

Psychological Aspects in Elite Athletes

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51.1 Introduction

In elite sport, most of the epidemiological studies have been directed towards the physical health of athletes, principally towards the occurrence of musculoskeletal injuries and more recently their prevention. By contrast, scientific information about the mental health symptoms of elite athletes remains scarce. This is surprising because athletes are (cumulatively) exposed during their career to specific and non-specific stressors that might lead to mental health symptoms. These symptoms are likely to influence negatively the performances of athletes but also their quality of life.

This chapter focuses on the mental health symptoms (self-reported and not clinically diagnosed) that might occur during a career in elite sport. After its definition, the magnitude of the mental health symptoms among elite athletes is

presented. Subsequently, the non-specific and sport-specific stressors that play a role in the occurrence of mental health symptoms are presented. Finally, a concise overview of the mental health symptoms that are most frequently reported by athletes is given.

51.2 Definition of Mental Health Symptoms

Someone suffers from mental health symptoms when he or she experiences adverse/abnormal thoughts, feelings and/or behaviour that might lead to functional (daily life, work, sport) impairments. Examples of mental health symptoms are related to distress, burnout, anxiety, depression, sleep disturbance or adverse alcohol use. In contrast to mental health symptoms that are self-reported, mental disorders refer to conditions causing clinically significant distress and/or functional (daily life, work, sport) impairments that meet certain diagnostic criteria such as those from the American Psychiatric Association (DSM-5). Mental health symptoms (as well as common mental disorders) are often comorbid (several symptoms occurring simultaneously).

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51.3 Prevalence and Incidence of Mental Health Symptoms in Elite Athletes

The available epidemiological evidence suggests that the prevalence (cross-sectional studies) of mental health symptoms in elite athletes (male) from team sports (cricket, football, handball, ice hockey, rugby) varies from 5% for burnout and adverse alcohol use to nearly 45% for anxiety/depression (Table 51.1). The incidence (prospective cohort studies) of mental health symptoms in elite athletes (male) from team sports ranges from 9% for distress to 35% for anxiety/depression over a follow-up period of up to 12 months. Mental health symptoms are also prevalent among female elite athletes, especially eating disorders.

51.4 Aetiology of Mental Health Symptoms in Elite Athletes

The occurrence of mental health symptoms is usually multifactorial. Among elite athletes, mental health symptoms can occur as a consequence of the dynamic interaction between generic and sport-specific stressors.

51.4.1 Generic Stressors

The biopsychosocial model (Fig. 51.1) is a general framework arguing that the complex and dynamic interaction between biological (genetic, biochemical, etc.), psychological (mood, personality, behaviour, etc.) and social (cultural, familial, socioeconomic, medical, etc.) stressors

Table 51.1 Prevalence of mental health symptoms in elite athletes

	Distress	Anxiety/depression	Sleep disturbance	Adverse alcohol use
Cricketers	38	37	38	26
Dutch Olympic athletes	27	45	22	6
Footballers	10–15	26–38	23	9–19
Gaelic athletes	38	48	33	23
Handball players	20	26	22	3
Ice hockey players	9	17	9	6
Rugby players	17	30	13	15

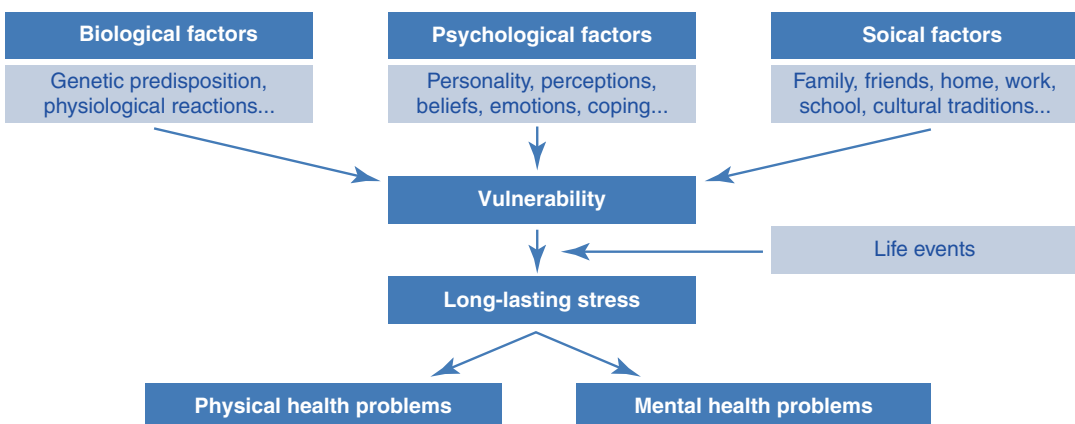


Fig. 51.1 Biopsychosocial model

determines the course of mental health symptoms, and not one type of stressors in isolation. Especially, vulnerability due to potential predisposition, combined with environmental stressors or life events, can lead to mental health symptoms. Because of the exposure to many life changes and related stressors between the 18th and 25th year of someone's life, mental health symptoms occur especially in young adulthood, with some symptoms being clearly gender related. As any human being, elite athletes are likely to develop mental health symptoms as a consequence of potential biological, psychological and social stressors. In addition, elite athletes are also exposed during their career to sport-specific stressors.

