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EATING DISORDERS IN SPORT: A NARRATIVE REVIEW OF STUDIES ON EATING DISORDERS AMONG ATHLETES

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Abstract Eating disorders in sports represent a significant health issue that has drawn the attention of researchers worldwide. Selected studies suggest that disordered eating behaviors among athletes occur more frequently than in non-athletic individuals (Ghazzawi et al., 2024; Jaššová & Dostal, 2022; Torstveit et al., 2008). It is believed that such behaviors may result, in part, from the pursuit of an ideal body image specific to the sport, as well as from attempts to alleviate dissatisfaction with one's appearance, shaped by the aesthetic demands and expectations concerning the physical presentation of the athlete (Torstveit et al., 2008). Despite numerous studies addressing this phenomenon, research findings remain inconclusive, and knowledge in this area requires further exploration. The aim of this narrative review is to present the current state of knowledge on eating disorders in sports, with a particular focus on risk factors for their development, negative health consequences, and potential support methods for those affected. Considering that eating disorders in sports can lead to serious health consequences, expanding knowledge in this area and implementing appropriate preventive measures may contribute to reducing morbidity and improving the well-being of athletes.

Key words: eating disorders, sport, risk factors, athlete health, prevention

Introduction

"Feeding and eating disorders are characterized by a persistent disruption in eating behavior, accompanied by abnormal behaviors related to nutrition. As a result, this leads to changes in the composition and absorption of food, which in turn causes a significant deterioration in physical health and psychosocial functioning" (APA, 2018, cited in Gałecki et al., 2018, p. 399). These serious and often chronic mental disorders are believed to arise from a complex combination of psychological, biological, social, and cultural factors (Culbert et al., 2015), with their development typically beginning during adolescence or early adulthood (Giel et al., 2016), a period that generally corresponds to the professional sports activity phase (Szewczyk et al., 2024). In recent years, there has been a significant increase in interest in eating disorders among athletes, as studies have shown that this issue occurs more frequently in this group than in non-athletes (Ghazzawi et al., 2024; Eichstadt et al., 2020). In the literature, the prevalence of eating disorders among adult athletes ranges from 0–19% for men and 4–45% for women (Magee et al., 2023), whereas in the general population of young adults, it is 0.6–2.4% for men and 5.5–17.9% for women (Silen & Keski-Rahkonen, 2022). Although research results in this area are often inconsistent due to, among other things, methodological differences and the heterogeneity of the studied groups, it is believed that the actual scale of the

problem in sports may be even higher. This underestimation may be related to the hidden nature of the disorders and athletes' reluctance to report them, stemming from the belief in the beneficial impact of dietary restrictions and excessive physical exercise on athletic performance (Thompson & Sherman, 2010; Wells et al., 2020).

Given the high risk of morbidity in sports and the greater challenges in detecting eating disorders compared to the general population of non-athletes, the following review presents available research on this topic. The aim was to identify findings that may be useful in the detection and treatment of eating disorders among athletes.

In this article, the term "disordered eating" is used to refer to persistent eating patterns that are not necessarily indicative of a diagnosable mental health disorder but are considered by specialists as behaviors that increase the risk of developing full-blown eating disorders. These behaviors may involve reduced or excessive food intake, restricted food choices, feelings of loss of control, physical discomfort, or other negative emotions such as guilt or shame (Ghazzawi et al., 2024). It is important to note that disordered eating patterns may be observed in individuals with eating disorders, but not everyone who exhibits such behaviors will meet the criteria for full-blown eating disorders (El Ghoch et al., 2013; Krentz & Warschburger, 2013).

Material and Methods

A narrative literature review was conducted on eating disorders in sport, covering publications from 1993 onwards- the year in which Sundgot-Borgen's seminal study demonstrated a higher prevalence of eating disorders among female athletes compared to non-athletic women.

The literature search was carried out between December 2024 and February 2025 using electronic databases including EBSCO, Google Scholar, Scopus, and PubMed. In addition, relevant scholarly books were reviewed. To identify appropriate publications, the following keywords were used: *eating disorders in sport*, *disordered eating among athletes*, and *dysfunctional eating among athletes*. Publications were screened based on titles and abstracts. Only peer-reviewed journal articles and recognized academic books addressing eating disorders- both general and sport-specific-were included for further analysis. Abstracts, theses, methodological papers, and conference proceedings were excluded.

