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Eating Disorders and Nutritional Habits in Athletes: Risk Factors and Intervention Approaches

Sporcularda Yeme Bozuklukları ve Beslenme Alışkanlıkları: Risk Faktörleri ve Müdahale Yaklaşımları

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Abstract

This review comprehensively examines nutritional habits, psychological factors, and sport-specific risk factors involved in the development of eating disorders and disordered eating behaviors among athletes. Performance pressure is an important risk factor in athletic populations. Expectations regarding body composition may also influence eating behaviors. This risk is particularly evident in aesthetic, endurance, and weight-category sports. In these disciplines, weight control practices and low energy intake are commonly observed. This condition may lead to health problems associated with Relative Energy Deficiency in Sport (RED-S). RED-S may negatively affect endocrine, metabolic, skeletal, cardiovascular, and psychological functions. The reviewed findings indicate that anorexia nervosa, bulimia nervosa, binge eating disorder, and subclinical disordered eating behaviors constitute important concerns among athletes. In addition, perfectionism, body dissatisfaction, anxiety, and low self-esteem may increase the risk. Coaching practices, team culture, and social media influence may also contribute to this process. For early diagnosis, screening tools should be supported by clinical assessment, nutritional evaluation, psychological examination, physical examination, and laboratory findings. In conclusion, the prevention of eating disorders among athletes requires a multidisciplinary approach. Education, the promotion of healthy eating behaviors, and supportive sport environments are essential components of this process.

Keywords: Eating disorders, sports nutrition, disordered eating, relative energy deficiency in sport (RED-S).

Öz

Bu derleme, sporcularda yeme bozuklukları ve düzensiz yeme davranışlarının gelişiminde etkili olan beslenme alışkanlıkları, psikolojik etmenler ve spora özgü risk faktörlerini kapsamlı biçimde incelemektedir. Sporcularda performans baskısı önemli bir risk unsurudur. Beden kompozisyonuna yönelik beklentiler de yeme davranışlarını etkileyebilmektedir. Özellikle estetik, dayanıklılık ve sıklet temelli sporlarda bu risk daha belirgindir. Bu spor dallarında kilo kontrolü ve düşük enerji alımı sık görülmektedir. Bu durum, Sporda Göreceli Enerji Yetersizliği (RED-S) ile ilişkili sağlık sorunlarına yol açabilmektedir. RED-S; endokrin, metabolik, iskelet, kardiyovasküler ve psikolojik işlevleri olumsuz etkileyebilir. İncelenen bulgular, sporcularda anoreksiya nervoza, bulimiya nervoza, tıkınırcasına yeme bozukluğu ve subklinik düzensiz yeme davranışlarının önemli bir sorun olduğunu göstermektedir. Ayrıca mükemmeliyetçilik, beden memnuniyetsizliği, anksiyete ve düşük benlik saygısı riski artırabilmektedir. Antrenör tutumları, takım kültürü ve sosyal medya etkisi de bu süreci destekleyebilir. Erken tanı için tarama araçlarının klinik değerlendirme, beslenme analizi, psikolojik inceleme, fizik muayene ve laboratuvar bulgularıyla desteklenmesi gerekmektedir. Sonuç olarak, sporcularda yeme bozukluklarının önlenmesi multidisipliner bir yaklaşım gerektirmektedir. Eğitim, sağlıklı beslenme davranışları ve destekleyici spor ortamları bu süreçte temel unsurlardır.

Anahtar Kelimeler: yeme bozuklukları, sporcu beslenmesi, düzensiz yeme davranışları, sporda göreceli enerji yetersizliği (RED-S).

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1. INTRODUCTION

To get the best athletic performance, you need to follow strict training plans and eat a balanced diet that changes over time. Nutritional status is very crucial for making energy, building muscle protein, recovering, and the body's overall ability to respond to activities (Çakır & Coşkuntürk, 2022;). In this instance, athletes need to organize their diets carefully based on their sport, how hard they train, and when they compete. Not fulfilling these nutritional needs could damage both performance and health in the long run (Beck et al., 2021; Ebardo et al., 2025).

Even though nutrition is really important, the athletics world may place a lot of pressure on people that makes them eat badly. Some individuals assume that having a certain body type, keeping their weight in line, and looking well are markers of success for sports. These pressures may arise from coaches, judges, peers, or internalized performance expectations, which can lead athletes to adopt strict or unhealthy eating habits. Over time, these behaviors may evolve into disordered eating patterns or clinically recognizable eating disorders (Li et al., 2024; Stoyel et al., 2021).

