

**PREVALENCE OF TRAIT ANXIETY AND ANXIETY DISORDERS
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An analysis of modern research on the problem of trait anxiety and anxiety disorders in athletes was conducted. In particular, it concerned the identification of the general picture of the prevalence of trait anxiety and anxiety disorders in athletes of different sports, the severity of anxiety symptoms in athletes of different ages, different genders, depending on different situations. Anxiety among a number of psychological personality traits is important in sports, often occurs against the background of stressful situations that accompany the activities of the athlete, especially professional ones. There were marked general trends and differences in the study of anxiety in athletes from different countries. Often on the background of average indicators of anxiety or depression, there are individual participants who have high rates indicators. This indicates the need for an individual approach to research of the problem and provide psychological assistance to the athletes. There is very little information about the results of athletes seeking help from specialists. This is often hindered by low level of education among athletes, complexes and stereotypes. Therefore, it is vital that the athlete has access to a mental health professional to solve the problems. Athletes' mental health should be well maintained at the state level. There is a very little data in literature on the detection of such consequence of anxiety disorder in athletes as panic attacks. It is important to study the clinical and dynamic features of anxiety disorders, including panic attacks, taking into account the nosological affiliation, as well as the development of a set of modern differentiated treatment and rehabilitation programs, the use of appropriate preventive and supportive measures.

Key words: trait anxiety, anxiety disorders, mental health, athletes.

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Introduction. The success of athletes of different ages, both genders, different types of sports depends on physical, technical and tactical training, physiological condition at the time of competition, and psychological state [1, 2]. Anxiety among a number of psychological personality traits is important in sports activities. Anxiety often occurs against the background of stressful situations that accompany the activities of the athlete. This applies, for example, to the athlete's anticipation of the upcoming competition and participation in the competitive process itself. Athletes' anxiety is caused by the presence of rivals, spectators or judges, anticipation

of results, memories of previous failures, as well as the risk of injury or memories of pain from previous injuries. Sports activities are characterized by the presence not only psychological tension but also anxiety in athletes. In the world literature on psychology, anxiety began to be analyzed in 1927 [2, 3].

Anxiety is a universal adaptive response of the body to stimuli that potentially pose a threat or are new to the subject. Anxiety is a negative emotion associated with feelings of uncertainty, anticipation of negative events, unpleasant anticipation. This reaction is designed to mobilize the body's main reserves through the activation of the hypothalamic-pituitary-adrenal system in order to respond most quickly to changing environmental conditions and avoid danger [4].

Trait anxiety is an individual feature of a person, a tendency to experience emotional excitement, a character trait manifested by a tendency to excessive excitement, a state of anxiety in situations that threaten, in the opinion of this person, trouble, failure, frustration.

There are several types of pathological anxiety: generalized anxiety disorder, obsessive-compulsive disorder, post-traumatic stress disorder, various phobias, including sociophobia, hypochondria, children's anxiety due to separation from parents. Anxiety participates in the mechanisms of self-regulation, promotes the mobilization of mental reserves and stimulates the search activity of the athlete. Research by a number of well-known scientists, such as Bakeyev V.A., Vilyunas V.K., Zabrodin Y.M., Levitov N.D., Melnichenko O.G., Eisenk H., Kettell R., Levitt E., Maurer O., Spielberger C., Taylor J., Olshannikova A.E., Patsevichus I.V., Maddison and Prapavessis, Hägglund, Östenberg and Roos, Williams and Andersen's, Junge, Hinz and Brähler, Krasnokutsky M.I. is devoted to anxiety problems.

With excessive stressful situations, painful conditions, the presence of severe injuries and other causes, the adaptive response of anxiety can turn into one of the types of psychiatric pathology – anxiety disorder. Increased anxiety is a negative characteristic of personality and adversely affects human life. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM) -5, anxiety disorder is a condition that includes excessive fear, anxiety, and related behavioral disorders (Bhatt N.V., Baker M.J., Jain V.B, 2019). This group of pathologies includes various types of disorders, among which a significant place is occupied by panic disorder (Bodrov V.A, Kalinin E.O., Nikitina O.S., Spielberger C., Vyatkin B.A., Zakharov A.I., Makshantseva L.V., Prikhozhan A.M., Prokhorov A.O., Gabdreeva G.Sh., Morgan U., Sarazon J., Taylor J. etc.). Research problems of domestic scientists such as Lebedev D.V., Kuflievsky A.S., Mordyushenko S.M., Myronets S.M., Polyakov I.O., Ryadinskaya E.M., Snisarenko A.G., Timchenko O.V. are also devoted to the problems of anxiety in sports.

Most mental health studies of active athletes have focused on depression, and few have studied anxiety, eating disorders, alcohol abuse, or nonspecific mental health problems such as distress and burnout [5].

Chronic anxiety affects not only sports activities, this condition deforms the personality and is the basis of antisocial behavior, manifestations of depression, apathy and even suicidal manifestations of personality outside of sports.

Scientists and physicians note that anxiety disorders are rarely treated. They note the importance of studying the epidemiology of anxiety. This will allow to purposefully deploy programs and services based on a probabilistic understanding of the need [6]. The creation and use of such programs and services is relevant in the field of sports.

Anxiety has individual manifestations. Research on the mental health of athletes is rare, and their results are contradictory [5]. The studied mental state of athletes, including the presence of anxiety, is currently far from comprehensive and holistic understanding.