Ultimately, 66 sources meeting the inclusion criteria were selected for this review. The structure of the review is organized around five key thematic areas: 1. State of knowledge, 2. Types of eating disorders, 3. Etiology of eating disorders in sport, 4. Consequences of eating disorders in sport, 5. Prevention and treatment of eating disorders in sport.

State of knowledge

Eating Disorders in Sports

Research indicates that the prevalence of eating disorders is higher among athletes than in the general population, particularly in sports that promote low body weight and a lean physique (Byrne & McLean, 2002; Hausenblas & Carron, 1999; Sundgot-Borgen & Tortsveit, 2004). The literature distinguishes between "lean" sports, where low body weight is required (e.g., gymnastics, long-distance running), and "non-lean" sports, where body weight is not a key factor (e.g., basketball, table tennis) (Martinsen et al., 2010). Rousselet et al. (2017) confirmed that athletes participating in the first group of sports are more likely to display unhealthy eating habits. In the study by Ghazzawi et al. (2024), the highest percentage of eating disorders was found in gymnastics (41.5%), and the lowest

in endurance sports (15.4%). Chatterton and Petrie (2013) and Krentz and Warschburger (2013) also identified aesthetic sports, such as gymnastics and figure skating, as being associated with higher rates of eating disorders. Mancine et al. (2020), who compared different sports disciplines, confirmed that the highest likelihood of developing eating disorders occurred in sports requiring low body weight, weight-class sports, and those in which an athlete's appearance is subject to evaluation. Rosendahl et al. (2009), on the other hand, differentiated by gender, showing that the highest risk of developing eating disorders in men was found in anti-gravity sports (42%), while in women, it was found in aesthetic sports (42%).

Numerous studies also confirm the link between the level of competition and the risk of eating disorders. Sundgot-Borgen (1994) demonstrated that professional athletes are more prone to these issues than amateurs. Goldfield & Woodside (2009) observed that women who train recreationally are less likely to exhibit symptoms of eating disorders than professional athletes, who more often follow restrictive diets, engage in excessive exercise, and become obsessed with their body weight, which may result from the pressure of competition and expectations from the sports environment. Meanwhile, Engel et al. (2003) and Berry and Howe (2000) suggested that a significant risk factor in this group is the comments made by coaches and the pressure to maintain a specific physique.

Table 1. Selected studies on the prevalence of eating disorders among athletes

Type of Sport	Key Findings	Authors (Year)
Various	Higher prevalence of eating disorders compared to the general population	Byrne & McLean (2002)
Lean vs. non-lean	"Lean" sports are associated with higher risk of eating disorders	Hausenblas & Carron (1999)
Various	Higher prevalence among elite athletes, particularly females	Sundgot-Borgen & Tortsveit (2004)
Lean	Athletes in lean sports are more likely to exhibit disordered eating behaviors	Rousselet et al. (2017)
Aesthetic, Endurance	Highest prevalence in gymnastics (41.5%), lowest in endurance sports (15.4%)	Ghazzawi et al. (2024)
Aesthetic	Elevated risk in gymnastics and figure skating	Chatterton & Petrie (2013)
Aesthetic	Aesthetic sports pose the highest risk	Krentz & Warschburger (2013)
Lean, Weight-class, Aesthetic	Greatest risk in sports emphasizing thinness and appearance evaluation	Mancine et al. (2020)
Antigravitational, Aesthetic	Men: highest risk in antigravitational sports (42%); Women: aesthetic sports (42%)	Rosendahl et al. (2009)
Various	Elite athletes more vulnerable than amateurs	Sundgot-Borgen (1994)
Various	Female professionals more likely to exhibit ED symptoms and adhere to restrictive diets	Goldfield (2009)

*ED – eating disorders; lean – disciplines requiring low body weight (e.g. gymnastics), non-lean – disciplines without such a requirement (e.g. table tennis). *

Types of Eating Disorders

The most commonly diagnosed forms of eating disorders according to DSM-V are anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED) (APA, 2018, cited in Gałecki, 2018). Anorexia is characterized by a significant restriction in energy intake relative to the body's needs and an intense fear of gaining weight. Bulimia involves recurrent episodes of binge eating, followed by inappropriate compensatory behaviors aimed at preventing weight gain (e.g., self-induced vomiting, abuse of laxatives, diuretics, excessive physical exercise). Binge eating disorder is characterized by the consumption of large amounts of food in a short period and a sense of loss

of control during the episode. Binge eating is associated with eating faster than most people, eating until feeling uncomfortably full, consuming large amounts of food even when not hungry, and experiencing feelings of disgust with oneself, depression, or an intensified sense of guilt after the episode (Brytek-Matera, 2021).