Eating disorders are complex mental health issues that result in enduring alterations in dietary patterns, body perception, and detrimental weight management strategies. These diseases are associated with significant physical and psychological morbidity and, in severe cases, an increased risk of mortality. Numerous studies consistently indicate that athletes have a higher prevalence of eating disorders compared to non-athletic individuals, particularly in sports that emphasize leanness, weight categories, or aesthetic assessment (Yel vd., 2024; 2025). In these circumstances, behaviors such as prolonged energy restriction, rapid weight loss, excessive physical activity, and compensatory eating patterns may become normalized, complicating the detection of early illness markers (Fatt, George, Hay, Jeacocke, Gotkiewicz, et al., 2024; Ghazzawi et al., 2024; Svenaeus, 2014).

In addition to clinically recognized eating disorders, athletes frequently exhibit a diverse array of subclinical behaviors commonly referred to as disordered eating. These behaviors include eating patterns that change all the time, strict diets, binge eating, and bad ways to lose weight. These behaviors can nevertheless be very harmful to health and performance, even if they don't meet all of the diagnostic criteria. They may also be a warning that someone is moving toward more serious diseases (Ghazzawi et al., 2024; Kussman & Choo, 2024).

People's ideas on energy shortage in sports have altered in the previous few years. The traditional concept of the Female Athlete Triad, which focuses on the relationship between energy availability, menstrual function, and bone health, has transformed into the broader concept of Relative Energy Deficiency in Sport (RED-S). This model recognizes that diminished energy availability affects multiple physiological systems, including metabolic rate, endocrine function, cardiovascular health, immune response, and psychological well-being, and is applicable to both male and female athletes. We now have a better knowledge of how not getting adequate nutrients might harm both performance and health in general (Burke et al., 2023; Grabia et al., 2024; Mountjoy et al., 2023).

Also, the growing influence of sociocultural factors, especially social media and the global fitness industry, has made athletes' body image problems worse. People may feel worse about their bodies and be more prone to eat badly if they are exposed to unrealistic body standards and performance demands. This is especially crucial for younger athletes since they may be more open to outside influences and less able to think critically about them (Li et al., 2024).

Eating disorders in athletes are quite intricate, so we need a full and cross-disciplinary approach to find, halt, and treat them. Finding those who are at risk early on and then giving them personalized treatment with their food, mental health, and education is vital to decrease the bad impacts (Torstveit et al., 2023).

The goal of this study is to give a detailed look at athletes' eating habits and eating disorders, find the risk factors, and look at the current scientific evidence-based solutions for prevention and (Mountjoy et al., 2023; Torstveit et al., 2023).

2. Athletes' eating habits

Athletes need very specific and timed nutrition strategies to meet the needs of their bodies during training, recovery, and competition. The nutritional habits of this group are affected by their metabolic needs, the needs of their sport, their competition schedules, and social considerations in the athletic world. You need to eat correctly to keep your energy up, get the most out of working exercise, and avoid health concerns in the short and long term. However, athletes often don't follow the best nutritional practices, especially in places where body composition and weight are important, which makes them more likely to develop disordered eating behaviors (Beck et al., 2021; Ebardo et al., 2025).

2.1 How much energy you require and how to keep it in balance

One of the most important ideas in sports nutrition is energy balance. It is the balance between the energy you acquire from food and the energy you use up, which includes your basal metabolic rate, the thermic effect of food, and the energy you burn up while you work out. In athletic populations, it is important to make sure that there is enough energy available for physiological processes after accounting for exercise energy consumption (Hill Gallant & Spiegel, 2017; Mountjoy et al., 2023). This is important for both health and performance.

Low energy availability (LEA), whether intentional or unintentional, is a prevalent concern among athletes and may occur when caloric intake fails to meet the aggregate demands of training and vital physiological processes. LEA has been associated with many adverse consequences, including disruptions in endocrine function (e.g., hypothalamic suppression), impaired bone metabolism, decreased resting metabolic rate, and alterations in cardiovascular and immunological function. Athletes with LEA may have less endurance, less strength, less training responses, and longer recovery times (Mountjoy et al., 2023).

It's crucial to remember that LEA doesn't always lead to visible weight reduction, which might make it tougher to see. Athletes in weight-sensitive sports often purposefully maintain a chronic calorie deficit to achieve a slim physique, hence

increasing their susceptibility to Relative Energy Deficiency in Sport (RED-S). This highlights the need of tracking not just body weight, but also eating habits and physiological signs for determining if someone is getting enough nourishment (Mountjoy et al., 2023; Torstveit et al., 2023).

2.2 Macronutrient Requirements

To meet the metabolic and functional needs of exercise, it's vitally crucial to have the proper number of macronutrients. Carbohydrates are the main source of energy during hard exercise and are needed to maintain muscle glycogen stores full. The availability of carbohydrates is closely linked to how well someone can exercise, especially in sports that need a lot of endurance or short bursts of high intensity. Chronic low carbohydrate intake might result in glycogen depletion, increased perceived exertion, and early fatigue, hence limiting performance capability (Larrosa et al., 2025; Noakes et al., 2026).

