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# Mental health challenges faced by professional athletes

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## ABSTRACT

**Background:** Sport psychiatry is a dynamic and constantly developing discipline of medicine. Professional athletes may experience a variety of mental health problems that influence their everyday life and sport performance. Therefore, the potential risk factors for developing mental disease should be known to coaches and physicians to provide adequate help for athletes.

**Materials and methods:** We reviewed publications obtained from PubMed and Google Scholar. Articles were selected on the basis of keywords such as “sport psychiatry”, “mental health in athletes”, and “depression in professional sport”. For the final analysis, the eligible articles were published from 2015--2024.

**Results:** The prevalence of mental disorders varied across the analyzed studies. The presence of symptoms depends on the type of sport performed by the individual, past history of psychiatric diseases or sex. Additionally, studies have used different types of evaluation tools, which may influence the results.

**Conclusions:** Mental health diseases are present in this group, in some cases more frequently than in the general population. Professional athletes should be watched carefully for the potential development of psychiatric symptoms, especially in the most vulnerable groups. There is also a need for further studies with validated athlete research tools for more reliable results.

**Keywords:** athletes, professional sport, mental health conditions, sport psychiatry

## INTRODUCTION

Sports performed above average or professional levels are highly demanding for athletes. The main reason for this is stress caused by the high expectations they face from coaches, fans and sponsors. Moreover, most professional athletes are being observed by the public eye, such as celebrities, who are even more stressed. Meeting criticism and hate while having a hard time in sport performance can affect mental health problems. Depending on the type of physical activity, athletes can face different struggles. For example, sports focused on a certain weight can cause a high prevalence of eating disorders [1]. They might experience a variety of mental health issues at rates that are at least as high as those in the general population [2]. All kinds of sports athletes are prone to burnout and drug abuse, which have serious consequences. Moreover, athletes tend to minimize signs of mental issues because they think it might be seen as a sign of weakness. They focus mostly on the effects of their training, scores and sport performance, leading to the neglect of mental health. The physical form often prioritizes mental

condition, forgetting the fact that it is as important as the physical ability to perform at the highest level. The athlete's surroundings should pay attention to the signs of mental problems and be ready to help them.

The studied population also has unique factors that make them prone to poor mental conditions, such as injuries, which can lead to the abrupt end of their career and require a change in plans for the future. These sudden and unexpected changes can cause mental problems such as depression, drug abuse and anxiety. Additionally, they might experience feelings of loneliness and misunderstanding and distance from friends and family, which makes them even more vulnerable to mental issues. The rapid development of sports psychiatry and psychology provides an opportunity to help those who need professional assistance. Research on different groups of athletes is increasing our knowledge about possible threats and treatment methods. Additionally, they investigated which personal traits are at high risk of developing mental health conditions in athletes. These findings can be useful in the early isolation and prevention of mental diseases in more vulnerable people.

The mental health conditions of athletes tend to be a serious health concern, given that a professional sports career path is increasingly being chosen by young people who are more vulnerable than adults are. In this work, we investigate the prevalence of mental health conditions in athletes, the potential factors contributing to mental illness in this group and future investigations that should be performed to improve the existing knowledge.

## **MATERIALS AND METHODS**

Search tools such as PubMed and the Google Scholar browser were scanned by each author separately. The following keyword combinations were used: “professional athletes”, “mental health conditions”, “anxiety”, “depression”, “eating disorders”, “ED”, “professional sport”, “sports medicine”, and “sports psychiatry”. The authors also checked the bibliography of the analyzed articles in terms of related research. When duplicate reports were observed during the search, only the most complete report was included in the analysis. Eligible studies met the following inclusion criteria: 1) were published since 2015; 2) were published in English, Polish or Spanish; 3) were published in periodical publication; 4) focused on the mental health problems of professional athletes; 5) provided a clear presentation of the applied methodology; and 6) applied proper methodology. Parameters such as the selection of research groups, group comparability, and determination of the exposure or outcome of interest in case–control studies or cohort studies, as appropriate, were assessed.

## **RESULTS**

For the best presentation of the results, we present the analyzed articles in the following sections, emphasizing the important conclusions from their results.

### **Eating disorders**

Eating disorders (EDs) are a wide group of mental illnesses, including anorexia nervosa, bulimia, and food overconsumption. Current studies have shown high mortality rates of individuals with eating disorders [3]. Moreover, even patients during treatment have higher mortality rates than controls do. Another factor is that quality of life is reduced in the sick population. Given the high prevalence of medical conditions in the studied group, anorexia nervosa is an eating disorder characterized by restricted energy intake compared with the body's needs, resulting in significantly low body weight [4]. It can be achieved by a sick person by reducing food portions, excessive training or other methods, such as excessive intake of laxatives. Patients experience intense fear of gaining weight, a distorted body image, and an inability to recognize the severity of their significantly low body weight [4]. Another eating disorder that we investigate in our article is bulimia nervosa, a mental health condition that occurs four times more often than anorexia nervosa and is characterized by episodes of binge eating followed by compensatory purging behaviors such as self-induced vomiting and the misuse of diuretics, laxatives, or insulin [5]. All EDs have a destructive influence on both the everyday life of athletes and sport performance.