Although the characteristics of eating disorders outlined above are consistent with DSM-V, it should be noted that improper eating behaviors in sports do not always meet the criteria for full-blown clinical eating disorders. When discussing this issue, it is important not to overlook unclassified, yet pathological, eating patterns that may act as potential precursors to full-blown eating disorders (Monthuy-Blanc et al., 2020, 2022a, cited in Daubresse et al., 2024). The literature introduces the concept of DEAB (dysfunctional eating attitudes and behaviors), which refers to dysfunctional eating attitudes and behaviors that form a continuum between healthy eating and the diagnoses of eating disorders described in the classification of mental disorders. These behaviors and attitudes include eating behaviors such as intuitive eating, emotional eating, restrictive dieting, or episodes of binge eating (Monthuy-Blanc et al., 2022b, cited in Daubresse et al., 2024). DEAB can also be associated with purging behaviors, internalization of the ideal slim physique, food control, and fluctuations in body weight, particularly during periods of sports competition (Homan, 2010). It has been found that as many as 51.6% of athletes at the national level report using DEAB to lose weight (Chatterton & Petrie, 2013). Similar to classified eating disorders, the prevalence of DEAB varies depending on the sport and gender (Petrie, 2020). Individual sports are more strongly predisposed to DEAB than team sports, with endurance sports (e.g., running, triathlon, etc.) being particularly associated with these behaviors (Nattiv et al., 2007; Sundgot-Borgen & Torstveit, 2004).

Another noteworthy and sport-specific form of unclassified eating disorder is known as anorexia athletica (AA), which is a form of anorexia nervosa occurring in physically active individuals. It should be emphasized that this is an eating disorder that is not clinically diagnosed (Nielson et al. 2013) and is not formally recognized as a nosological diagnosis. It is defined as a state of restricted energy intake and reduced body mass while maintaining a high level of physical activity (Kristjansdottir, 2019). A characteristic feature is that individuals do not restrict calories as drastically as in AN but have a carefully calculated energy requirement, thus consuming and training to maintain a constant calorie deficit. This is particularly dangerous because such an individual may appear to be eating properly. Fear of gaining weight is a strong motivator for individuals with AA, although it is often unjustified, as these individuals usually weigh less than the norms established for their height and age. Literature confirms that the most vulnerable groups to these patterns of behavior are athletes in disciplines such as running, gymnastics, and figure skating (Bolles et al., 2005). In these sports, low weight may enhance athletic performance, which individuals with AA relentlessly pursue, often dedicating most of their time to this goal (Nielson, 2013). It is also important to note that weight reduction is motivated by the desire to improve athletic performance, rather than by the typical concerns with body weight or external appearance seen in anorexia nervosa (Sudi et al., 2004). Sundgot-Borgen (1993) assessed the prevalence of AA at 8%, while in later works by the author (Sundgot-Borgen & Tortsveit, 2004), the prevalence was found to be 4% for women and 1% for men in professional sports.

Another significant term to mention when discussing unclassified eating disorders in sports is “orthorexia.” The term orthorexia nervosa first appeared in the late 1990s, and it wasn’t until 2004 that the first article described orthorexia as a “maniacal obsession” with healthy eating (Donini, 2004). Currently, orthorexia is not classified in DSM-5 or ICD-11, and there is still ongoing debate about whether it should be considered a distinct mental disorder (McComb & Mills, 2019; Meule & Voderholzer, 2021). Although many authors have developed diagnostic criteria for orthorexia (Cena et al., 2019), it was not until the article by Donini et al. (2022) that the first definition of orthorexia,