Protein is necessary for making new muscle, fixing tissue, and responding to exercise. Athletes generally require increased protein intake relative to non-athletes, particularly during periods of intense training, caloric deficit, or injury recovery. Not consuming enough protein, especially when there isn't enough energy, can lead to a negative nitrogen balance, loss of lean body mass, and slower recovery (Larrosa et al., 2025; Naderi et al., 2025).

Dietary fat is important for keeping cells healthy, improving hormone function, and helping the body absorb fat-soluble vitamins. Athletes who want to lose body fat sometimes cut back on fat in their diets. Very low-fat diets can mess with the balance of hormones, especially sex hormones like testosterone and estrogen, which are crucial for both health and performance in the long run (Ihalainen et al., 2024; Mountjoy et al., 2023).

Athletes who don't eat well often don't get enough of the right macronutrients. Restrictive dietary practices often involve the elimination or substantial reduction of specific macronutrients, particularly carbohydrates and lipids, which exacerbates energy deficiency and negatively impacts physiological function and athletic performance (Fatt, George, Hay, Jeacocke, Day, et al., 2024; Ghazzawi et al., 2024).

2.3 Micronutrients and Water Consumption

Micronutrients are necessary for many bodily activities, including energy metabolism, oxygen transport, antioxidant protection, and keeping bones healthy. Athletes may be more likely to lack micronutrients because they have higher physical demands, eat less, or don't know enough about nutrition. Iron deficiency is a common nutritional problem, especially for female athletes and endurance athletes. Iron is particularly necessary for generating hemoglobin and transporting oxygen around the body. Your aerobic capacity, energy levels, and performance can all go down if you don't receive enough iron (Beck et al., 2021; Pengelly et al., 2025; Solberg & Reikvam, 2023).

Calcium and vitamin D are important for making bones strong and keeping the skeleton healthy. When you don't get enough of these nutrients, especially when you're

tired, your bones may become less dense and more likely to break under stress. This is especially bad for sportsmen like gymnasts and runners who have to deal with mechanical loads over and over again (Knechtle et al., 2021; Nye et al., 2026; Wyatt et al., 2024).

Another crucial thing that determines how well an athlete does is how well they drink. To keep your body temperature stable, your heart healthy, and your muscles working properly, you need to drink the optimum amount of fluids. Losing just 1–2% of your body weight can make it tougher to do things like run long distances, think clearly, and react swiftly. Not drinking enough fluids or drinking too much, on the other hand, might also be hazardous for your health. Athletes with eating disorders may drink water in ways that are not normal, which can make their physical state worse (Beck et al., 2021; Veniamakis et al., 2022).

2.4 Nutritional Practices Pertaining to Sports

An athlete's sport has a huge effect on how they eat because of the specialized needs and cultural norms of that sport. Endurance athletes normally eat more carbs to help them keep running for a long time, while strength and power athletes usually eat more protein to help their muscles grow and heal. When done right, these meal regimens for certain sports usually work effectively (Ebardo et al., 2025; Larrosa et al., 2025).

But in sports that are based on weight, attractiveness, or weight classifications, eating habits can becoming stricter and even dangerous. To reduce weight quickly or keep their body fat percentage low, gymnasts, figure skaters, ballerinas, wrestlers, and bodybuilders commonly do activities. Some of these strategies are highly strict diets, fasting, not drinking enough water, and weight cycling (Ghazzawi et al., 2024; Gorrell et al., 2024).

These habits may become popular in sports over time, making it impossible to identify the difference between good and bad eating habits. This normalization can delay the recognition of disordered eating and increase the chance of progression to clinically severe eating disorders. Also, losing and gaining weight again and over again may be bad for your mental health, your metabolism, and your long-term health (Fatt, George, Hay, Jeacocke, Day, et al., 2024; Torstveit et al., 2023).

3. What Eating Disorders Are and How They Work

Eating disorders are mental illnesses that make it hard to eat, feel good about your body, and regulate your weight. They can have very bad impacts on both your body and your psyche. It can be challenging for athletes to understand the difference between eating habits that are excellent for performance and those that are detrimental for health, as sports often encourage restrictive or compensating strategies. So, it is very important to understand that there is a range of eating disorders that can lead to clinically recognized illnesses (Svenaeus, 2014).