In the general population, females have a higher prevalence of ED than males do [6]. Nevertheless, eating disorders are more common among male athletes than among male nonathletes [7]. The fact is that, very often, male athletes are not being diagnosed with eating disorders, so the statistics may be underestimated, and the problem might be even more serious. In the masculinized environment of sports, eating disorders are seen as famine and are not welcomed by males. Signaling symptoms can be seen as a sign of weakness. Moreover, coaches in sports focus on a certain weight, such as boxing, figure skating and wrestling, etc., which might encourage athletes to engage in unhealthy behavior due to the strict rules in those sports [8]. In 2021, Vela et al. attempted to assess the prevalence of EDs among male team sports players, such as football, volleyball, and rugby players. Among the 124 participants, 18.5% met the criteria for a clinical picture of an eating disorder [9]. In a group of Spanish elite athletes, Teixidor-Batlle et al. reported high rates of ED symptoms, with peak rates in females training esthetic sports and males performing endurance sports [10]. For the males in this study, the presence of ED symptoms correlated with the greater pressure they felt due to the uniforms. In females, the presence of symptoms of eating disorders is correlated with the pressure of coaches in esthetic sports. Additionally, in endurance sports, females feel pressure from their teammates and due to the uniforms, which leads them to experience ED symptoms. These findings confirm the multiple mechanisms underlying the development of mental health problems in professional athletes.

In 2023, Oevrebore et al. conducted an interesting study in the population of Norwegian elite athletes [11]. Members of the studied group were asked to complete self-reported psychiatric questionnaires to assess their symptoms of mental disorders. Later, the scientists conducted diagnostic interviews with athletes who were “at-risk scores”, which means that they supposedly could have had a mental illness. Among the whole group of 378 athletes, 280 were “at risk”, and after the final check, 47 athletes (44.3%) were diagnosed with a mental disorder. The most common issues were sleep problems and obsessive–compulsive disorder (OCD), followed by anxiety and eating disorders. In the general population, the global lifetime prevalence of any eating disorder is estimated to range from 0.74–2.2% in males and 2.58–8.4% in females [12]. In the present study, 6 females were diagnosed with ED. In the final evaluation, 106 athletes completed the diagnostic interview, resulting in a 5.7% prevalence of ED. More participants had significantly more points and higher “at-risk scores” on the Eating Disorder Examination Questionnaire-Short than did the controls. Unfortunately, not all of the athletes agreed to participate in all of the stages of the conducted study; therefore, the results might not have been accurate. Nevertheless, it highlights the importance of regularly checking athletes to prevent the development of all kinds of eating disorders.

Another study supporting findings observed in the studies cited above was performed in the United Kingdom. In 2021, Sharps et al. [13] examined 112 female athletes who participate in sports at different levels (recreational n=68, competitive n=35 or professional n=9). They used a validated screening tool to identify eating pathology in female athletes. The results revealed that the risk of clinical ED was greater in the competitive athletes than in the recreational athletes. Another example of a high prevalence of EDs in the studied population.

## **Depression**

Depression is one of the most common mental health conditions in the human population. According to the World Health Organization (WHO), depression is the second leading cause of disability worldwide [14]. The main symptoms of depression are a depressed mood, reduced interest in activities, impaired cognitive function, and physical symptoms such as disrupted sleep or appetite present for more than two weeks [15]. Patients suffering from depression may experience poor quality of life, neglect of their interests and struggles in their everyday life. Severe consequences of depression, such as suicide attempts, may lead to disability or death. There are many depression treatment methods, such as pharmacotherapy, psychotherapy or electroconvulsive therapy (ECT). The recovery process is long and focuses, after the acute phase, on maintaining remission and preventing further development of the illness [14].

