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## Introduction

Mental health symptoms are commonly reported by elite athletes during their career, with prevalence rates ranging from 19% for alcohol misuse to 34% for anxiety/depression [1, 2]. The scientific literature as well as many anecdotal reports suggest that elite athletes are also likely to report mental health symptoms once they retire from their sport. Transitioning out of elite sport is indeed not easy as it is likely to have a behavioral and emotional impact on former elite athletes. During the transitioning process, elite athletes might face several challenges such as adjusting to a new life and lifestyle, being suddenly “like everyone else,” or missing the sport atmosphere and competition. Depending on how well they cope with these challenges, former elite athletes might report mental health symptoms. This chapter focuses on these mental health symptoms (self-reported and not clinically diagnosed) that might occur after transitioning out of elite sport.

## Occurrence of Mental Health Symptoms in Former Elite Athletes

Scientific information about the mental health symptoms occurring in the context of elite sports remains scarce. This is even more the case for the group of former athletes who

might have struggled during transitioning out of elite sport. In the past two decades, a limited number of quantitative studies reporting the occurrence of mental health symptoms among former elite athletes were published, looking especially at symptoms of psychological distress, anxiety, depression, sleep disturbance, substance misuse, and disordered eating (Table 19.1). The available scientific evidence suggests that former elite athletes report mental health symptoms nearly as often as do active elite athletes or the general population [1, 2].

The prevalence of distress symptoms was shown to range between 9% and 39% among former elite athletes (mean age: 34–62 years; mostly male) from team sports (American football, cricket, football, ice hockey, rugby) and combined Olympic sports [3–10]. Recently, a cross-sectional study has found a 26% prevalence of distress symptoms among retired professional footballers, while a prospective cohort study showed that its 12-month incidence was 13% among Dutch former elite athletes (mean age: 50 years; various Olympic sports) [11, 12].

Symptoms of depression were reported by 15–42% of former American football players (mean age: 53–62 years), whereas symptoms of anxiety were experienced by 33% of former American ice hockey players (mean age: 57 years) [13–16]. The prevalence of anxiety/depression symptoms (not differentiated) ranged between 16% and 39% among

**Table 19.1** Prevalence of mental health symptoms among former elite athletes from various sport disciplines

	Distress	Anxiety/depression	Sleep disturbance	Adverse alcohol use
Cricket	26	24	21	22
Football	9–18	19–39	11–28	8–32
Handball	16	16	12	7
Ice hockey	12	19	17	29
Olympic sports	18	29	22	27
Rugby	25	28	29	24

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former elite athletes (mean age: 34–51 years; mostly male) from team sports (American football, cricket, football, ice hockey, rugby) and combined Olympic sports [4, 6–10]. Recently, a cross-sectional study has found an 11% and 13% prevalence of anxiety and depression symptoms, respectively, among retired professional footballers, while a prospective cohort study showed that the 12-month incidence of anxiety/depression symptoms (not differentiated) was 28% among Dutch former elite athletes (mean age: 50 years; various Olympic sports) [11, 12].

The prevalence of sleep disturbance was shown to range between 11% and 29% among former elite athletes (mean age: 34–62 years; mostly male) from team sports (American football, cricket, football, ice hockey, rugby) and combined Olympic sports [4, 6–10]. Recently, a cross-sectional study has found a 33% prevalence of sleep disturbance among retired professional footballers, while a prospective cohort study showed that its 12-month incidence was 15% among Dutch former elite athletes (mean age: 50 years; various Olympic sports) [11, 12].

When it comes to substance misuse, the consumption of alcohol has been the most studied. The prevalence of alcohol misuse ranged from 6% to 32% among former elite athletes (mean age: 34–62 years; mostly male) from team sports (American football, cricket, football, ice hockey, rugby) and combined Olympic sports [4, 6–10]. Recently, a cross-sectional study conducted among retired professional footballers has found a 69% prevalence of alcohol misuse and a 10% prevalence of substance misuse [12]. A recent prospective cohort study has shown that the 12-month incidence of alcohol misuse was 7% among Dutch former elite athletes (mean age: 50 years; various Olympic sports) [11].

Disordered eating is commonly reported by former elite athletes from various Olympic sports, with prevalence rates reaching up to 27% [7]. Recently, a cross-sectional study has found a 40% prevalence of disordered eating among retired professional footballers, while a prospective cohort study showed that its 12-month incidence was 20% among Dutch former elite athletes (mean age: 50 years; various Olympic sports) [11, 12].