People with anorexia nervosa are highly fearful of gaining weight, think they are overweight, and are very hungry. This can cause big health problems. People with bulimia nervosa eat a lot of food and then do things to make up for it, such vomiting up, not eating, or working out too much. People with binge eating disorder eat too

much food over and over again without doing anything to make up for it, and they often feel bad about it. Athletes frequently exhibit subclinical indicators that may pose significant health risks, including diminished energy availability and hormonal fluctuations. Orthorexia nervosa, characterized by an intense fixation on "healthy eating," has gained prominence in athletic circles, where strict food control may be socially esteemed. Eating disorders in athletes have unique traits influenced by sport-specific requirements, body image perceptions, and performance limitations, necessitating prompt identification and comprehensive assessment (Mountjoy et al., 2023; Svenaeus, 2014).

4. Eating Disorders in Athletes

Eating disorders in athletes represent a considerable clinical and public health concern because to their high frequency, tendency for secrecy, and substantial effects on both performance and health. Although athletes are often perceived as epitomes of health and physical excellence, the sporting milieu may simultaneously cultivate conditions that increase vulnerability to disordered eating and formal eating disorders. The combination of high performance expectations, body image issues, competitive stress, and engrained sports culture produces a unique risk environment where unhealthy eating habits can arise, become normal, and get worse over time (Fatt, George, Hay, Jeacocke, Gotkiewicz, et al., 2024; Ghazzawi et al., 2024).

4.1 The examination of illness dissemination and its incidence among athletes

Evidence consistently indicates that athletes, particularly those in elite or highly competitive environments, exhibit higher incidences of disordered eating and eating disorders relative to non-athletic populations. Nonetheless, prevalence estimates show a lot of variation between studies because of differences in diagnostic criteria, screening instruments, sport classifications, sex distribution, and the distinction between full-threshold diseases and subclinical symptomatology. This variety should not obscure the primary conclusion that eating-related diseases represent a substantial concern in sports and are likely frequently overlooked (Ghazzawi et al., 2024; Sundgot-Borgen et al., 2025).

It seems that the pressure is highest in sports where being thin, having a lean body, or having a certain body shape is linked to higher performance, either directly or indirectly. Some examples are gymnastics, figure skating, diving, and dance, which are all aesthetic sports; wrestling, boxing, judo, and taekwondo, which are all weight-category sports; and endurance sports, where a low body mass may benefit with speed or economy. But the problem goes beyond these groups. Athletes participating in team sports, strength-focused disciplines, and physique-oriented activities may experience significant eating disorders, but with variances in specific symptoms (Burgon et al., 2023; Ghazzawi et al., 2024).

Historically, the study has preferentially focused on female athletes, underscoring the substantial link between thinness-oriented sports and eating disorders. While female athletes remain a high-risk group, it is now clear that male athletes are also considerably affected (Cunningham et al., 2022). In men, however, the clinical

presentation may be less evident, since concerns often emphasize leanness in conjunction with muscularity rather than thinness alone (Klimek et al., 2018). As a result, traditional screening methods may not be able to effectively measure how bad an illness is in male athletes, especially in sports where body composition, weight control, or strict body composition regulation are important (Li et al., 2024; Sundgot-Borgen et al., 2025).

4.2 Why Athletes Are a Group at High Risk

Athletes are at a higher risk not only because they care about their diet and body composition, but also because the way sports are set up can encourage behaviors that are similar to bad eating habits. To do well in a lot of sports, you need to be disciplined, be able to handle pain, manage your body, stick to a schedule, and make sacrifices. These concepts, while advantageous in training contexts, may also foster the internalization of restrictive eating habits, compulsive exercise, and rigorous body surveillance. When coaches, teammates, or fans praise these kinds of gestures, athletes may obtain social support for things that are unhealthy for their bodies (McGee et al., 2025; Torstveit et al., 2023).

The athlete persona can sometimes make things more dangerous. For many competitive athletes, their self-esteem is closely tied to how well they do, how well their bodies work, and how others see them. In this context, body weight or composition might be viewed not just as a health indicator but also as a moral or competitive standard. Small fluctuations in weight can make athletes quite worried, especially if they think these changes could alter their chances of getting picked, the outcome of a competition, or how legitimate they think they are in their sport. This strong feeling of who they are may make athletes more likely to be perfectionists, criticize themselves, and do things that are not healthy to make up for it (Li et al., 2024; Walter et al., 2022).

Another reason for the higher risk is that early indicators may be hidden in order to improve performance. A strict diet can be perceived as discipline, too much exercise can be seen as dedication, and reducing weight quickly might be seen as part of preparing ready for a competition. Consequently, athletes often encounter delayed diagnoses, by which time significant physiological and psychological consequences may already be apparent (Chang et al., 2020; Torstveit et al., 2023).