The reported prevalence of depression in the general population varies significantly in the current evidence. The lifetime prevalence of depression is estimated to range from 20% to 25% in females and from 7% to 12% in males [16]. With respect to athletes, studies have shown that the prevalence of depression may vary depending on the studied population. An original study conducted in 2016 by Hammond et al. revealed that up to 34% of elite-level athletes exhibited symptoms consistent with a depressive episode following a clinical interview based on DSM-IV criteria [17]. In this study, researchers attempted to investigate the connection between failed performance and depression in athletes. In this population, there are specific factors that may cause depressive symptoms. Facing high expectations and failures in competitions might be challenging for athletes and result in depression development. In the study mentioned above, the researchers evaluated 28 male and 22 female Canadian swimmers competing at the national level or higher. The evaluation included psychological tests for past and current depressive symptoms. After the swimming trials, the athletes were assessed one more time. They were also asked to provide self-reports regarding their depressive symptoms. In the top 25% of the athletes, a significant relationship was observed between regression in swimming performance and current depression. A past history of depression was not correlated with current depression. Moreover, more females than males in this study experienced depression symptoms more frequently.

In 2020, Nicholls et al. presented the results of a study assessing symptoms of depression in professional rugby players from the United Kingdom [18]. A relatively large sample (n=233) of athletes were examined with the HADS and SWEMWBS in 2018 and 2019. The results revealed that 11.6% of the players had mild depressive symptoms, and 2.6% reported severe symptoms according to the HADS. More participants than the general population of the United Kingdom suffer from mild depressive symptoms. Moreover, 35.2% of the examined players scored “below average” on the SWEMWBS scale for assessing psychological well-being. This suggests that not only may depression appear in athletes but also that they might experience different mental struggles that do not meet the criteria for the disease.

Some studies support the thesis that depression occurs in athletes with the same frequency as in the general population. In 2016, in Switzerland, Junge and Feddermann-Demont examined 432 top football players from their country with the CES-D scale for depression [19]. They reported that 13% of female players and 9% of male players presented depression symptoms, which are similar ratios to those reported in the general population. However, in the studied group, there were also younger players from the male U-21 League who had a 15.1% prevalence of depression, which was significantly greater than that reported by their nonathletic peers and older colleagues. The young age of the players might have influenced the development of this illness. This should be noted and encouraged to look closely at young athletes if they develop any symptoms.

Very interesting conclusions come from a study conducted among elite rugby players from Australia. In 2015, Du Preez et al. reported the prevalence of depression, anxiety and alcohol use in this group of athletes [20]. For depression, they used the Patient Health Questionnaire (PHQ)-9 scale based on the DSM-V criteria. In the first stage (preseason), 404 surveys were returned, and in the second stage (in-season), 278 surveys were taken into the study. The prevalence of depressive symptoms ranged from 10.1% to 12.6%. This range is lower than the prevalence in the general population of Australia, which is 18.4% for the age group similar to the surveyed players. In the present study, a history of mental illness was found to increase the likelihood of depressive symptoms, with odds being up to 22 times greater during the season. These findings indicate that athletes with previous psychiatric history should be watched carefully by coaches and physicians to detect the first symptoms of mental illness. Unfortunately, the study revealed a significant difference in the number of surveys received before the season compared with those collected during the season. Additionally, researchers estimated that approximately 50% of players participated in completing the surveys (56.9% preseason and 40.4% in-season). Therefore, further studies are needed.

## Anxiety

Some of the studies described above also assessed the prevalence of anxiety among the studied population. There are also other studies that have investigated this topic, and the results seem to be very interesting. Anxiety disorders are a group of psychiatric diseases with common symptoms, including inexplicable fear, feelings of worry, panic attacks and avoidance behaviors [21]. The most common conditions in this group include generalized anxiety disorder (6.2% lifetime prevalence), social anxiety disorder (13% lifetime prevalence), and panic disorder (5.2% lifetime prevalence) with or without agoraphobia, but many more [21]. Generalized anxiety disorder (GAD) is a mental and behavioral condition characterized by excessive, uncontrollable, and often unwarranted worry about various situations [22]. Symptoms of anxiety impair the life of a sick person and lower their quality of life. In athletes, symptoms might have a negative influence on sport performance.

In the study presented above, which was conducted in 2020 in the UK, researchers, in addition to the prevalence of depression, also assessed the prevalence of anxiety among professional rugby players from the United Kingdom. Using the HADS scale, they screened the studied population for anxiety symptoms. The results revealed that 18.9% of players experienced mild anxiety symptoms [18]. Compared with the general population at the same age, the rate is significantly greater (in the 25--29 age group, 13.8%, and in the 30--34 age group, 12.7% for the general population). However, moderate or severe anxiety symptoms were observed in 13.7% of the players, which is similar to the percentage reported in the general population (13.8% for the 25--29-year-old group and 15.6% for the general population aged 30--34 years). The authors suggested examining whether individuals with a high level of anxiety symptoms leave professional sports due to their condition. This topic needs further research.