Purpose of research – analysis of modern scientific research on the problem of trait anxiety and anxiety disorders in athletes.

Object and methods of research. Systematic review and analysis of literature sources in PubMed, EMBASE, SPORTDiscus, PsycINFO, Cochrane and Google Scholar databases.

Research results and their discussion. Anxiety can affect an athlete's life in different ways. When detecting anxiety, it is necessary to determine: the validity of the anxiety, its duration, its intensity and its impact on sports performance and in general on quality of life.

According to the literature, there are emotional, behavioral and physiological symptoms of anxiety disorder.

The emotional symptoms of anxiety disorder include the following:

- 1) constant feeling of danger, fear;
- 2) problems with concentration;
- 3) anxiety, impatience;
- 4) expectation of the worst;
- 5) irritability;
- 6) search for signs of danger;
- 7) devastation;
- 8) stunning

The behavioral symptoms of anxiety disorder include the following:

- 1) inability to relax, enjoy peace, be yourself;
- 2) difficulty in concentrating;
- 3) procrastination, postponement of cases for later;
- 4) alertness;
- 5) excessive imagination;
- 6) loss of confidence in life and people;
- 7) avoid situations that may cause anxiety.

Physiological symptoms of anxiety disorder are:

- 1) muscle tension;
- 2) body pain;
- 3) cold sweat;
- 4) rapid heartbeat, tremors, shortness of breath;
- 5) sleep problems;
- 6) intestinal problems, nausea, diarrhea;
- 7) sharp fluctuations in appetite;
- 8) mental stress [7].

Studies in recent years have shown that anxiety disorders are becoming more prevalent. But not only

does it deserve the attention of scientists, physicians, psychologists, coaches, teachers, it is worrying that the burden of diseases associated with these disorders is often significant.

A broad understanding of the etiology of anxiety includes many factors, such as biological, psychological and social determinants, which are mediated by a number of risk factors and protective factors. In light of the analysis of the problem, the authors of the study (Somers J. et al., 2006) raise the question of the development and practical application of available effective forms of intervention for the correction of mental states. At the same time, they note that monitoring the provision of these programs and services is difficult. Research on comparative epidemiology plays a vital role in developing health policy on anxiety. Empirical knowledge of the prevalence of trait and state anxiety in athletes in different sports is fundamental to understanding the relative demand for care. This knowledge is necessary to identify the most effective ways to intervene and to study the consequences of such intervention.

According to data published by Goldman S. [8] in the Institute of Sports's guide about understanding and supporting the mental well-being of student-athletes (from the Sport Science Institute's guide to understanding and supporting student-athlete mental wellness), almost every third adolescent in the United States (31%) meets the criteria for anxiety disorder. Half of them begin to experience their anxiety disorder by age 6. NCAA research shows that nearly 85% of certified sports coaches believe that anxiety disorders are now a problem for student-athletes.

Symptoms of anxiety disorder such as anxiety, feelings of helplessness, a sense of impending danger, panic, feelings of doom, increased heart rate, increased respiratory rate, increased sweating, tremors, weakness and fatigue were found in the student-athletes studied.

Everyone experiences some of these symptoms throughout their lives. But student-athletes with anxiety disorders experience these symptoms quite often and quite strongly, which negatively affects their ability to function according to their capabilities [8].

It is known that modern sport is divided into mass sports, high-achievement sports and professional sports. The goals in each of these sports are different. Mass sport is a part of sport, the content of which is the rational use of physical activity by a person as a factor of preparation for life practice, optimization of one's physical condition and development. Involvement in mass sports allows a large number of people to improve their physical qualities and motor abilities, strengthen health and prolong life [9]. In this kind of sport there is a basis for anxiety (in particular, injuries). But the lack of a rigid restrictions, exercising for fun do not cause the development of anxiety disorders. If they are, then the reasons lie in other planes of human activity. Sports for health and pleasure, on the contrary, reduce anxiety, alleviate the effects of stressors.

Another picture is observed for athletes involved in professional sports activities. High-achievement sport is an integral part of sport, which is a system of organized training of highly qualified athletes and competitions in order to achieve maximum results. The purpose of high-achievement sports is to achieve the maximum

possible sports results or victories in the biggest sports competitions. To solve the problem of achieving maximum results is possible only with systematic, long-term, focused training and competition. Very often such athletes become "professionals". High-achievement sports are impossible without a constant progressive increase in the level of sports results and the establishment of new, sometimes phenomenal, records. They are achieved with a high level of self-discipline in the presence of many limitations. High results are achieved by intensification of the educational and training process [9]. They are impossible without improving athlete's physical organization, as well as without working to harden athlete's psyche.

Professional sports are entrepreneurial activities aimed at satisfying the interests of professional sports organizations, athletes who have chosen sports as their profession, and spectators. Professional athlete is an athlete for whom sports are the main activity and who receives in accordance with the contract salary and other monetary remuneration for preparation and participation in sports competitions.

High-achievement sports are characterized by a high level of medical and biological support. Great reserve capacity of the human body can also be revealed through special techniques of psychological training of the athlete.

Modern high-achievement sport is effective only if modern advances in science, technology, medicine, pharmacology, cybernetics, biomechanics, psychology and pedagogy, etc. are used [9].

