights how, although women are most affected by eating disorders, cases in males are increasing at a constant rate [37]. Despite this, there is still a prevalence of females among those at risk, representing 9.4% of the total 13%. This percentage could be explained by the lack of defined parameters that make the diagnostic placement of male cases controversial, which risk being relegated to secondary or other psychiatric pathologies.

Although the EAT-26 cannot be considered a diagnostic tool, its items assess the risk of developing eating disorders and investigate the typical tendencies of eating disorders that characterize females, this is why, in the debate on ED, an emerging need for clear and structural evaluation criteria including males is highlighted among clinicians regarding the DSM-5 criteria [19,38].

Another important fact to dwell on is the prevalence of the risk of developing eating disorders among the population practicing physical activity, whether at a competitive level or not. In fact, numerous studies have consistently shown a higher prevalence of eating disorders among athletes than controls [15,20,39,40].

Surprisingly, the low prevalence rate of risk is represented in sports such as aerobic gymnastics and ice skating (0.7% and 0% respectively out of 13%). These “lean sports,” in which a low body weight is thought to favor athletic performance, have a higher risk of developing eating disorders than the general population [20]. Therefore, some authors believe that greater attention to nutritional aspects in sports such as gymnastics, considered particularly at high risk in previous studies, may have led to the reform of this sport and thus reduced the percentage of athletes at risk of developing eating disorders [5].

This study has some limitations: the sample size is small and the sports considered are only a few of those that can be evaluated. Despite the low number of samples, the evaluations carried out want to enrich the data in the literature.

Table 1: Descriptive characteristics of the participants.

Gender	Number of subjects	%
Male	41	29%
Female	100	70%
Other	1	1%
Kind of activity		
Lean sport	59	41%
Boxing	33	23%
Aerobic Gymnastics	19	13%
Ice-skating	7	5%
Volleyball	23	16%
Other Activity	49	35%
No Activity	11	8%
Risk of eating disorders		
High risk (score ETA-26 ≥ 20)	18	13%
Low risk (score ETA-26 ≤ 20)	124	87%

Table 2: Shows the analysis of subgroups among high-risk participants.

Gender	out of 18	by 13%
Male	4	2,9
Female	13	9,4
Other	1	0,7
Kind of activity		
Lean sport	6	4,7%
Boxing	5	4%
Aerobic Gymnastics	1	0,7%
Ice-skating	0	0%
Volleyball	4	2,8%
Other Activity	8	5,5%
No Activity	0	0%



Conclusion

The observational study shows a non-significant gender difference in the test scores, however, there is a higher prevalence in women than in men. Another important result is the prevalence of the risk of developing eating disorders among the population practicing physical activity, whether at a competitive level or not. However, there was a higher prevalence of subjects at risk among athletes, than the general population (of those who did not practice any activity, no one got a score on test >20).

In light of the considerations made, it is evident how the structural involvement of a nutritional figure in the team of a particular sport, along with other traditional figures such as the coach and the athletic trainer, is of fundamental importance. The main task of the nutritionist is to educate young athletes about proper nutrition, emphasizing how adequate calorie intake plays a crucial role in allowing tissue growth and development and supporting the energy demands of a competitive sport.

In addition, it is up to the nutritionist to educate trainers with correct and comprehensive information on the relationship between psyche and food, to dispel the mystery surrounding eating disorders, in order to “bring to light” those at risk as soon as possible.

In relation to the increase in EDs in the younger age group, the results of the study are intended to be only an initial assessment of the risk of developing unhealthy eating behavior, therefore we plan to deepen the study and expand it by considering a larger sample and more sports disciplines.

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