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Mental Health in Youth Athletes: A Clinical Review

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Key Words: Psychiatry; Mental health; Sport; Athletes; Adolescents; Youth

Key Points

- Youth sport provides an environment that can be both protective and supportive of physical and mental health. However, a range of psychosocial stressors and negative experiences can also be present.
- Potential stressors faced by elite youth athletes include pressure to perform and perfectionism, burnout, maintenance of academic and social balance, interpersonal conflict or abuse, injury and concussion, body image and weight pressures, and disrupted sleep.
- Clinicians treating a youth athlete should be conscious of the sporting context, in order to both facilitate trust and engagement with the athlete, as well as better understand potential contributing and protective factors for distress.

Synopsis

The majority of mental health disorders have their onset during adolescence and early adulthood, with roughly half of these disorders emerging in mid-adolescence. While sport offers a range of critically important benefits, competitive demands on young athletes may increase susceptibility to mental health symptoms and disorders during an already challenging developmental period, especially in the context of elite sport, which is characterized by increasing professionalization and specialization. This clinical review examines key literature regarding risk factors for mental health symptoms and disorders in youth athletes, as well as providing informed practical guidance for clinicians working with this cohort.

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Introduction

Common mental health disorders, such as depression and anxiety, are prevalent in young people. Approximately half of all mental health disorders begin by the mid-teens.[1] While prevalence rates vary, an estimated 20-25% of adolescents and young adults in the general community will experience a diagnosable disorder in any given year.[2] Puberty and the growing importance of interpersonal relationships play a role in the potential development of psychopathology, along with risk factors such as abuse, neglect, bullying and social disadvantage.[2,3] In contrast, physical exercise and sport provide benefits to the mental health of youth via multiple biological, psychological and social effects. Biological benefits include the neurophysiological effects of physical activity; psychological effects include the development of competence, confidence and improved self-esteem, while social benefits include increased social integration, cohesion and shared goals.[4,5] Though rates of organized sports participation vary globally, in many countries, the majority of young people are engaged in organized sport.[6]

This review examines mental health within competitive youth athletes and is directed toward clinicians working with adolescent and school-aged competitive athletes, including elite junior or 'pathway' athletes. We define youth athletes as those aged approximately 12-18 years, while noting that more recent, non-traditional approaches consider the concept of 'youth' to extend into early adulthood.[7] We examine specific factors associated with sport that can contribute to exacerbation or causation of mental health symptoms and disorders in youth athletes, and canvas considerations for appropriate assessment and treatment in this group.

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Young people can thrive through sport

Sports participation contributes to physical health and psychosocial development of youth, by providing a forum for building life skills, such as resilience, teamwork, leadership, and communication skills, or via *intentionally* developing positive mental health outcomes using positive youth development frameworks[8-11]. A recent review illustrated that sport can contribute to positive youth development in the form of positive self-perceptions, learning problem-solving skills, stress management, goal setting, taking personal responsibility, instilling perseverance, working hard and independence, in addition to developing friendships, communication skills, and leadership.[12] Vella and colleagues[13] have demonstrated that the relationships between sport participation and adolescent mental health are bidirectional. Specifically, when exploring a large longitudinal sample of adolescents with assessments at 12 and 14 years of age, time involved in organized sport predicted better future mental health, and vice versa. These findings relate to *community* sport, however, and are not necessarily a given in elite youth sport environments. Nonetheless, quality talent development environments exist in highly competitive sport (e.g., European football academies), with studies reporting a positive association between the quality of the environment and the mental health outcomes of youth players.[14-16]

Mental health and related stressors in youth sport

Despite the proliferation of research into the mental health of elite athletes,[17,18] youth sport remains under-represented.[19] Meta-analysis has shown that for adolescents engaged in all forms of sport participation, there is a small association with *lower* levels of anxious and depressive symptoms.[20] In line with this, Weber and colleagues[21] demonstrated low depression and anxiety symptoms among their sample of 12-18 year-old athletes. Seven percent and 3%