High-achievement sports and professional sports are characterized by great pressure on the psyche, which forces elite athletes to resist anxiety in order to succeed internationally. This is what motivates scientists to study this problem and solve it.

Elite young athletes have to deal with many psychological demands, such as the amount of training, mental and physical fatigue, spatial separation of family and friends, or problems with time management can lead to reduced mental and physical recovery [10].

Researchers are studying the psychological problems faced at the elite level and in certain sports such as depression and anxiety stemming from career-ending injuries, disordered eating in women involved in weight-bearing or aesthetic sports or mental disorders as a result of abuse of illegal substances that increase the effectiveness of physical activity [10, 11, 12, 13, 14]. It should be noted that without psychological stability the athlete is not able to enter the world arena and achieve success. But, as scientists note, this mental stability does not mean complete immunity from psychopathology. Even in relatively stable people, under a large number of adverse circumstances, excessive psychological pressure may develop psychological problems.

Studies of the prevalence and incidence of anxiety disorders using the MEDLINE and HealthSTAR databases [6] have shown that scientific publications reflect mainly studies covering adult athletes (adulthood I). The analysis of scientific researches revealed inhomogeneity (during the year) of indicators of prevalence of anxiety disorder during life in all age categories. Common rates for individual disorders ranged widely. In all age groups, anxiety was usually more common in women. They had a higher prevalence among all categories of anxiety dis-

orders compared to men, but the magnitude of this difference varied [5, 6, 15].

With regard to elite athletes, the same predominance of anxiety in women athletes is observed. Elite women athletes are more often diagnosed with a psychological problem than men [16, 17, 18].

Important variations of anxiety states according to the type of sports are noted. Requirements and pressures associated with a particular sport can be one of the significant factors of socio-environmental risk, which, combined with individual characteristics, genetic predisposition, can contribute to the development of some disorders [17].

Generalized anxiety disorder (GAD) is a major psychological problem faced by both sexes. It is characterized by excessive, difficult to control anxiety that disrupts daily functioning. This disorder most often becomes pronounced in late adolescence. The disorder has cognitive and physical symptoms. Usually, it manifests itself without significant grounds. At the same time emotional distress, constant feeling of anxiety, physical tension develop. Accordingly, constant anxiety and worry lead to fatigue, memory and attention disorders, sleep disorders, deterioration of quality of life.

In the general population, anxiety disorders have a high comorbidity with other psychopathologies, such as major depression, eating disorders, drug abuse, as well as a number of long-term psychophysiological consequences, which are often closely intertwined. As for elite athletes, they have the same correlations between anxiety and other disorders. Studies [17] have shown a 3:2 ratio of women to men for anxiety disorders. Researchers have linked the results of this study to the prevalence of anxiety disorders in women with genetic, physiological and socio-environmental factors.

Salvatore M. et al. (2018) investigated the hormonal stress response in female rats and found that it is in females that corticotropin-releasing factor and the brain center – the lobus ceruleus (of the CRF and LC-norepinephrine systems) are activated in response to subthreshold stress stimuli.

It is known that the expression of the gene for corticotropin-releasing factor (CRF), a neurohormone that initiates the autonomic and cognitive response to stress, is directly regulated by estrogen [19]. CRF acts on the locus ceruleus (LC), the brain center that regulates emotional arousal through the secretion of norepinephrine. Excessive activity of these systems is considered a major component of the development of stress disorders such as depression and anxiety.

The highest rates of anxiety (GAD) (according to research by Leray et al.) – 12.8% of people are among adolescents, and the highest rates were found between the ages of 18 and 34 years (14.3%).

Despite the pressure inherent in high-level sports, the overall prevalence of GAD in athletes does not appear to be higher than in the general population.

Regarding the manifestation of GAD in various sports, the greatest prevalence of this disorder is found in athletes who are engaged in aesthetic sports: gymnastics, synchronized swimming and figure skating. In these sports there is a psychological pressure on the athlete by sports judges, coaches, teammates. Subjec-

tive evaluation, unfair evaluation can be a very stressful factor for an athlete.

Prolonged unfair treatment of an athlete (which may be related to politics, nationality) makes athlete feel useless in sports, helplessness, frustration, understanding of the loss of part of life for activities that did not bring satisfaction as a result. All this can cause anxiety disorders and depression. Such athletes often build "perfectionism" into their personality structure during their sports careers, which at the end of their sports career harms a person's life, contributing to the development of anxiety disorders. This is especially true for women, when the athlete maintained a very small body weight during professional sports activities, and after the end of sports, lost shape. This is no longer essential. But person cannot cope and adapt to new realities.

For high risk sports (skating, motocross, air sports), it could be assumed that the GAD should be the highest here. But, as research shows, these athletes, on the contrary, show the lowest GAD rates [17]. These results are explained by the fact that such risky sports are usually practiced by people who have a tendency to cope with stress. Or, according to a number of psychological studies, they have subconscious suicidal tendencies.

Almost all sports require a high level of psychological skills to deal with stressful situations. A number of researchers are investigating anxiety disorders in athletes due to the increased risk of injury. For example, in football, the rate of injuries among international elite footballers was found to be 9.4 injuries per 1000 hours of sports [20, 21]. These injuries were received against the background of both physiological and psychological factors. Psychological factors such as anxiety, negative stressful events and daily worries have been identified as predictors of injuries in professional football. It has been found that the prevalence of symptoms of common mental disorders (CMD) among European professional footballers reaches 32% for anxiety/depression, while the 12-month incidence ranges from 12% for stress to 37% for anxiety/depression [22].