In the study performed by Du Preez et al. in 2015 among elite rugby players from Australia described in detail in the paragraph above, the researchers screened the studied population for anxiety symptoms. They used the GAD-7 scale, which is based on the DSM-V criteria, for diagnosing generalized anxiety disorder. They reported that anxiety symptoms occur more frequently among players than in the general population. In the general population, approximately 5% of people are estimated to suffer from anxiety. In the studied population, it was found to be between 10.1% and 14.6% [20]. In this analysis, scientists did not divide anxiety symptoms into mild/moderate/severe levels. Therefore, it is difficult to compare this study with the previous study.

The results concerning the prevalence of anxiety in athletes are not consistent. Other studies have shown that anxiety is less common in professional players than in the general population. For example, in a group of Swiss football players, anxiety symptoms occurred in only 1.4% of them, which is a significantly lower percentage than in the general population [19]. Similar results were achieved when the populations of male and female field hockey players in German first and lower leagues were studied. Junge et al. screened 187 athletes with the GAD-7 scale and reported that only one female and no males presented symptoms of GAD [23]. They also reported that athletes who participated in more matches during the season scored higher on the GAD-7 scale. In Norwegian athletes, anxiety symptoms occur in 6.6% of the studied population [11]. There is a significant difference in the results; therefore, this difference needs to be further investigated.

## DISCUSSION

The observed difference in the prevalence of psychiatric diseases among professional athletes may be due to a few circumstances. First, the type of sport performed by a studied population may influence susceptibility to mental disorders. Different types of sports value different personality traits, which is why the prevalence of mental disorders may vary depending on the discipline practiced. Research conducted by Pluhar et al. revealed that individual sport athletes had a greater prevalence of anxiety or depression than athletes performing team sports did. Thirteen percent of individual athletes reported anxiety or depression, and only 7% of the team players reported anxiety or depression. Additionally, individual sport athletes experienced greater pressure and reported performing their discipline for goal-oriented reasons, whereas team players more frequently stated that they do so

for fun [24]. Second, researchers obtained varying results depending on the psychiatric assessment scales used for the studied population. Scientists have used multiple evaluation tools for depression, such as the PHQ-9 scale, the CES-D scale, and psychological tests run by professionals on the basis of the DMS-IV criteria, HADS questionnaire or SWEMWBS scale. A similar issue also emerged in the analyzed studies on anxiety. Scientists have used the HADS scale and the GAD-7 scale, among others. None of them were validated for use with athletes. The use of a variety of research tools makes it difficult to compare the results of these studies. All of these scales have their own sensitivity and specificity in the detection of mental illnesses. Therefore, further studies should be conducted with appropriate screening tools. Finally, the nationalities of the participants in the studies and the societies in which they lived might have influenced the outcomes of the studies. Strong masculinity norms in society can cause shame among athletes suffering from mental illnesses. In addition, the stigma surrounding mental illnesses among athletes, both male and female, might lead them to the denial of the problem. In the study described above, which was conducted among German field hockey players, twenty of the athletes had depression symptoms, but only four of them received adequate psychiatric help [23]. The fact that so few of them seek professional help is concerning. There are also other mental issues that may affect athletes, such as drug or alcohol abuse, OCD or sleeping problems, which need closer investigation.

Notably, practicing sports on average by the general population is highly beneficial for mental health. As noted in the large meta-analysis from 2022, adults exercising for half of the recommended amount of physical activity had an 18% lower risk of depression than those who had not engaged in sport activity [25]. However, the level of performed sport is crucial in achieving positive or negative effects.

## **CONCLUSIONS**

In the present analysis of mental health conditions among professional athletes, we described a variety of issues that this group might experience. It seems that mental health diseases are present in this group, in some cases more frequently than in the general population. The described differences in the prevalence of psychiatric symptoms might be due to a few factors explained in the discussion. Nevertheless, medical professionals, coaches and members of sport teams should be aware of the risk of mental illness in athletes. In particular, more vulnerable persons, such as young players, females or patients with a psychiatric history, should be watched carefully for potential “red flags”. Further studies with large study groups and validated athlete research tools should be conducted in the future for more reliable results. These studies could also be used for the development of potential prevention methods and adequate treatment for this group.

### **Author's contribution**

Conceptualization, D.S., and K.S.; methodology, A.B.; software, M.W.; check, M.W.; formal analysis, D.S.; investigation, A.B.; resources, K.S.; data curation, D.S.; writing - rough preparation, K.S.; writing - review and editing, M.B.; visualization, A.B.; supervision, K.S.; project administration, D.S.; receiving funding – no funding was received.

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In preparing this work, the authors used Curie for the purpose of checking language accuracy. After using this tool, the authors reviewed and edited the content as needed and accept full responsibility for the substantive content of the publication.

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