51.4.2 Sport-Specific Stressors

The scientific literature has shown that elite athletes might be exposed during their career (including transitioning out of sport) to more than 600 distinct stressors that could induce mental health symptoms. These sport-specific stressors are divided into four main categories: (1) leadership and personnel issues (adverse coach's behaviour and attitudes, conflict with coach, dealing with media and spectators, governing bodies, etc.), (2) logistical and environmental issues (poor travel and accommodation arrangements, adverse weather conditions, poor facilities and equipment, etc.), (3) cultural and team issues (adverse teammates' behaviour and attitudes, lack of support, poor communication, etc.) and (4) performance and personal issues (decreased performances, injuries, etc.). Especially severe time-loss injuries can be considered as a major stressor for elite athletes: cross-sectional analyses showed that professional footballers who had sustained one or more severe time-loss injuries during their career were two to four times more likely to report mental health symptoms than professional footballers who had not suffered from severe time-loss injuries.

51.5 Most Prevalent Mental Health Symptoms in Elite Athletes

The next section presents some basic information (definition, symptoms and signs, management strategy) about the mental health symptoms being most prevalent among elite athletes, namely anxiety/depression (prevalence up to 45%), sleep disturbance (prevalence up to 38%) and adverse alcohol use (prevalence of up to 26%). These symptoms can have some negative influence for the performances of elite athletes.

51.5.1 Depression

Depression is a common, but often serious mood disorder causing severe symptoms that affect how a person feels, thinks and handles activities of daily life, work and/or sport. Depression is characterised by persistent and long-lasting symptoms such as:

- Low or sad moods, often with crying episodes
- Irritability and anger
- Thinking negatively and feeling worthless, helpless and hopeless
- Appetite and sleeping disturbance
- Decrease in energy and activity levels with feelings of fatigue or tiredness
- Decrease in concentration, interest and motivation
- Social withdrawal or avoidance
- Unexplained aches and pains (increase in physical complaints such as headaches, back pain, aching muscles and stomach pain)
- In severe cases: thoughts of death or suicide

To be diagnosed with depression, a person must have experienced during more than 2 weeks a major depressive episode including a combination of symptoms. While a short depressive epi-

sode can resolve naturally, treatment is warranted when the depression becomes more severe, lasts longer, occurs more frequently and impairs functioning significantly. Management strategies for depression (depending on duration and severity) are: self-management and education (with minimal support) or counselling; forms of physical activity such as walking, running, cycling or swimming; evidence-based psychotherapy approach such as cognitive-behavioural therapy, interpersonal therapy and problem-solving therapy; e-Health interventions; medication including especially (modern) antidepressants.

51.5.2 Anxiety

Anxiety is a normal part of everyday life: everyone is likely from time to time to experience symptoms of anxiety, either in the cognitive (e.g. worries), emotional (e.g. feelings of nervousness), behavioural (e.g. pacing) or physiological (e.g. muscle tension) domain. Anxiety is characterised by feelings of abnormal, e.g. extreme fear, panic and/or worry that lead to sustainable irrational thoughts or to impairment in social context. Difference should be made between panic disorder, social anxiety disorder, generalised anxiety disorders or phobias. Being often comorbid with depression, anxiety includes symptoms such as:

- Feelings of panic, fear and uneasiness
- Sleeping disturbance
- Cold or sweaty hands or feet
- Shortness of breath
- Heart palpitations
- Not being able to be still and calm
- Dry mouth
- Numbness or tingling in the hands or feet
- Nausea
- Muscle tension
- Dizziness

Depending on the type of anxiety disorder, the following therapies can be applied: cognitive-behavioural therapy; exposure therapy (in

vivo); stress management techniques; e-Health interventions; medication including modern antidepressants.

51.5.3 Sleep Disturbance

Sleep disturbance includes complaints that affect the ability to sleep well on a regular basis. While occasionally experiencing difficulties to sleep is normal, it is abnormal to regularly have problems getting to sleep at night, to wake up feeling exhausted or to feel sleepy during the day. Insomnia might be the most known type of sleep disturbance, being defined as having poor sleep at least three times a week that may lead to daily life impairments (e.g. fatigue, irritability, decreased concentration). Depending on its severity and type, sleep disturbance includes symptoms such as:

- Difficulty falling or staying asleep
- Daytime fatigue
- Strong urge to take naps during the day
- Irritability or anxiety
- Lack of concentration
- Depression

Depending on the type and underlying cause, the management for sleep disturbance generally includes a combination of medical treatments and lifestyle adjustments. Medical treatments might include sleeping pills, melatonin supplements, medications for any underlying health problems, breathing device and a dental guard. Lifestyle adjustments aim at improving the quality of sleep, for instance by reducing stress and anxiety through exercising, having a regular sleeping schedule, limiting the consumption of caffeine, decreasing tobacco and alcohol use, and eating smaller meals before bedtime.