In studying football players, scientists have created a number of models that emphasize the relationship between psychological risk factors and the occurrence of injuries.

Williams and Andersen's (1998) model of stress-trauma divides psychological risk factors into three main categories: personal factors, history of stressors, and resources to overcome.

«Model of the influence of psychological factors on sports trauma» distinguishes three different psychological categories: psychological stressors, resources to overcome and emotional state [5].

«Empirical model of injury risk factors» by Johnson and Ivarsson (2010) emphasizes personal factors in overcoming the effects of stress and risk of injury [22, 23].

It should be emphasized that the risk of injury in professional football is 1000 times higher than in typical high-risk industries, such as manufacturing, construction or services.

Studies Kiliç, Ö. et. al. (2018) have shown that severe musculoskeletal injuries with loss of time can be considered as important adverse life events for professional footballers, which are likely to cause symptoms of CMD. The significance of this study lies in the need for an interdisciplinary medical approach that

focuses not only on the physical but also the mental health of football players. Early detection of players at risk of developing CMD symptoms makes it possible to recognize these symptoms in a timely manner and provide professional assistance to players to prevent these symptoms from worsening and to maintain or improve quality of life [22].

The findings highlight the need for athletes, coaches and health professionals to try to reduce stressors at the state level, especially with regard to daily worries, in order to minimize the risk of injury [23].

Stressful situations can cause changes in the body homeostasis. Adaptive responses to stress can be both behavioral and physical. At the level of physiological processes, the action of stress activates the sympathetic nervous system and the hypothalamic-pituitary-adrenal axis (Messina et al., 2016). At the mental level, increased stress can lead to the development of symptoms of anxiety and depression [24].

The researchers note that current research lacks an accurate description of the prevalence of anxiety disorder or major depressive disorder in athletes with high scores. Some researchers note that most studies use questionnaires that are not always valid, distorting the true incidence of anxiety or depression [5, 15, 25, 26]. According to data [15, 26], the prevalence of anxiety symptoms among adult athletes varies from 7.1 to 26%. And according to [5, 15] the prevalence of symptoms of depression – from 10.3 to 27.2%. For student-athletes, according to (Storchetal, 2005), they have higher rates of anxiety symptoms – up to 37%, and rates of depression – up to 21% [25]. Such differences can be connected with differences in methodological approaches: use of different questionnaires and tests, differences in testing time during the training season (training or competition phase), testing before or after training. In addition, the use of questionnaires often yields rather subjective results, and is not sufficient to establish a clinical diagnosis. Approaching retirement among athletes may also be the cause of the prevalence of anxiety symptoms among the relevant age groups [27]. Researchers also suggest that transitional stages in a sports career are accompanied by increased levels of stress and emotional imbalance [10].

It should be noted that the study of trait anxiety and anxiety disorders in athletes requires the development of a fundamental scientific and methodological framework. Data on this topic are quite fragmented, not deeply analyzed, not systematized for different sports, gender, age categories, depending on the stage of sports training, etc. There is some data on football players (described above). There are some data obtained in the study of trait anxiety and anxiety disorders in young athletes recruited from handball, judo, athletics, boxing, gymnastics, skating, volleyball and rowing. Anxiety and depression rates were (mean±SD) 4.3±3.0 and 2.8±2.9, respectively [10]. But these are fragmentary, not systematic studies.

In the context of anxiety, a special place is occupied by the adolescent age category. In general, adolescence is characterized by high frequency of anxiety and depression, due to the complex restructuring of the body. This applies to almost all organ systems: musculoskeletal system, endocrine system, cardiovascular and respiratory systems, reproductive system, nervous system, immune

system. Adolescent athletes are in more difficult physical and mental conditions than adolescents who are not involved in sports. Young athletes face changes at different levels in their lives. This can lead to an imbalance in emotional homeostasis and, consequently, to the development of anxiety or depression.

Studies have found athletes with subclinically or clinically significant symptoms in both subscales of the Anxiety and Depression Scale (HAD Scale) [10]. They recommend monitoring and accompanying these athletes for an extended period of time to determine if these symptoms are acute or chronic. Relaxation or stress management techniques can be introduced as an effective tool.

Gouttebarga V. et al. (2018) presented a review of existing epidemiological evidence on the occurrence of symptoms and mental health disorders among current and former elite athletes. There are 22 original studies on the symptoms and disorders of mental health among modern elite athletes. The studies considered athletes' symptoms of distress, sleep disturbances, anxiety/depression, and alcohol abuse. The study involved a large number of people – up to 5,555 modern elite athletes. The prevalence of mental health symptoms and disorders has been found to range from 19% (alcohol abuse) to 34% (anxiety/depression). Former elite athletes were covered by similar studies (1686). The prevalence of symptoms and mental health disorders among them ranges from 16% for stress to 26% for anxiety/depression. Thus, the results of such a large-scale study of these authors indicate the presence of a psychological problem of anxiety [26].