4.3 Risk Factors Unique to Sports

People often talk about the type of sport that an athlete plays as one of the biggest risk factors. In aesthetic sports, appearance is a part of judging performance, which makes it even more crucial to fit into strict body norms. In these sports, athletes may think that they need to be smaller, have less body fat, or look slender to do well. This makes it simple for people to limit themselves, be unhappy with their bodies, and keep an eye on how they act (Burgon et al., 2023; Li et al., 2024; Talbot, 2025).

In sports with weight classes, athletes often strive to adjust their weight on purpose so they may compete in certain divisions. Extreme methods of losing weight quickly could include excessively cutting calories, not drinking enough water, utilizing a sauna, changing fluids, fasting, working out too much, and other extreme methods. Some of these activities are considered normal, but repeating them can make harmful

relationships with food and body weight seem normal and cause long-term problems with metabolism, mental health, and behavior (Fatt, George, Hay, Jeacocke, Day, et al., 2024; Torstveit et al., 2023).

In endurance sports, a low body mass may be perceived as enhancing movement economy and performance efficiency. As a result, athletes may limit their food choices in order to get the "best racing body," frequently without realizing how long-term low energy availability can affect their bodies. In strength, power, and physique sports, eating disorders may present distinctively, emphasizing muscularity, body definition, and rigorously controlled dietary practices. Even if their condition doesn't fit the usual thinness-based models, these athletes may nonetheless follow stringent diets, binge-restrict cycles, or dramatic body composition changes (Mountjoy et al., 2023; Power & Power, 2024).

4.4 Risk Factors Associated with Personality and Mental Health

Psychological susceptibility has a substantial role in the emergence of eating disorders among athletes. Perfectionism is a frequently cited trait in this literature. Adaptive perfectionism may enhance training consistency and goal achievement; however, maladaptive perfectionism is associated with excessive self-criticism, fear of mistakes, and rigid standards that can significantly impact eating patterns and body management (Arghini, 2025). Athletes who believe they must achieve perfection in all aspects may be predisposed to inadequate nutrition and compulsive compensating behaviors (Walter et al., 2022).

Low self-esteem, body dissatisfaction, trait anxiety, and depressive symptoms have also been correlated. Eating disorders can be a horrible way to deal with emotional distress, uncertainty, losing your sense of self after an accident, or being afraid of losing your ability to perform. Athletes who are going through changes like puberty, moving up or down in competition level, being hurt, retiring, or getting a new coach may be more likely to be affected. These changes often change the athlete's connection with their body shape, control, and self-assessment, which can cause or make eating disorders worse (Walter et al., 2022).

It is essential that psychological risk not be only linked with individual vulnerability or illness. In sports, these traits interact with a broader high-pressure environment that can intensify self-monitoring, comparison, and strict regulation. Consequently, eating disorders in sports must be understood within a biopsychosocial context rather than as isolated individual failures (Lindgreen et al., 2024; Walter et al., 2022).

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4.5 Environmental and Sociocultural Factors

Environmental and societal variables significantly influence the emergence of eating problems among athletes. Coaches, trainers, teammates, judges, parents, and medical staff may all have an effect on how the athlete feels about food and their body (Voelker et al., 2022). Even if they are meant to help someone improve their performance, comments on body size, weight, "fitness," or the ideal body can have a big impact on mental health (Heather et al., 2021). If you always use weight as a sign of being ready or

smart, you might make harmful beliefs stronger and make strict standards seem normal (Walter et al., 2022).

Social media is a greater and bigger part of sports, especially for youths and young people that play sports. People could feel worse about their own bodies and compare themselves to others more if they encounter photographs of fit, powerful, or "perfect" athletic bodies all the time. The rise of online fitness culture, meal policing, and idealized nutrition discourse has made stringent dietary philosophies even more alluring. Athletes may start to think that success depends not just on how well they exercise but also on how well they follow stricter rules about how they should appear and what they should eat (Cereda, 2023).

The team's culture also has an effect on risk. In environments where athletes sense psychological safety, support, and admiration beyond superficial attributes, harmful behaviors may be recognized earlier and confronted more openly. In societies that are harsh or focused on appearances, athletes may hide their symptoms, deny their distress, and keep doing activities that aren't good for them because they are frightened of being judged, left out, or having less chances to play (Talbot, 2025).

4.6 Relative Energy Deficiency in Sport (RED-S)

The Relative Energy Deficiency in Sport (RED-S) model has significantly enhanced our comprehension of eating disorders in sports. RED-S is a general term for a condition that develops when a person doesn't have the energy to accomplish the exercise and fundamental physiological functions they need to do. This approach draws on the conventional Female Athlete Triad, but it goes further by acknowledging that low energy availability can affect many systems and happen to athletes of any sex (Mountjoy et al., 2023).