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were classified as ‘possible’ and ‘probable’ cases for anxiety, respectively, with these figures at 9.5% and 3.7% for depression. Brand and colleagues[22] compared rates of mental health symptoms between elite student-athletes (aged 12–15 years) who had recently been deselected from elite sport promotion, and non-sport students. Rates across common mental health symptoms and disorders were higher than Brand et al, including generalized anxiety disorder (lifetime; males: 9.0%, females: 14.4%), social phobia (last 12 months; males: 6.7%, females: 7.4%), and depressed mood (last 12 months; males: 19.3%, females: 36.5%). Generally, rates were significantly higher in deselected athletes. In addition to deselection being a risk factor, youth athletes (mean age = 14.96) in individual sports have reported more depressive symptoms than those in team sports (mean Center for Epidemiologic Studies Depression Scale scores of 11.55 and 9.47, respectively),[23] suggesting a range of sport-specific factors may be key to understanding rates of symptomatology.

Further aspects of sport may contribute to the development or escalation of mental health symptoms or disorders in youth athletes. Salient factors that predict dropout from organized youth sport include lack of enjoyment, low perceptions of competence, social pressures, competing priorities, and physical factors such as injury.[24] These domains provide insights into contributing stressors to poor mental health, some of which may be targets of interventions to restore both sport participation and mental health. A number of contextual factors and stressors related to sporting environments may also be influential to mental wellbeing in youth athletes, although the extant literature in this regard has focused specifically on outcomes such as sports enjoyment, dropout, performance anxiety, or burnout.[5,25] Stressors examined in the following section may not necessarily predict mental health symptoms or disorders in youth athletes, but are explored in order to assist clinicians in understanding the potential negative experiences and

contexts that a presenting youth athlete may be experiencing (additional references are provided in Table 1).

Pressure to perform and perfectionism

Youth athletes are increasingly exposed to pressures to perform at a consistent and high level, potentially encouraging or instilling high levels of perfectionism.[26] Perfectionism is a multidimensional construct, and is typically conceptualized via at least two key factors: (1) 'Perfectionistic concerns', which relate to the pursuit of exacting standards imposed by significant others, and (2) 'perfectionistic strivings', which relate to the pursuit of self-imposed goals and standards accompanied by harsh self-criticism.[27] Perfectionistic concerns are thought to be more maladaptive to mental well-being.

Research has shown associations between perfectionistic concerns and negative outcomes in youth athletes, most commonly burnout.[28-30] Fear of failure – a construct highly related to perfectionistic concerns – is associated with psychological stress in adolescent athletes.[31] Meta-analysis has provided support that perfectionistic concerns are associated with poorer well-being and higher likelihood of anxiety, while providing no clear benefit to sporting performance.[32] There is correlational evidence that younger athletes have higher rates of perfectionistic concerns than older athletes,[33] making this an area of focus for youth sport and a target for early intervention to avert negative outcomes such as burnout and dropout.

Burnout and early specialization

Burnout in sport can be characterized by physical and emotional exhaustion, reduced sense of accomplishment, and sport devaluation.[34] Granz and colleagues[35] identified involvement

in technical, endurance, aesthetic or weight-dependent sport, training under an autocratic or a laissez-faire coach, high subjective stress outside of sport, a low willingness to make psychological sacrifices, lack of sleep, and female sex as key contributors to youth athlete burnout. Conversely, factors that decreased the likelihood of burnout were fewer hours of training, low social pressure, low subjective stress outside of sport, a high willingness to make psychological sacrifices, and high health satisfaction.[35]

Early sport specialization is becoming increasingly common as athletes, coaches, and parents quest for future success. In a review of psychosocial consequences of early sport specialization, youth athletes were considered to be at risk of social isolation, poor academic performance, increased anxiety, greater stress, inadequate sleep, decreased family time, and burnout.[36] This should be considered with relatively consistent evidence that early sport specialization is not required for future elite success.[37] However, complexity as to the necessity for early specialization arises when there are clear between-sport differences, with the peak age of performance being considerably younger in some sports (e.g., gymnastics) as compared to others (e.g., road cycling).