Researchers confirm that the evidence base for the mental health and well-being of elite athletes is limited by a lack of quality systematic research. At the same time, a review of recent data shows that these people are quite vulnerable to a number of mental health problems (including substance abuse), which can be related to both sports factors (injuries, overtraining and burn-out), and non-sporting factors. Improved epidemiological and interventional research is needed to develop optimal strategies for identifying and responding to the mental health needs of players [27].

Another problem facing the athlete is the ability to be aware of their mental state and need and its implementation in communication with a specialist who will help get rid of anxiety and other factors of psychological health. A study of rugby players [28] found that those players who sought help with their mental health and personal issues were more aware of mental health issues and who experienced greater psychological stress. Athletes noted that they had to overcome embarrassment, pride, fear and shame before turning to specialists. Therefore, when working with athletes, especially elite ones, attention should be paid to improving the level of mental health literacy.

Given the current problems of mankind (the prevalence of diseases, including viruses, quarantine, and hence work via the Internet), as well as unawareness of athletes, and the presence in their psyches of barriers to open conversation about their psychological problems, some experts offer their help with attracting Internet resources. Intervention aimed at strengthening the appeal for help to young elite athletes is justified. But Gulliver A. et al. [29] indicate that it is difficult to assess the real effectiveness of such assistance.

It should be noted that timely assistance to the athlete can prevent the development of further complications in mental health. This, in particular, is reported in the scientific research by Chinese scientists [30]. Their research sheds light on the important role that psychological stress plays in identifying athletes' mental health problems, and demonstrates that the psychological stress model is suitable for explaining suicidal ideation among athletes. These scientists argue that psychological stress affects suicidal ideation not only directly but also indirectly through feelings of hopelessness and depression. In athletes, psychological stress is consistently associated first with feelings of hopelessness for the future and then with depression, which in turn is associated with suicidal attempts.

Quite important moments in sports life with all its problems is the recognition of the athlete (especially public) that inadequate things are happening to ones psyche. In 2018, the famous athlete Kevin Love in This week's famous NBA all-star said that he suffered a panic attack at the beginning of the season during the game. The athlete turned to a specialist to solve his problem. He openly shared his experiences with fans and other athletes. This allowed athletes with similar problems to overcome internal barriers and also seek help.

Thus, high-level athletes, professional athletes are at high risk of injury, both physical and mental. This is the basis of the athlete's physical and mental health problems. Currently, little is known about the prevalence of mental disorders in athletes. Many people seek to exercise, considering it as an important recreational factor, as well as an effective method of dealing with stress. When involved in mass sports, indeed, a person solves a number of psychological problems, such as depression or anxiety disorders. However, being involved in sports at the highest level draws a person into completely different circumstances, representing a career with high pressure, full of stressors and limitations.

The purpose of this research analysis was to provide the results of the general presence and severity of anxiety symptoms in athletes, as well as to study age and gender differences, to identify the general picture of the prevalence of trait anxiety and anxiety disorders in athletes of different sports.

The scientific literature reflects the results of studies that show the predominance of the frequency of anxiety in female athletes (in different age categories). But this is not an absolute statement.

The study of age differences showed the presence of anxiety in both sexes in different age groups, however, due to the general problem of adolescence, there is evidence that adolescent athletes have higher levels of anxiety.

We compared the results of studies in different countries in Europe and Asia. Despite the fact that they are somewhat similar, but often in these studies there is a lack of information about the sports participation of the subjects. Moreover, most of these studies did not report the frequency of assessments or how many possible or probable cases of anxiety were identified. There is a place for methodological inconsistencies between studies of different authors, which makes it difficult to compare the results of the study. Some researchers show that against the background of average anxiety or depression, which may be low, individual analysis

reveals participants who have high scores. These data suggest the need for an individual approach to research.

Analysis of anxiety studies in high-level athletes showed discrepancies. Against the background of the general predominance of statements that with the increase in the level of sports activity increases the frequency and manifestations of trait and state anxiety (description above), there are opposite statements. Thus, Guillen F. & Sanchez S. (2009) show that although participation at a higher level logically seems more intense, their results suggest that more professional players control their anxiety better than less professional athletes. At the same time, athletes who have suffered severe injuries and defeats are usually characterized by anxiety and depression [31].

High-level athletes need a thorough examination to detect trait anxiety and anxiety disorders. An analysis of the literature has shown that research on this topic is conducted mainly using the hospital scale of anxiety and depression (HADS scale). The hospital scale of anxiety and depression was developed in 1983 by two authors [32] to determine and assess the severity of symptoms of depression and anxiety in general practice. The advantages of the HADS scale are ease of use and handling, which allows us to recommend it for use for the initial detection (screening) of anxiety and depression. Additionally, the Hamilton Depression Scale (HDRS) (developed by M. Hamilton in 1960) is used to quantify the condition of patients with depressive disorders.

An athlete who embarks on a sports career often finds oneself in a difficult situation. Researchers have shown that the prevalence of mental health problems is much higher among former professionals [26]. Anxiety/depression was the most common disease.

Current athletes with recent difficult life events or weak support from coaches and teammates are more likely to report mental health problems.

There is very little information about the results of athletes seeking help from specialists. This is often hindered by unawareness of athletes, complexes and

stereotypes of judgments. Therefore, it is vital that the athlete has access to a mental health professional to address personal or emotional issues. Athletes' mental health should be well maintained at the state level.

There is very little data in the literature on the detection of such consequence of an anxiety disorder in athletes as panic attacks.