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## The Etiology of Mental Health Symptoms in Former Elite Athletes

The occurrence of mental health symptoms in elite sport is likely to be multifactorial and is the consequence of the interaction between psychosocial and sport-related stressors [2, 17, 18]. In former elite athletes, stressors related to an elite sport career might have long-term consequences, while transitioning out of elite sport might lead to mental health symp-

toms. In addition, former elite athletes are as any human being likely to report mental health symptoms as a consequence of psychosocial stressors.

## Psychosocial Stressors

As indicated in the biopsychosocial model, biological (genetic, biochemical, etc.), psychological (mood, personality, behavior, etc.), and social (cultural, familial, socioeconomic, etc.) stressors, combined with adverse life events (e.g., death of a family member, relationship problem) and/or a particular vulnerability due to predisposition (e.g., genetic, personality, history), play a role in the occurrence of mental health symptoms (as well as other physical health problems) [17]. In former professional footballers, previous adverse life events were associated with a higher risk of mental health symptoms [3, 4]. A prospective cohort study showed that former professional footballers exposed to recent adverse life events were two to four times more likely to report mental health symptoms than were former players with no adverse life events [19]. Similar associations were found among former professional rugby players and former Dutch elite athletes [5, 7].

## Stressors Related to an Elite Sport Career

Stressors related to a sports career might have long-term consequences on the mental health of former elite athletes. In former professional footballers, severe musculoskeletal injuries and subsequent surgeries occurring during a football career were associated with a higher risk of mental health symptoms [3, 4]. A similar association was found in Olympic sport disciplines: former Dutch elite athletes exposed to a higher number of severe injuries and/or surgeries were up to seven times more likely to report mental health symptoms by comparison to those less or unexposed [7]. Some scientific literature suggests that sports career-related concussions might lead, in the long term, to mental health symptoms among former elite athletes [20]. Retired professional American football players reporting three or more previous concussions were found to be three times more likely to be diagnosed with depression compared with those with no history of concussion [21]. Former professional athletes from football, ice hockey, and rugby who reported a history of six or more concussions were approximately up to five times more likely to report mental health symptoms [22]. Sport career dissatisfaction was shown to have long-term consequences as well: former Dutch elite athletes who were dissatisfied about their sports career were

up to six times more likely to report mental health symptoms by comparison to those satisfied with their sports career [7]. A similar association was found among former professional rugby players [5].

### **Stressors Related to the Transition out of Elite Sport**

Transitioning out of elite sport can be an impactful period for many athletes as they might be exposed to various stressors and challenges, among which include adjusting to a new life and lifestyle, being suddenly “like everyone else,” or missing the sport atmosphere and competition [2]. This period is even more challenging for athletes forced to retire as they are more likely to report mental health symptoms by comparison to those who planned their time to transition out of sport. Former professional rugby players who were forced to retire (e.g., because of experiencing a career-ending injury) were more than twice as likely to report symptoms of distress in comparison to those who retired voluntarily [6]. In former professional footballers, employment status as well as a higher number of working hours were correlated with symptoms of distress and anxiety/depression (employment and more working hours associated with less distress) [23]. These findings confirm that combining an elite sport career with sustainable attention to education and career planning is important, while preparing for retirement from elite sport can ease athletes’ transition and positively impact their well-being [2].

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### **Duty of Care in Elite Sport**

As stated by the World Health Organization (WHO) and the International Labour Organization (ILO), “protection, promotion, surveillance and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations long after they enter their retirement years” is a fundamental human right that should be facilitated by social partners and stakeholders [24]. Therefore, stakeholders in elite sport have a duty to care, protect, and promote the long-term health of athletes. In professional football and rugby, an After Career Consultation was developed in order to empower the sustainable physical, mental, and social health and the quality of life of retired professional football and rugby players [25–27]. Analogously, an “exit health examination” focusing, among other things, on mental health should be developed and implemented in the context of elite sports. This could ease the process of transitioning out of elite sport, with clinicians playing a significant role in the

athletes’ care and guidance. This role of clinicians might be even more relevant to former elite athletes at risk for mental health symptoms, especially those who were forced to transition out of their sport.