At the physiological level, RED-S is associated with disturbances in endocrine, metabolic, reproductive, cardiovascular, gastrointestinal, hematological, immunological, and skeletal functioning. In female athletes, inadequate energy availability may result in monthly irregularities, ranging from modest hormonal fluctuations to amenorrhea. In male athletes, the suppression of reproductive hormones may occur, but it has historically received less attention. decreased bone growth and decreased bone mineral density are especially concerning since they make people more susceptible to acquire stress fractures and could cause long-term problems with the skeleton if not treated quickly once (Grabia et al., 2024; Ihalainen et al., 2024; Mountjoy et al., 2023).

The therapeutic importance of RED-S is mostly due to its gradual onset. Even when their bodies get worse, athletes can keep training and competing. People may think that too much exercise or stress is to blame for symptoms like feeling fatigued, mood swings, getting sick a lot, not getting better quickly, or not doing well at work. In reality, these symptoms are caused by not getting enough nutrients. If the assessment merely looks at how slim someone looks, it might not notice that they don't have enough energy because their weight might not change in some cases (Bailly et al., 2025; Mountjoy et al., 2023).

4.7 How it affects how well you do in sports

Eating problems and a lack of energy can both damage performance right away and over time. In the short term, not having enough energy and nutrients can make it difficult to concentrate, slow down reaction time, make neuromuscular coordination weaker, and make training and competition feel harder. Athletes may feel tired early on, have less stamina, have trouble meeting typical training goals, or have trouble meeting their strength goals (Hänisch et al., 2025; Mountjoy et al., 2023; Nolte et al., 2025).

Not receiving enough nutrients on a daily basis makes it tougher to get used to exercise over time. It takes longer to recover, the risk of injury rises raised, and the athlete may get locked in a cycle of not doing well and overcontrolling (Benítez-Agudelo et al., 2025). The decline in performance capability is due to a combination of factors, including decreased muscle protein synthesis, hormonal imbalance, poor sleep quality, mental instability, and weakened immune function. It's funny how habits that were first utilized to improve performance sometimes end up making it worse (Lu et al., 2026).

This discrepancy is important for figuring out why athletes suffer eating disorders. Many athletes believe that greater food control, weight loss, or increased exercise will enhance their performance in competitions. Short-term weight adjustments may seem advantageous at times, but long-term physiological compromise almost always hampers consistency, resilience, flexibility, and long-term professional growth (Hauser et al., 2025).

4.8 Health Effects That Go Beyond How Well You Do

People often notice how eating disorders influence their performance in sports first, but the health repercussions are significantly worse. Long-term malnutrition and behaviors that try to make up for it may affect the health of the heart, the ability to have children, the health of the digestive system, the strength of the bones, the brain's ability to think, and mental health. Athletes may experience recurrent injuries, chronic fatigue, vertigo, impaired concentration, mood disturbances, and heightened vulnerability to anxiety and depression (Grabia et al., 2024; Kussman & Choo, 2024).

The mental ramifications are equally as awful. People who are sports and have eating disorders often feel guilty, humiliated, secretive, irritated, and like they want to be alone. Their connections with food and exercise also get worse. In very bad situations, an athlete's whole life may revolve about regulating their nutrition and body shape. This can be very bad for their mental and social health. If not handled properly, this stress can endure longer than active competition and even after retirement (Svenaeus, 2014).

4.9 Issues with Clinical Recognition in Athletes

One of the main challenges in this field is that many athletes with eating disorders don't get diagnosed. People sometimes think that athletes are healthy and that it's okay to use restricted and compensatory methods in some sports, which might make it tougher to see symptoms. Also, athletes may conceal their symptoms because they

think they are important for success or because they are afraid of being stigmatized, left out, or losing their competitive edge (Hoogenboom et al., 2025; Walter et al., 2022).

Clinicians who work with athletes need to be very careful, especially in sports where looks or weight are very important. You should get looked out more attentively if you keep getting hurt, have irregular periods, gain or lose weight, feel tired all the time, have mood swings, stomach problems, or worry too much about food or your body. To spot eating disorders in athletes, you need to know that they don't always show up in obvious ways, like talking about their mental health. Instead, they often show up in language about performance, discipline, and optimization (Rinaldi et al., 2025; Torstveit et al., 2023).

5. Assessment and Diagnosis

It is vital to utilize a sophisticated and thorough approach when screening and diagnosing eating disorders among athletes because of the unique needs and cultural norms of sports. In many sports, strict rules on nutrition, weight monitoring, and higher training intensity are often seen as necessary for optimal performance. But these habits could happen at the same time as or hide unhealthy eating habits, making it harder to spot them early. Because of this, doctors need to be careful when grading athletes and not make dangerous habits look typical (Hoogenboom et al., 2025).