Conclusions. Problem of anxiety is one of the most interesting and important areas of psychology in sports, and it continues to arouse great scientific interest.

Additional research is needed on specific sources of anxiety according to sport, age and experience, so that interventions in sports psychology can be adequately structured.

In general, high-level athletes, professional athletes are at high risk of injury, both physical and mental. This is the basis of the athlete's physical and mental health problems. Currently, little is known about the prevalence of mental disorders in athletes. Many people seek to exercise, considering it as an important recreational factor, as well as an effective method of combating stress. When involved in mass sports, indeed, a person solves a number of psychological problems, such as depression or anxiety disorders. However, playing sports at the highest level draws a person into completely different circumstances, representing a career with high pressure, full of stressors and limitations.

In the future, there is a need of the study of clinical and dynamic features of anxiety disorders, including panic attacks, taking into account nosological affiliation, as well as the development of a set of modern differentiated programs of therapy and rehabilitation, the use of adequate preventive and supportive measures. Priority should be given to raising the awareness of all sports stakeholders about common mental disorders.

Prospects for further research. Future research should focus on sports medical and sports psychiatric interventional approaches to prevent anxiety and depression.

References

1. Berezin FB. Psihicheskaya i psihofiziologicheskaya adaptaciya cheloveka. L.; 1988. 270 s. [in Russian].
2. Lavryniv Kh, Kozak I, Pavlyshyn O, Lysak N. Zminy rivnia tryvozhnosti sportsmeniv-futbolistiv. *Moloda sportyvna nauka Ukrainy*. 2015;2:147-150. [in Ukrainian].
3. Astapov VM. *Trevoga i trevozhnost': hrestomatiya*. Sankt-Peterburg: Per Se; 2008. 240 s. [in Russian].
4. Weiss MR, Gill DL. What goes around comes around: re-emerging themes in sport and exercise psychology. *Research Quarterly for Exercise and Sport*. 2005;76:571-587. DOI: <https://doi.org/10.1080/02701367.2005.10599291>.
5. Junge A, Feddermann-Demont N. Prevalence of depression and anxiety in top-level male and female football players. *BMJ Open Sport & Exercise Medicine*. 2016;2:e000087. DOI: <https://doi.org/10.1136/bmjsem-2015-000087>.
6. Somers JM, Goldner EM, Waraich P, Hsu L. Prevalence and Incidence Studies of Anxiety Disorders: A Systematic Review of the Literature. *Canadian Journal of Psychiatry*. 2006;51(2):100-113. DOI: <https://doi.org/10.1177/070674370605100206>.
7. Beradze T. Koly tryvozhnist staie diahnozom [Internet]. *BBC News Ukraina*; 2020. Dostupno: <https://www.bbc.com/ukrainian/features-50502379>. [in Ukrainian].
8. Goldman S. Mind, Body and Sport: Anxiety disorders. [Internet]. 2014. Available from: <http://www.ncaa.org/sport-science-institute/mind-body-and-sport-anxiety-disorders>.
9. STUDme. Kinds of modern sports [Internet]. 2020. Available from: https://studme.com.ua/121201244106/meditsina/vidy_sovremennogo_sporta.htm.
10. Weber S, Puta C, Lesinski M, Gabriel B, Steidten T, Bär KJ. Symptoms of Anxiety and Depression in Young Athletes Using the Hospital Anxiety and Depression Scale. *Frontiers in Physiology*. 2018;9:82. DOI: <https://doi.org/10.3389/fphys.2018.00182>.
11. Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of the hospital anxiety and depression scale: an update literature review. *J. Psychosom. Res.* 2002;52:69-77. DOI: [https://doi.org/10.1016/S0022-3999\(01\)00296-3](https://doi.org/10.1016/S0022-3999(01)00296-3).
12. Blatt SJ, Luyten P. A structural-developmental psychodynamic approach to psychopathology: two polarities of experiences across the life span. *Dev. Psychopathol.* 2009;21:793-814. DOI: <https://doi.org/10.1017/S0954579409000431>.
13. Brennan C, Worrall-Davies A, McMillan D, Gilbody S, House A. The hospital anxiety and depression scale: a diagnostic meta-analysis of case-finding ability. *J. Psychosom. Res.* 2010;69:371-378. DOI: <https://doi.org/10.1016/j.jpsychores.2010.04.006>.
14. Brand R, Wolff W, Hoyer J. Psychological Symptoms and chronic mood in reprenative samples of elite student-athletes, deselected student-athletes and comparison students. *School Ment. Health.* 2013;5:166-174. DOI: <https://doi.org/10.1007/s12310-012-9095-8>.
15. Gullivera A, Griffithsa KM, Mackinnonb A, Batterhama PJ, Stanimirovicc R. The mental health of Australian elite athletes. *Journal of Science and Medicine in Sport*. 2014;18:255-261. DOI: <http://dx.doi.org/10.1016/j.jsams.2014.04.006>.