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### **Clinicians’ Role**

Clinicians have an important role to play when elite athletes are transitioning out of sport, as they are likely to report mental health symptoms. Clinicians should screen elite athletes for mental health symptoms (and disorders) at the start of (and during) the transitioning process, as this will allow them to facilitate timely management and care for any identified mental health condition. Clinicians should also provide transitioning elite athletes with guidance toward the prevention of mental health symptoms.

The International Olympic Committee (IOC) Mental Health Working Group has developed the IOC Sport Mental Health Assessment Tool 1 (SMHAT-1) in order to assess elite athletes potentially at risk for or already experiencing mental health symptoms and disorders [28]. Relying on a three-step approach (step 1: triage; step 2: screening; and step 3: intervention and (re)assessment), the SMHAT-1 (Fig. 19.1) ideally should be used when any significant event for elite athletes occurs, including transitioning out of sport [28]. Subsequently, and if necessary, the management and care of elite athletes transitioning out of sport and reporting mental health symptoms should be facilitated in a timely manner. Generic approaches are available in order to manage mental health symptoms among former elite athletes, with such approaches including improvement in mental health literacy (through psychoeducation), physical activity, psychotherapy, and pharmacological treatment [2, 29]. It is worth mentioning that both mental health literacy (psychoeducation) and physical activity should be considered by clinicians as types of guidance for transitioning elite athletes that may prevent mental health symptoms.

Mental health literacy is defined as the cognitive and social skills that determine the motivation and ability of individuals to gain access to, understand, and use information in ways that promote and maintain good mental health [30]. This has come to include concepts related to the knowledge of effective self-management strategies, challenging the mental disorder stigma, awareness and use of mental health first aid to assist others, and the facilitation of help-seeking behaviors [30]. Such an organized process of disseminating balanced and evidence-based information about a medical condition to patients and their entourage (e.g., family, friends, colleagues) is an essential element of nearly all types

# SMHAT-1

The International Olympic Committee Sport Mental Health Assessment Tool 1  
DEVELOPED BY THE IOC MENTAL HEALTH WORKING GROUP



Athlete's name: \_\_\_\_\_ Athlete's ID number: \_\_\_\_\_

### What is the SMHAT-1

The International Olympic Committee (IOC) Sport Mental Health Assessment Tool 1 (SMHAT-1) is a standardized assessment tool aiming to identify at an early stage elite athletes (defined as professional, Olympic, Paralympic and collegiate level; 16 and older) potentially at risk for or already experiencing mental health symptoms and disorders, in order to facilitate timely referral of those in need to adequate support and/or treatment.

### Who should use the SMHAT-1

The SMHAT-1 can be used by sports medicine physicians and other licensed/registered health professionals, but the clinical assessment (and related management) within the SMHAT-1 (see step 3b) should be conducted by sports medicine physicians and/or licensed/registered mental health professionals. If you are not a sports medicine physician or other licensed/registered health professional, please use the IOC Sport Mental Health Recognition Tool 1 (SMHRT-1). Physical therapists or athletic trainers working with a sports medicine physician can use the SMHAT-1 but any guidance or intervention should remain the responsibility of their sports medicine physician.

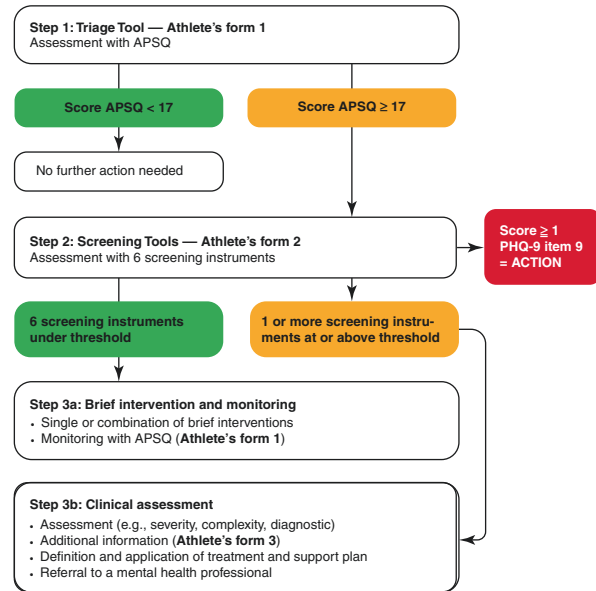
### Why use the SMHAT-1

Mental health symptoms and disorders are prevalent among active and former elite athletes. Mental health disorders are typically defined as conditions causing clinically significant distress or impairment that meet certain diagnostic criteria, such as in the Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5) or the International Classification of Diseases 10th revision (ICD-10), whereas mental health symptoms are self-reported, may be significant but do not occur in a pattern meeting specific diagnostic criteria and do not necessarily cause significant distress or functional impairment.