supported by specialists from around the world, was presented. In this definition, orthorexia is described as a strong engagement of the individual in eating-related behaviors and the imposition of rigid rules, which remain under strict control and are associated with spending excessive time planning, acquiring, preparing, and/or consuming food. Unlike other well-known eating disorders, orthorexia does not focus on the quantity of food consumed but rather its quality (Dunn & Bratman, 2016). Individuals suffering from this disorder experience emotional discomfort when confronted with food they consider unhealthy, difficulties with concentration because thoughts about healthy eating almost entirely occupy their minds, and feelings of guilt when they cannot consume a meal that meets their restrictive requirements (Donini et al., 2022). The selective eating patterns characteristic of orthorexic individuals can contribute to nutritional deficiencies, such as underweight, anemia, or hormonal imbalances (Donini et al., 2022; Bundros et al., 2016). This disorder can also have a significant impact on an individual's personal and social functioning, as it involves dedicating most of their time to meeting the requirements of their diet. Research indicates that higher rates of orthorexia are found among individuals who engage in sports for more than 150 minutes per week compared to those who engage in sports less frequently or not at all. Additionally, a higher probability of orthorexic behaviors has been confirmed among individuals participating in endurance sports (over 150 minutes/week) compared to those in other sports (Bert et al., 2019). Oberle's et al. (2017) study showed that the tendency to exhibit such behaviors is linked to the intensity of aerobic exercises performed, exercise addiction, and motivation for exercise.

Etiology of Eating Disorders in Sports

Existing research indicates that eating disorders have a multifactorial nature, highlighting both biological and psychosocial factors. In addition to the primary risk factor, which is the specificity of the sport being practiced (discussed earlier in the article), gender is often cited as an additional factor. While most studies confirm that women are more prone to displaying disordered eating behaviors (Engel et al., 2003), it should be emphasized that this problem also affects men. Ahlich et al. (2018) estimate that they may constitute up to 25% of athletes struggling with disordered eating. Dakanalis et al. (2016) in their study found that binge eating (7.9%) and excessive physical exercise (4.4%) are the most common behaviors in a male student group. Therefore, despite women predominating in terms of eating-related problems, men should not be excluded from the risk group for developing such disorders.

Traditional models of the development of eating disorders in sports emphasize the influence of environmental factors, such as societal pressure regarding appearance, diet-related pressures, and the demand for body modifications through training (Garner, Garfinkel, 1980; Striegel-Moore, Silberstein, Rodin, 1986 as cited in Łuszczyńska, 2011). A more recent approach, the model proposed by Petrie and Greenleaf (2007), in addition to the environmental context, focuses on subjective beliefs, emotions, and cognitive patterns of athletes, which may increase susceptibility to the development of disordered eating. In addition to environmental pressures regarding a slim figure, they point to idealization of low body weight, dissatisfaction with one's appearance, negative emotions, a restrictive approach to eating, and the influence of peers and family on eating patterns. This model is particularly significant as it is based on solid empirical foundations, indicating mechanisms that may reinforce the risk of these disorders and specifies situations in which the effect of a given risk factor is especially strong (Petrie & Greenleaf, 2007). A different perspective, which seems interesting, is the approach of Nattiv et al. (2007), which distinguishes three groups of risk factors: predispositional, triggering, and maintaining. The first category includes biological, psychological, and socio-cultural factors that increase an individual's susceptibility to developing disorders, such as