16. Grossbard JR, Smith RE, Smoll FL, Cumming SP. Competitive anxiety in young athletes: differentiating somatic anxiety, worry and concentration disruption. *Anxiety Stress Coping*. 2009;22:153-166. DOI: <https://doi.org/10.1080/10615800802020643>.
17. Schaal K, Tafflet M, Nassif H, Thibault V, Pichard C, Alcotte M, et al. Psychological Balance in High Level Athletes: Gender-Based Differences and Sport-Specific Patterns. *PLoS ONE*. 2011;6(5):e19007. DOI: <https://doi.org/10.1371/journal.pone.0019007>.
18. Granacher U, Lesinski M, Büsch D, Muehlbauer T, Pieske O, Puta C. Effects of resistance training in youth athletes on muscular fitness and athletic performance: a conceptual model for long-term athlete development. *Front. Physiol*. 2016;7:164. DOI: <https://doi.org/10.3389/fphys.2016.00164>.
19. Vamvakopoulos NV. Sexual dimorphism of stress response and immune/inflammatory reaction: the corticotropin releasing hormone perspective. *Mediators Inflamm*. 1995;4(3):163-174. DOI: <https://doi.org/10.1155/S0962935195000275>.
20. Maddison R, Prapavessis H. Social Psychology in Sport. *Human Kinetics*; 2007. Chapter, Self-Handicapping in Sport: A Self-Presentation Strategy. p. 209-220. DOI: <https://doi.org/10.5040/9781492595878.ch-015>.
21. Waldén M, Hägglund M, Ekstrand J. Injuries in Swedish elite football – A prospective study on injury definitions, risk for injury and injury pattern during 2001. *Scandinavian Journal of Medicine and Science in Sports*. 2005;15(2):118-25. DOI: <https://doi.org/10.1111/j.1600-0838.2004.00393.x>.
22. Kiliç Ö, Aoki H, Goedhart E, Hägglund M, Kerkhoffs GMMJ, Kuijer PPFM. Severe musculoskeletal time-loss injuries and symptoms of common mental disorders in professional soccer: a longitudinal analysis of 12-month follow-up data. *Knee Surg Sports Traumatol Arthrosc*. 2018;26:946-954. DOI: <https://doi.org/10.1007/s00167-017-4644-1>.
23. Ivarsson A, Johnson U. Psychological factors as predictors of injuries among senior soccer players. A prospective study. *Journal of Sports Science and Medicine*. 2019;9:347-352. DOI: <https://doi.org/10.1007/s40279-016-0578-x>.
24. Mineka S, Zinbarg R. A contemporary learning theory perspective on the etiology of anxiety disorders: it's not what you thought it was. *Am Psychol*. 2006;61(1):10-26. DOI: <https://doi.org/10.1037/0003-066X.61.1.10>.
25. Yen JY, Ko CH, Yen CF, Wu HY, Yang MJ. The Comorbid Psychiatric Symptoms of Internet Addiction: Attention Deficit and Hyperactivity Disorder (ADHD), Depression, Social Phobia, and Hostility. *Journal of Adolescent Health*. 2007;41(1):93-98. DOI: <https://doi.org/10.1016/j.jadohealth.2007.02.002>.
26. Gouttebargue V, Frings-Dresen MHW, Sluiter JK. Mental and psychosocial health among current and former professional footballers. *Occup. Med. (Lond)*. 2015;65:190-196. DOI: <https://doi.org/10.1093/occmed/kqu202>.
27. Rice SM, Purcell R, De Silva S, Mawren D, McGorry PD, Parker AG. The Mental Health of Elite Athletes: A Narrative Systematic Review. *Sports Medicine*. 2016;46(9):1333-53. DOI: <https://doi.org/10.1007/s40279-016-0492-2>.
28. Kola-Palmer S, Lewis K, Rodriguez A, Kola-Palmer D. Help-Seeking for Mental Health Issues in Professional Rugby League Players. *Front Psychol*. 2020;11:570690. DOI: <https://doi.org/10.3389/fpsyg.2020.570690>.
29. Gulliver A, Griffiths KM, Christensen H, Mackinnon A, Calear AL, Parsons A, et al. Internet-based interventions to promote mental health help-seeking in elite athletes: an exploratory randomized controlled trial. *Journal of Medical Internet Research*. 2012;14(3):e69. DOI: <https://doi.org/10.2196/jmir.1864>.
30. Sun G, Zhao J, Tian S, Zhang L, Jia C. Psychological Strain and Suicidal Ideation in Athletes: The Multiple Mediating Effects of Hopelessness and Depression. *International Journal of Environmental Research and Public Health*. 2020;17(21):80-87. DOI: <https://doi.org/10.3390/ijerph17218087>.
31. Guillen F, Sanchez S. Competitive anxiety in expert female athletes: sources and intensity of anxiety in national team and first division spanish basketball players. *Perceptual and Motor Skills*. 2009;109:407-419. DOI: <https://doi.org/10.2466/PMS.109.2.407-419>.
32. Zigmond AS, Snaith RP. The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*. 1983;67(6):361-370. DOI: <https://doi.org/10.1111/j.1600-0447.1983.tb09716.x>.

ПОШИРЕННЯ ТРИВОЖНОСТІ ТА ТРИВОЖНИХ РОЗЛАДІВ У СПОРТСМЕНІВ

Карнаух Т. В., Бабак С. В.

Резюме. Успішність спортсменів різних вікових категорій, обох статей, різних видів спортивної діяльності залежить як від фізичної, технічної і тактичної підготовленості, фізіологічного стану на момент змагань, так і від психічного стану. Тривожність серед ряду психологічних властивостей особистості має важливе значення у спортивній діяльності. При надмірних стресових ситуаціях, хворобливих станах, наявності важких травм та інших причин адаптивна реакція тривоги може перейти в один з видів психіатричної патології – тривожний розлад. Підвищена тривожність є негативною характеристикою особистості та несприятливо позначається на життєдіяльності людини.