### When to use the SMHAT-1

The SMHAT-1 should be ideally embedded within the pre-competition period (i.e., a few weeks after the start of sport training), as well as within the mid- and end-season period. The SMHAT-1 should also ideally be used when any significant event for athletes occurs such as injury, illness, surgery, unexplained performance concern, after a major competition, end of competitive cycle, suspected harassment/abuse, adverse life event and transitioning out of sport.

*To use this paper version of the SMHAT-1, please print it single-sided. The SMHAT-1 in its current form can be freely copied for distribution to individuals, teams, groups and organizations. Any revision requires the specific approval by the IOC MHWG while any translation should be reported to the IOC MHWG. The SMHAT-1 should not be re-branded or sold for commercial gain. Further information about the development of the SMHAT-1 and related screening tools (including psychometric properties) is presented in the corresponding publication of the British Journal of Sports Medicine.*



## Step 1. Triage tool for mental health symptoms and disorders

**ACTION:** For this step, you need to refer to the Athlete's form 1. Complete the following.

Calculate the total score by summing up the answers on the 10 items

Total Score

Total score 10–16 >>> No further action needed

Total score 17–50 >>> The athlete should complete the Athlete's form 2. Once the Athlete's form 2 is completed, proceed to step 2

## Step 2. Screening tools for mental health symptoms and disorders

**ACTION:** For this step, you need to refer to the Athlete's form 2. Complete the following.

### Screening 1 (anxiety)

Calculate the total score by summing up the answers on the 7 items

Total Score

### Screening 2 (depression)

Calculate the total score by summing up the answers on the 9 items

Total Score

Note the score ('0', '1', '2' or '3') of the athlete on item 9

Score

### Screening 3 (sleep disturbance)

Calculate the total score by summing up the answers on the 5 items.

Total Score

### Screening 4 (alcohol misuse)

Calculate the total score by summing up the answers on the 3 items

Total Score

### Screening 5 (drug(s) use)

Calculate the total score by summing up the answers on the 4 items

Total Score

Note which drug(s) caused concerns or problems for the athlete

Drug(s)

### Screening 6 (disordered eating)

Calculate the total score by summing up the answers on the first 6 items

Total Score

Fig. 19.1 The International Olympic Committee Sport Mental Health Assessment Tool 1 (SMHAT-1)

of health conditions and related treatment. Therefore, mental health literacy should be considered as a prerequisite to any subsequent approach applied to elite athletes transitioning out of sport.

Remaining physically active on a regular basis provides many health benefits, including improved sleep, stress relief, improved alertness, increased energy levels during the day, and healthy weight management. Research has shown that physical activity, including jogging, swimming, cycling, walking, gardening, and dancing, also has a significantly positive impact on mental health symptoms: it improves self-esteem and cognitive function and reduces anxiety and depression [2, 29]. This effect might be explained not only by physiological reactions (e.g., exercise-induced increase in blood circulation to the brain) but also by distraction, self-efficacy, and social interaction. The significance of physical activity for health in general and for mental health in particular should be acknowledged by clinicians with elite athletes transitioning out of sport.

By allowing patients to understand their feelings, and what makes them feel positive, anxious, or depressed, psychotherapy refers to a range of approaches that can help with mental health symptoms [2, 29]. One of the most commonly applied approaches to psychotherapy is cognitive behavioral therapy (CBT). Based on the relationship and dialogue between the patient and the clinician, this process can provide patients with the coping skills necessary to deal with difficult situations in a more adaptive and positive manner [2, 29]. When it comes to elite athletes transitioning out of sport, as performance-related matters are typically much less relevant, psychotherapy can provide the necessary safe and supportive environment that allows athletes to talk openly with someone who is objective, neutral, and nonjudgmental. As family members are likely to be substantially impacted by the process of transitioning out of elite sport and/or involved in the athletes' mental health symptoms, family therapy should be considered by clinicians.

Although mental health literacy, physical activity, and psychotherapy are typically the first-line treatments for mild to moderate mental health symptoms, medications may also be needed in some cases. When it comes to elite athletes transitioning out of sport, there are fewer particular considerations when prescribing psychiatric medications (in contrast to active athletes).

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