genetic predispositions, body dissatisfaction, low self-esteem, or personality traits (e.g., perfectionism). Triggering factors include negative comments about appearance and traumatic experiences (Stice & Shaw, 2002). Maintaining factors are attributed to, among others, acceptance by the surrounding environment, physiological consequences of hunger, or initial positive effects of dietary restrictions (Nattiv et al., 2007). The literature also mentions sport-specific risk factors that include a range of important elements that may affect athletes' health. These include frequent changes in body weight, environmental pressures for weight loss, frequent dieting, starting specialized sports training at a young age, traumatic experiences such as injuries, overtraining, the desire to gain admiration, coaching behaviors, and specific sport rules (Bratland-Sanda & Sundgot-Borgen, 2012; Smolak et al.,2000; Sundgot-Borgen, 1994). Body weight regulations in sports practiced at a professional level are especially relevant in disciplines where body mass is controlled during competition. These include weight-class sports, such as boxing, judo, or other combat sports. In these disciplines, extreme methods of rapid weight loss may be employed in the period immediately preceding the pre-competition weigh-in. Athletes in disciplines where low body weight can enhance performance and those in sports where physical appearance is evaluated (such as gymnastics or aesthetic sports) may also be exposed to pressure from the environment to lose weight (Byrne & McLean, 2002; Hausenblas & Carron, 1999). In the case of early engagement in sports training, there is a risk of mismatching the choice of sport to the athlete's body type, which may lead to later difficulties associated with the impact of changes during the maturation process on sports performance (Sundgot-Borgen, 1994). Another issue is that some traits regarded as desirable in sports, such as perfectionism, a tendency to conform, and intense engagement in training, may simultaneously contribute to the development of eating disorders (Thompson & Sherman, 1999). Athletes often exhibit obsessive-compulsive striving for achievement, which increases their susceptibility to unhealthy eating habits. A risk factor can also be traumatic experiences, especially injuries, which often lead to exclusion from competition and, consequently, uncontrolled weight gain and eating problems (Currie, 2010). Coaching styles play a key role in many behaviors exhibited by athletes. A supportive attitude may offer protection, while a focus on results and athletes' weight may be particularly predispositional to the development of eating disorders, amplifying their fear of weight gain and triggering disorders in this area (Bratland-Sanda & Sundgot-Borgen, 2012).

Table 2. Risk factors for the development of eating disorders in sport

Type of Risk Factor	Description	References
Gender	Women are more susceptible, although men are also affected	Engel et al. (2003); Ahlich et al. (2018); Dakanalis et al. (2016)
Environmental Factors	Societal pressure regarding appearance, dieting pressures, physique-related expectations	Garner & Garfinkel (1980); Striegel-Moore et al. (1986, as cited in Łuszczyńska, 2011)
Cognitive and Emotional Factors	Body dissatisfaction, idealization of thinness, negative affect	Petrie & Greenleaf (2007)
Predisposing Factors	Genetics, low self-esteem, perfectionism, body dissatisfaction	Nattiv et al. (2007)
Triggering Factors	Trauma, negative appearance-related comments	Stice (2002); Nativ et al. (2007)
Maintaining Factors	Environmental reinforcement, physiological effects of starvation, perceived benefits of dietary restraint	Nattiv et al. (2007)
Sport-Specific Factors	Early training onset, frequent weight fluctuations, recurrent dieting, traumatic experiences (e.g., injuries), coach behaviors, sport rules, weight-loss pressure from surroundings	Bratland-Sanda & Sundgot-Borgen (2012); Smolak et al. (2000); Sundgot-Borgen (1994)

Sport Discipline Characteristics	Appearance-based evaluation, weight-class sports (e.g., boxing, judo), performance advantages from low body weight	Byrne & McLean (2002); Hausenblas & Carron (1999)
Personality Traits	Perfectionism, compliance, obsessive-compulsive striving for achievement	Thompson & Sherman (1999)
Traumatic Experiences	Especially injuries associated with weight gain	Currie (2010)
Coaching Styles	Supportive coaching – protective; weight-focused coaching – risky	Bratland-Sanda & Sundgot-Borgen (2012)

Consequences of Eating Disorders in Sport

Given the fact that certain categories of athletes may be more vulnerable to disordered eating behaviors than others (Mancine et al., 2020), which in turn can lead to nutritional imbalances associated with numerous physical and psychological health consequences, it is important to examine the effects they may have on the described group. It has been demonstrated that athletes reporting eating disorders exhibit higher levels of depression and anxiety compared to athletes who do not experience such problems (Landkammer et al., 2019). Among this group, common difficulties also include effects directly caused by insufficient energy intake. One of the terms used in the literature to describe such conditions is LEA (Low Energy Availability), which refers to a state where, due to insufficient energy intake, the athlete's body is unable to meet the demands placed on it by physical activity (Õnnik et al., 2022). This can arise when an athlete consumes insufficient energy from food or expends excessive amounts during training. The main causes of LEA are generally categorized as obsessive (eating disorders or clinical diagnoses of eating disorders), unintentional (a health issue as a side effect of high energy expenditure during exercise), or intentional (efforts to modify body weight or composition) (Burke, 2021 cited in Lee, 2024). LEA is often considered a precursor to disorders such as RED-S (Relative Energy Deficiency in Sport) or MAT (Male Athlete Triad), and it is most frequently encountered in sports characterized by high intensity, frequency, duration, or volume, as well as those that emphasize low body weight and/or low body fat percentage (e.g., cycling, running, triathlon, gymnastics, tennis, rowing) (Lee, 2024).