The first step in detecting people who are at risk is screening. The Eating Attitudes Test (EAT-26) and the SCOFF questionnaire are two tools that are commonly used because they are simple to administer and have good psychometric properties. The EAT-26 asks about dieting practices, bulimic inclinations, and worries about food. The SCOFF questionnaire, on the other hand, quickly checks for five major eating disorder symptoms (Coop et al., 2024; Papini et al., 2022). These tools are usually used for screening, not for diagnosis, even if they can be helpful. Always look at the outcomes in the bigger picture of the clinical setting (Hoogenboom et al., 2025).

For an accurate diagnosis, a full clinical evaluation is needed. The first step in this process should be to get a full medical history. This should include any patterns of weight loss or growth, periods that don't happen regularly (such as amenorrhea), recurrent injuries, and long-term tiredness. These indicators could imply that your metabolism or energy levels are off. A nutritional assessment should also look at factors like how many calories you eat, how you spread out your macronutrients, any micronutrient deficiencies, and any restricted eating habits. Athletes may have diets that look "structured," but when you look more closely, you can see that they are very limited or unbalanced (Lis & Strobel, 2026).

The psychological evaluation is equally important as it examines the cognitive and emotional mechanisms behind disordered eating. Some of the things that many athletes who are impacted have in common are perfectionism, worry about how well they do, low self-esteem, and not being happy with their body. Additionally, compulsive workout behaviors and a rigid relationship with food may indicate an underlying illness. These psychological factors are crucial, as they often sustain

disordered eating behaviors despite the treatment of physical symptoms (Svenaeus, 2014; Walter et al., 2022).

The physical examination provides objective evidence of physiological dysfunction. Healthcare personnel should assess body composition, vital signs (including bradycardia and hypotension), hydration status, and visible symptoms of malnutrition. The Female Athlete Triad and Relative Energy Deficiency in Sport (RED-S) are two conditions that athletes should pay close attention to since they indicate how inadequate energy availability can influence the overall body (Fortuna et al., 2025).

Laboratory testing find problems inside the body that doctors can't see in the office. These may include tests of hormones (including estrogen, testosterone, and thyroid function), electrolyte levels, and signs of nutritional status (such iron, vitamin D, and vitamin B12). A DXA scan is a common way to measure bone mineral density. This is especially important for athletes who have been short on energy for a long time since it can help discover early signs of osteopenia or osteoporosis (Fortuna et al., 2025; Nye et al., 2026; Wyatt et al., 2024).

Eating disorders are quite complicated, thus merely one doctor shouldn't be able to tell if someone has one. Instead, a group of professionals from other professions, like doctors, sports nutritionists, psychologists, and, if needed, coaches, is needed. This collaborative approach makes sure that both the physical and mental parts of the problem are looked at, which leads to a more accurate diagnosis and better treatment planning (Schulz et al., 2025).

Figure 1. A multidisciplinary assessment framework demonstrating a structured approach that begins with screening tools, followed by comprehensive clinical evaluation (including medical history, dietary assessment, psychological evaluation, and physical examination), laboratory testing, team-based review, and final diagnosis.

6. Ways to stop and help

We need a proactive, disciplined, and interdisciplinary approach that puts both performance and long-term health first in order to stop and treat eating disorders in athletes. Because athletes work in intensely competitive environments where body image and performance are closely related, efforts to address problems must look at both individual acts and the greater sports culture (Mountjoy et al., 2023; Torstveit et al., 2023).

A big aspect of prevention is education. It's simpler to find and deal with early warning signs rapidly when players, coaches, and support personnel are more informed. Educational programs should focus on helping people understand nutrition as a whole, with an emphasis on the fact that getting enough energy is important for both performance and recuperation. These programs should also work against harmful attitudes about body image and the "ideal" body type, which are often reinforced in some sports (Torstveit et al., 2023).

Nutrition is a crucial part of both stopping and treating. The main goal is to restore the energy balance to normal and keep it that way. This entails making sure that athletes get enough calories to fuel their training and keep their bodies working normally. Sports dietitians who are trained should design tailored meal plans for each athlete that take into account their sport, how hard they train, their body composition goals, and what they want to eat. These plans must also deal with bad eating behaviors, such skipping meals or not eating enough, while gently developing a healthy relationship with food(DeJong Lempke et al., 2025; Mountjoy et al., 2023; Tarocchi et al., 2024).

Psychological therapy are crucial, as eating disorders are deeply rooted in cognitive and emotional processes. Cognitive-Behavioral treatment (CBT) is a well-known and effective type of treatment, notably for dealing with unhealthy thought patterns related to body image, perfectionism, and control. Interventions may also address comorbid conditions, such as anxiety and depression, that frequently accompany eating disorders (Turner, 2025). Long-term rehabilitation often focuses on changing these basic psychological factors instead of only treating physical symptoms (Xiong et al., 2025).