51.5.4 Adverse Alcohol Use

Adverse alcohol use and alcohol dependence are characterised by either a persistent pattern of

inappropriate alcohol use or of adverse consequences. While alcohol dependence is typically considered to be synonymous with alcoholism, adverse alcohol use can be defined as a recurring pattern of high-risk drinking that results in adverse outcomes such as personal problems (e.g. memory and cognition, job, family and friends), problems to others (e.g. injuries, violence) and problems for society (e.g. underage drinking, health care costs). Depending of the type and amount of alcohol consumed and an individual's personality, several (physical) signs might occur as a consequence of adverse alcohol use, for instance: decreased involvement and interest in social activities, work or school; lack of interest in family or friends; depression; restlessness; erratic and violent behaviour; redness of the face during or after periods of consumption.

Moderate drinking can be defined as consuming (1) up to 1 drink (10 g of alcohol, which is around 100 mL of wine) per day for women and (2) up to 2 drinks per day for men. Excessive (binge) drinking can be defined as consuming (1) 4 or more drinks during a single occasion for women and (2) 5 or more drinks during a single occasion for men. *Heavy drinking* can be defined as consuming (1) 8 or more drinks per week for women and (2) 15 or more drinks per week for men.

The first management step is to go through detoxification, being the process of removing alcohol from the body, and eliminate any physical dependency to the substance. Such a process is associated with developing withdrawal symptoms such as nausea, trembling and sweating. In addition to medication (such as benzodiazepines or naltrexone), various interventions can be used such as motivational interviewing, cognitive behavioural therapy, teaching social skills and self-control training.

51.6 Performances and Mental Health Symptoms in Elite Athletes

Mental health symptoms reported by elite athletes are likely to influence negatively their per-

formances. Elite athletes themselves believe that mental health symptoms influence sport performances negatively, especially with regard to the following aspects:

- Concentration and focus
- Coordination
- Power
- Emotion
- Reaction time
- Strength
- Endurance

51.7 Pitfalls

- Elite athletes are not immune to mental health symptoms.
- Mental health symptoms are as relevant as musculoskeletal injuries for elite athletes.
- The rehabilitation of an elite athlete after a severe musculoskeletal injury should also focus on mental health.

51.8 Fact Box

- Mental health symptoms are defined as self-reported adverse/abnormal thoughts, feelings and/or behaviour that might lead to functional (daily life, work, sport) impairments.
- The prevalence of mental health symptoms among elite athletes is substantial, ranging from 5% for burnout and adverse alcohol use to nearly 45% for anxiety/depression.
- The occurrence of mental health symptoms among elite athletes is usually multifactorial, resulting from the dynamic interaction between generic and sport-specific stressors.
- Professional footballers who have sustained one or more severe time-loss injuries during their career are two to four times more likely to report mental health symptoms than professional footballers who have not suffered from severe time-loss injuries.

Recommended References

1. Reardon CL, Hainline B, Miller Aron C, Baron D, Baum AL, Bindra A, Budgett R, Campriani N, Castaldelli-Maia JM, Currie A, Derevensky JL, Glick ID, Gorczynski P, Gouttebarga V, Grandner MA, Hyun Han D, McDuff D, Mountjoy M, Polat A, Purcell R, Putukian M, Rice S, Sills A, Stull T, LJ Zhu, Engebretsen L (2019) International Olympic Committee consensus statement on mental health in elite athletes. *Br J Sports Med* 53:667–699
2. Gouttebarga V, Castaldelli-Maia JM, Gorczynski P, Hainline B, Hitchcock ME, Kerkhoffs G, Ricev S, Reardon CL (2019) Occurrence of mental health symptoms and disorders in current and former elite athletes: a systematic review and meta-analysis. *Br J Sports Med* 53:700–706
3. Kilic O, Hopley P, Kerkhoffs G, Lambert M, Verhagen E, Viljoenf W, Wylleman W, Gouttebarga V (2019) The impact of concussions and severe musculoskeletal injuries on the onset of mental health symptoms in male Professional Rugby players, a 12 month study. *BMJ Open Sport Exerc Med* 5:e000693
4. Kiliç O, Aoki H, Goedhart E, Kerkhoffs GMMJ, Kuijer PPFM, Gouttebarga V (2018) Severe musculoskeletal time-loss injuries and symptoms of common mental disorder in professional football: a longitudinal analysis of 12-month follow-up data. *Knee Surg Sports Traumatol Arthrosc* 26:946–954
5. Schuring N, Kerkhoffs G, Gray J, Gouttebarga V (2017) The mental wellbeing of current and retired professional cricketers: an observational prospective cohort study. *Phys Sportsmed* 45(4):463–469