Peer and parental conflict

In adolescence, interpersonal conflict and bullying among peers is not uncommon, and a causal link exists between bullying and a range of negative mental health outcomes such as depression, anxiety, substance use, and suicidal ideation and behaviors.[38] While evidence suggests that bullying occurs more commonly in school settings than sport,[39] Partridge and Knapp examined the role of conflict in female adolescent team sport participants, and identified jealousy, personal characteristics, and coaching influences as the key sources of interpersonal

conflict.[40] The outcomes of this conflict included performance anxiety and a range of negative emotional experiences such as sadness, embarrassment, anger, and reduced self-esteem. Among adolescent male football players, bullying was more likely to be perpetrated by those who endorsed more typically masculine traits, and it was observed that this behavior was encouraged or endorsed by influential male role models such as brothers, fathers, or coaches.[41]

Parents of competitive youth athletes can be both protective of mental wellbeing and contribute to poor mental health. Protective aspects include providing emotional, behavioral, financial and logistical support. However, parents of athletes can also be a key source of stress, through negative or critical feedback, anger or inappropriate behavior during training and competition, and holding unrealistic expectations for their child/athlete.[42] Qualitative investigation of clinicians' experiences in talent development pathways have highlighted the detrimental role of 'pushy parents' in youth athlete mental health.[43] It is possible, though not yet demonstrated, that parental style (i.e., authoritarian and controlling or autonomy-supportive)[44] may influence athlete mental health outcomes. An assortment of factors can influence how a youth athlete perceives parental involvement in sport, including gender, goal alignment, timing of involvement, motivational climate, and relationship quality.[45,46]

Insert Box 1 around here.

Abuse and maltreatment

Abuse or maltreatment can occur in youth sport, perpetrated by coaches, parents, administrators, officials, and other athletes.[47] Relational maltreatment occurs within a critical relationship role in which the other has significant influence over an individual's sense of safety,

trust, and fulfillment of needs.[48] Such maltreatment typically revolves around acts of neglect and/or physical, sexual, and emotional abuse. Non-relational maltreatment does not occur within critical relationships and may include harassment, bullying, (sexual) exploitation, institutional maltreatment, and abuse or assault.[47,48] Given the importance of child safety to clinical practice, the overviews of Stirling[47] and Mountjoy et al[49] are recommended reading for clinicians working with youth athletes.

Central to the potential for youth athlete maltreatment is the inherent power imbalance that exists between the athletes and the adults who are responsible for decisions critical to their sporting ambitions and desires (e.g., playing time, selection, medical treatment, training priority). Coaches and support staff such as medical, nutritional, and strength and conditioning specialists hold positions of power.[50] Parents can also become socialized into accepting a range of abusive behaviors in elite youth sport, leading to a lack of action in confronting abusive coaches.[51] In a sample of over 4000 adult Belgian and Dutch athletes,[52] the retrospective reporting of severe emotional, physical, and sexual abuse during childhood sport was predictive of mental health symptoms as an adult.

Injury and concussion

Youth athletes are at risk of injury due to ongoing physical and physiological changes, as well as underdeveloped coordination, skills, and perception.[53] Similar to adult elite athletes[18], injury can be a significant stressor for both acute and ongoing mental health problems in youth athletes, though accurate prevalence rates are lacking.[54-56] Distress can manifest as anger, grief, guilt, and burnout, with symptomatology potentially reflective of anxiety, depression, and adjustment and post-traumatic stress disorders. These responses to injury often reflect an athlete

dealing with physical pain, frustration during the rehabilitation process, traumatic flashbacks, isolation or exclusion from sport and teammates, and fear of re-injury or not returning to prior levels of ability.[56-58]

The role of concussion in mental health is receiving increasing attention.[59] Concussions occur frequently in youth sport, though overall incidence varies highly between sports. Of particular concern, adolescent athletes are known to significantly underreport post-concussive symptoms, typically as a result of not wanting to leave the game, misunderstanding the severity, or not wanting to let their team down.[60] Unfortunately, only limited information is available on the effects of concussion on mental health outcomes in youth athletes, including self-harm and suicide.[61,62] Anxiety has been demonstrated in young people (aged 8-18) who exhibit post-concussive symptoms for one month or longer, as compared to those whose symptoms resolved within a week,[63] and elevated depressive symptoms at 2, 7, and 14 days post-concussion were reported in a sample of youth athletes.[64] In another sample of 174 young people reporting a sport-related concussion (or subsequent post-concussion syndrome), 11.5% experienced a negative post-injury mental health outcome or worsening symptoms of a pre-injury mental health disorder.[65]