To illustrate the multitude of negative effects caused by energy deficiency in sports, some of their characteristics are presented. In the literature, the term "female athlete triad" is used, which refers to a syndrome involving three interrelated disorders frequently found among female athletes. These include disordered eating or at least a significant restriction in caloric intake, menstrual disturbances or absence of menstruation, and decreased bone mineral density, i.e., osteoporosis (Mancine et al., 2020). The above-mentioned conditions can lead to serious health issues among female athletes, such as bone fractures, hormonal disorders, and cardiovascular problems. Over the past few years, the prevalence of this issue among female athletes has ranged from 1.3% to 23%, with as many as 78% of female athletes showing at least one of the three components of the triad (Petrović, 2020). This disorder is particularly prevalent in disciplines where leanness or low body weight is emphasized, such as long-distance running, gymnastics, or track and field.

A similar term exists in the literature for male athletes, referred to as MAT (Male Athlete Triad), which can be interpreted as the triad of male athletes. This syndrome consists of three interconnected disorders observed in male athletes: low energy availability (LEA), impaired bone health that may lead to osteopenia, osteoporosis, or bone injuries, and dysfunction of the hypothalamic-pituitary-gonadal (HPG) axis, resulting in conditions such as hypogonadotropic hypogonadism, which may lead to oligospermia (low sperm count) or decreased libido (Nattiv

et al., 2021). The risk of MAT, like in females, is particularly high among athletes participating in disciplines that require low body mass, such as long-distance running or cycling (Nattiv et al., 2021).

Another concept describing the health consequences of disordered eating in athletes is "Relative Energy Deficiency in Sport" (RED-S), which encompasses the same three disorders identified in the female athlete triad but also includes other health consequences resulting from LEA in athletes (Mountjoy et al., 2018). The term RED-S refers to a condition in which an athlete does not intake sufficient energy relative to their body's needs, leading to a range of negative health and performance-related outcomes. Unlike the female or male athlete triads, RED-S considers a broader spectrum of the consequences of low energy availability, covering not only aspects related to the bone and hormonal systems but also to other systems in the body, including the immune, digestive, cardiovascular, and metabolic systems. RED-S offers a more holistic approach to the problem of energy deficiency in sport, considering its complex consequences for the health and performance of athletes of both sexes.

Table 3. Health effects of disordered eating among athletes

Term/Concept	Description	Target Group	Main Health Consequences	References
LEA (Low Energy Availability)	Condition of insufficient energy availability relative to physiological needs	Both male and female athletes	Hormonal disturbances, impaired recovery, possible HPG axis dysregulation	Õnnik et al. (2022); Burke (2021), cited in: Lee, 2024)
RED-S (Relative Energy Deficiency in Sport)	A syndrome encompassing multiple consequences of energy deficiency	Both male and female athletes	Endocrine, skeletal, immune, and cardiovascular impairments	Mountjoy et al. (2018)
Female Athlete Triad	Triad of disordered eating/low energy intake, amenorrhea, and osteoporosis	Female athletes	Menstrual dysfunction, osteoporosis, fractures, hormonal issues	Mancine et al. (2020); Petrović (2020)
Male Athlete Triad (MAT)	Male counterpart of the Female Athlete Triad: LEA, poor bone health, and HPG axis disturbances	Male athletes	Osteopenia, osteoporosis, hypogonadism, reduced libido, oligospermia	Nattiv et al. (2021)
Psychological Issues	Increased incidence of depression and anxiety in athletes with disordered eating	Both male and female athletes	Depression, anxiety	Sundgot-Borgen et al. (2016)

Prevention and Treatment of Eating Disorders in Sport

Prevention and treatment of eating disorders in sport are largely based on methods used in the general population. However, in the case of athletes, a broader, interdisciplinary approach is necessary, involving not only the athlete but also their immediate environment. This process often includes the involvement of family members, coaches, dietitians, doctors, sports psychologists, and other specialists supporting the athlete's physical and mental preparation. A key element of prevention is education for both athletes and their surroundings regarding eating disorders. Educational programs focus on identifying and learning to recognize risk factors, discussing the health consequences, and eliminating myths about the relationship between body weight and sports performance (Coelho et al., 2014). An important aspect of prevention is also the early detection of nutritional issues and the implementation of interventions that prevent further development of the problem. Due to the specificity of sport, it is crucial to assess whether the observed behaviors are temporary (e.g., resulting from a competition preparation

phase and are controlled) or represent a persistent, unhealthy pattern leading to the development of eating disorders (Ljungqvist et al., 2009).