From a business point of view, it's necessary to make the sports environment helpful. Athletes' thoughts and actions are greatly affected by coaches and sports groups. It is much less likely that someone will develop an eating disorder if they focus on their performance, skill advancement, and overall health instead of their weight or looks. It is also vital to make clear regulations that stop people from reducing weight in hazardous ways and promote safe food and exercising habits (Pineda et al., 2024).

Early intervention leads to better results, which shows how important it is to keep an eye on things and act quickly when you see warning signs. Ongoing follow-up makes it possible to change both nutritional and psychological techniques, which helps healing last. The most effective method to halt and address eating disorders in athletes is through a coordinated, multidisciplinary approach that encompasses medical, nutritional, and psychological interventions (Schulz et al., 2025; Torstveit et al., 2023).

Figure 2. Prevention and Intervention Model

Figure 2. Prevention and intervention model illustrating a stepwise approach from education and early screening to integrated nutritional and psychological interventions, leading to a supportive sport environment and long-term recovery and performance optimization.

CONCLUSION

Eating disorders and improper eating habits are a huge problem in sports since they are terrible for your health now and in the future. Athletes are more likely to find themselves in these situations because of a mix of their mental qualities, social conditions, and needs particular to their sport. Low energy availability and the overarching notion of Relative Energy Deficiency in Sport (RED-S) exemplify the intricate consequences of insufficient nutrition on the body.

To stop the problem from getting worse and to lessen its bad impacts, it is important to find it early, appropriately analyze it, and use a multidisciplinary approach. It is crucial to promote good eating habits based on facts and build supportive sports settings that place health before looks in order to aid athletes with eating problems.

Kısaltmalar / Abbreviations

RED-S : Relative Energy Deficiency in Sport / Sporda Göreceli Enerji Yetersizliği
LEA : Low Energy Availability / Düşük Enerji Kullanılabilirliği
EAT-26 : Eating Attitudes Test-26 / Yeme Tutum Testi-26
SCOFF : SCOFF Questionnaire / SCOFF Anketi
DXA : Dual-Energy X-Ray Absorptiometry / Çift Enerjili X-Işını Absorpsiyometrisi
CBT : Cognitive-Behavioral Therapy / Bilişsel Davranışçı Terapi

Beyanlar / Declarations

Etik Onay ve Katılım Onayı / Ethics approval and consent to participate

Bu çalışmanın hazırlanma ve yazım sürecinde "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında bilimsel, etik ve alıntı kurallarına uyulmuş olup; toplanan veriler üzerinde herhangi bir tahrifat yapılmamış ve bu çalışma herhangi başka bir akademik yayın ortamına değerlendirme için gönderilmemiştir. Makale ile ilgili doğabilecek her türlü ihlallerde sorumluluk yazara aittir.

During the preparation and writing of this study, scientific, ethical and citation rules were followed in accordance with the 'Higher Education Institutions Scientific Research and Publication Ethics Guidelines'; no alterations were made to the collected data, and this study has not been submitted for evaluation to any other academic publication medium. The author is solely responsible for any violations that may arise in connection with this article. The study was conducted in accordance with the Declaration of Helsinki.

Veri Ve Materyal Erişilebilirliği / Availability of data and material

Bu çalışmanın bulgularını destekleyen veriler, makul talepler üzerine sorumlu yazardan temin edilebilir. Veri seti yalnızca akademik amaçlar için erişilebilir olacak ve verilerin herhangi bir kullanımı, orijinal çalışmayı referans gösterecek ve katılımcıların gizliliğini koruyacaktır.

The data that support the findings of this study are available from the corresponding author upon reasonable request. The dataset will be accessible only for academic purposes, and any use of the data will recognize the original study and maintain the confdentiality of the participants.

Çıkar Çatışması / Competing interests

Yazarlar, bu makalede sunulan çalışmayı etkileyebilecek herhangi bir çıkar çatışması veya kişisel ilişkiye sahip olmadıklarını beyan etmektedirler.

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Yazar Katkıları / Authors' Contribution Statement

Çalışmanın tasarımı ve planlanması: T.Ö.; Literatür taraması, analizi ve yorumlanması: T.Ö.; Makalenin yazımı: T.Ö.; Yazım – özgün taslak, yazım – gözden geçirme ve düzenleme: T.Ö. Yazar, çalışmanın tüm aşamalarını gerçekleştirmiş, makalenin son halini gözden geçirerek onaylamıştır.
Design and planning of the study: T.Ö.; Literature review, analysis and interpretation: T.Ö.; Manuscript preparation: T.Ö.; Writing – original draft, writing – review and editing: T.Ö. The author carried out all stages of the study and reviewed and approved the final version of the manuscript.

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