Проведено аналіз сучасних наукових досліджень стосовно проблеми тривожності та тривожних розладів у спортсменів. Зокрема, це стосувалось виявлення загальної картини поширення стану тривожності та тривожних розладів у спортсменів різних видів спортивної діяльності, важкості симптомів тривоги у спортсменів різних вікових категорій, різної статі, в залежності від різних ситуацій. Тривожність серед ряду психологічних властивостей особистості має важливе значення у спортивній діяльності, часто виникає на тлі стресових ситуацій, які супроводжують діяльність спортсмена, особливо професіонала.

Відмічено як загальні тенденції досліджень тривожності спортсменів різних країн, а також розбіжності. Часто на тлі середніх показників тривоги або депресії, виявляються окремі учасники, які мають високі показники. Це свідчать про необхідність індивідуального підходу в дослідженнях і психологічної допомоги спортсмену.

Слід відмітити, що без психологічної стійкості спортсмен не здатний вийти на світову арену і досягти успіху. Але, як відмічають науковці, ця розумова стійкість не означає повного імунітету від психопатології. Навіть у відносно стійких людей, за умов великої кількості несприятливих обставин, надмірного психологічного тиску можливий розвиток психологічних проблем. Є досить мало відомостей про результати звертань спортсменів за допомогою до фахівців. Часто цьому заважають низька грамотність спортсменів, комплекси та стереотипи. Тому життєво важливим є доступ спортсмена до фахівця з психічного здоров'я для вирішення проблем. Психічне здоров'я спортсменів має бути добре підтримане на державному рівні.

Враховуючи сучасні проблеми людства (поширеність хвороб, зокрема вірусів, введення карантину, а звідси – робота через інтернет), а також низьку грамотність спортсменів, та наявність в їхній психіці бар'єрів щодо відвертої розмови про свої психологічні проблеми, деякі фахівці пропонують свою допомогу із залученням інтернет-ресурсів. Втручання, спрямоване на посилення звернення за допомогою до молодих елітних спортсменів, є виправданим, але важко оцінити реальну ефективність такої допомоги.

В літературі дуже мало даних стосовно виявлення у спортсменів такого тривожного розладу як панічні атаки.

Важливим залишається вивчення клініко-динамічних особливостей тривожних розладів, у тому числі і панічних атак з урахуванням нозологічної приналежності, а також розробка комплексу сучасних диференційованих програм терапії і реабілітації, застосування адекватних профілактичних та допоміжних заходів.

Ключові слова: тривога, тривожність, тривожні розлади, психічне здоров'я, спортсмени.

PREVALENCE OF TRAIT ANXIETY AND ANXIETY DISORDERS IN ATHLETES

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Abstract. The success of athletes of different ages, both genders, different types of sports depends on physical, technical and tactical training, physiological condition at the time of competition, and mental condition. Anxiety among a number of psychological personality traits is important in sports. With excessive stressful situations, painful conditions, the presence of severe injuries and other causes, the adaptive response of anxiety can turn into one of the types of psychiatric pathology – anxiety disorder. Increased anxiety is a negative characteristic of personality and adversely affects human life.

An analysis of modern research on the problem of trait anxiety and anxiety disorders in athletes was conducted. In particular, it concerned the identification of the general picture of the prevalence of trait anxiety and anxiety disorders in athletes of different sports, the severity of anxiety symptoms in athletes of different ages, different genders, depending on different situations. Anxiety among a number of psychological personality traits is important in sports, often occurs against the background of stressful situations that accompany the activities of the athlete, especially professional ones.

There were marked general trends and differences in the study of anxiety in athletes from different countries. Often on the background of average indicators of anxiety or depression, there are individual participants who have high rates indicators. This indicates the need for an individual approach to research of the problem and provide psychological assistance to the athletes.

It should be noted that without psychological stability the athlete is not able to enter the world arena and achieve success. But, as scientists note, this mental stability does not mean complete immunity from psychopathology. Even in relatively stable people, under a large number of adverse circumstances, excessive psychological pressure may develop psychological problems. There is very little information about the results of athletes seeking help from specialists. This is often hindered by low conversance of athletes, complexes and stereotypes. Therefore, it is vital that the athlete has access to a mental health professional to solve problems. Athletes' mental health should be well maintained at the state level.

Given the current problems of mankind (the prevalence of diseases, including viruses, quarantine, and hence work via the Internet), as well as low conversance of athletes, and the presence in their psyches of barriers to open conversation about their psychological problems, some experts offer their help with attracting Internet resources. Intervention aimed at strengthening the appeal for help to young elite athletes is justified, but it is difficult to assess the real effectiveness of such assistance.

There is a very little data in literature on the detection of such consequence of anxiety disorder in athletes as panic attacks.

It is important to study the clinical and dynamic features of anxiety disorders, including panic attacks, taking into account the nosological affiliation, as well as the development of a set of modern differentiated treatment and rehabilitation programs, the use of appropriate preventive and supportive measures.

Key words: trait anxiety, anxiety disorders, mental health, athletes.

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