Regular screening, conducted as part of mandatory medical examinations before the start of the season, plays a vital role in identifying athletes at particular risk for the development of these disorders. Diagnostic procedures include questions about eating habits, binge eating episodes, the use of purging methods, the presence of eating disorders in the family, body image perception, menstrual cycle, and physical activity levels (Rumball & Lebrun, 2004; Coelho et al., 2014). Given the risk of concealing important information by those being examined, self-report tools are also used, which may help detect abnormal eating patterns early. Their anonymous nature may encourage greater openness in revealing problematic behaviors (Hagmar et al., 2008). However, it should be emphasized that such diagnostic methods should always be supplemented with a clinical interview and conversation, allowing for a comprehensive assessment of the situation.

A sport-specific form of preventive measures could involve changes in regulations regarding body weight control in disciplines that require weight limitations. The elimination of extreme weight loss methods, such as drastic calorie restriction or intense dehydration, can significantly reduce the risk of developing eating disorders in this group of athletes (Coelho et al., 2014). Special attention should be given to monitoring athletes' eating behaviors during recovery periods from injuries and after returning to regular training. During forced breaks in physical activity, some athletes may resort to unhealthy methods of body weight control, attempting to prevent weight gain resulting from reduced movement.

Treatment of eating disorders in athletes should also be interdisciplinary and involve collaboration among a team of specialists. A crucial role in the therapeutic process is played by psychotherapy, particularly cognitive-behavioral therapy (CBT), which is considered one of the most effective treatment methods. Among the approaches used, enhanced cognitive-behavioral therapy (CBT-E), Maudsley therapy (MAN-TRA), Specialist Supportive Clinical Management (SSCM), and psychodynamic therapy (FPT) are distinguished (Brytek-Matera, 2021). The therapeutic process in an outpatient setting usually lasts around eight months or longer and involves individual cooperation between the patient and the therapist. Its primary goals are to restore physical health, gradually normalize eating patterns, and stabilize body weight. Cooperation between coaches and the training staff with therapists plays a key role in creating an environment conducive to the athlete's recovery. An important element of therapy is also the gradual and controlled return to physical activity, which minimizes the risk of relapse into destructive behaviors, as well as raising the awareness of those around the coach regarding important behavioral signals in the athlete that need to be addressed. Additionally, a properly tailored dietary intervention, adjusted to the individual needs of the athlete, can provide crucial support in the recovery process.

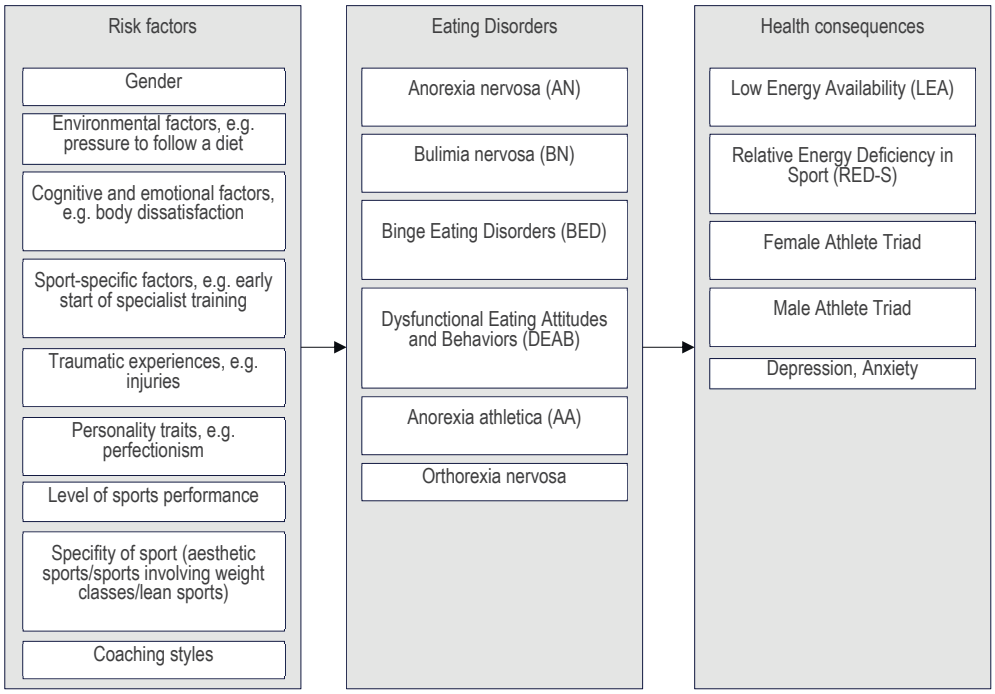

Figure 1. Conceptual model of the development and consequences of eating disorders in athletes

Summary

This paper presents a narrative review of research on eating disorders among athletes. It is important to emphasize that although there are specific diagnostic criteria, relatively few studies focus on describing eating disorders as clinical conditions. It should be noted that a full diagnosis of eating disorders requires a comprehensive clinical assessment, typically conducted by psychiatrists. For this reason, this paper primarily presents quantitative research findings that assess the presence of unhealthy eating habits and patterns that may promote the development of full-blown disorders, rather than clinical descriptions of the disorders themselves.

The analysis identifies risk factors and the relationships between specific sports disciplines and the propensity for eating disorders. However, it should be noted that the entire athlete population, regardless of the sport or skill level, is highly vulnerable to such problems. Research by Thompson and Sherman (2010) confirms that even among athletes participating in sports where body weight and appearance are not key, over 50% engage in unhealthy weight control practices, such as inducing vomiting or restricting calorie intake. Therefore, prevention efforts should not only target athletes in aesthetic or weight-class-dependent sports but also those who theoretically do not face pressure related to body mass or appearance (Selby et al., 2011).

Further research on eating disorders in sport is needed, especially considering the methodological variability used in previous studies (e.g., different measurement tools, sample sizes, age, gender, and cultural contexts). Research results in this area are inconclusive—some suggest that athletes are more susceptible to eating disorders

than non-athletes, while others indicate no significant differences between the groups (Chapa et al., 2022). Therefore, there is a need for studies conducted on a representative sample of athletes (both professionals and amateurs) from a wide range of disciplines, using a uniform research procedure.

Due to limited availability of research, this paper did not address athletes in disciplines where a higher body mass is beneficial for achieving better results (e.g., sumo, weightlifting). Additionally, due to the insufficient number of available publications, the frequency of specific eating disorders in various athlete groups has not been thoroughly analyzed, nor was the issue in amateur sports addressed. In the context of modern culture, which promotes a healthy athletic physique (slim for women and muscular for men) it can be hypothesized that the risk of eating disorders among both professional and amateur athletes is similar. However, verification of this hypothesis requires further empirical studies.

It is crucial to note that the presented description of eating disorders aims to highlight the issue and point out possible behaviors, emotions, and experiences of individuals struggling with these disorders. It is important to remember that the course of these disorders may be atypical, and some symptoms may fit into multiple diagnostic categories simultaneously. Therefore, particular caution should be exercised when interpreting the results of quantitative studies. The diagnosis of eating disorders should rely on in-depth analysis, including clinical interviews and other qualitative methods conducted by qualified specialists. This article aims to expand public knowledge about these disorders, which can contribute to more effective prevention and early detection of the problem.

Conclusion

In conclusion, eating disorders among athletes represent a significant and current issue that can have serious consequences for both the physical and mental health of athletes. Due to diagnostic challenges and the potential negative effects of these disorders, widespread preventive actions are necessary. A key role in this regard is played by doctors and sports psychologists, who should conduct educational initiatives not only for athletes but also for coaches, training staff, and athletes' families. Early identification of eating disorder symptoms and appropriate interventions can contribute to improving athlete's health and well-being and increase their chances for a long and successful sports career.

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