Body image and weight concerns

Disordered eating may take the form of restrictive diets, binge eating, dehydration, purging, and diet pills. It may occur with or without excessive exercise or training.[66] In a representative sample of over 1000 adolescent athletes,[67] 8% reported *constantly* trying to lose weight, with 12% using compensatory methods (e.g., fasting, purging, and appetite suppressers), and 32.5% fulfilling criteria for an eating disorder. Little is known about comorbid mental health

outcomes associated with eating disorders in youth athletes, though anxiety has been shown to be higher in those with disordered eating behaviors versus those without.[68,69]

While higher rates of eating disorder symptoms are typically found in female athletes and those competing in weight or aesthetic dependent sports, a recent systematic review demonstrated major inconsistencies in the literature in relation to sport-based risk factors,[70] and male athletes have been relatively neglected in the literature,[71] with most interventional studies in youth athletes (> 80%) focused on females.[72] Of clinical relevance, this literature suggests that successful interventions are characterized by a longer duration, higher session intensity, and targeting self-esteem and self-efficacy as well as eating psychopathology and nutrition.

Disrupted sleep

The bidirectional and interdependent role of sleep and mental health will be familiar to most clinicians. Athletes commonly report inadequate sleep, but additional academic and social demands in youth may accentuate this. A recent systematic review[73] showed that child and adolescent athletes had impaired sleep quality across a range of measurements including sleep time, sleep efficiency, and waking after sleep onset, compared to young and middle age adults. Further, sleep onset latency was longer for elite youth athletes, compared to semi-elite. Given that 8-11 hours of sleep per night is recommended for young people aged 6-18 years old,[74] it is concerning that the review estimated that athletes between these ages are getting closer to six hours of total sleep time.[73] While not investigated specifically in youth athletes, the use of electronic devices and screen-time at night may be an important factor, particularly if athletes are away during competition. This is based on moderately strong evidence for an association between screen-time and depressive symptoms in young people.[75]

Assessment with youth athletes

Fundamental to the initial assessment of a youth athlete is obtaining a clear understanding of the individual's sporting environment. The key systems[76] that all have the potential to impact an athlete's behaviors, attitudes, and experiences are: (1) the family subsystem (athlete, parents, and siblings), (2) the team subsystem (athlete, peers, and coaches), and (3) the environmental subsystem (organizations, communities, and societies).[76] Clinicians should gather a comprehensive understanding of how each system interacts with the youth athlete and the potential protective or harmful relationships entailed within these systems.

During assessment[77] athletes should be encouraged to describe their positive and negative experiences in sport, with specific attention to key relationships with peers, coaches, and parents. Attention to the role and function of sport in the athlete's life, as well as how and why this particular sport was chosen, can help reveal 'proxy achievement' concerns. Clinicians should be active in listening and prompting for any potential abuse or maltreatment that may be occurring, given that unguided disclosure is unlikely. Understanding the youth athlete's interpretation of perceived pressures around body image and weight, performance, and playing through injury (particularly concussion) is important, as is an understanding of the extent to which the athlete is balancing sport participation with academic and social roles. Identifying the ways in which athletes view and relate to themselves, especially in regards to athletic identity and perfectionistic concerns, is indicated given their association with mental health symptoms.

Insert Box 2 around here.

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Athlete resistance and mental health stigma

Athletes may commonly mask or downplay the severity of their emotional distress, given that sport is an arena where mental toughness and 'getting on with it' is highly valued. This mentality may be particularly strong in youth athletes who are still developing confidence and self-understanding, and amongst those already competing in adult sport settings. Youth athletes (aged 16-23) in one study expressed that they should not show weaknesses, and worried about what others—including teammates, coaches, opponents, and parents—would think of their ability to perform to their best.[78] Clinicians should be conscious of the potential ramifications for help-seeking or disclosure of mental health symptoms in youth athletes, including the perceived consequences such as losing playing time or selection, or reduced trust from teammates and coaches. To enhance therapeutic engagement, some athletes may respond better to treatment being framed within the context of performance optimization, rather than treatment of a 'disorder'.[17,79] Such strategies may also be needed for parents who could hold similarly stigmatizing views.

Assessment tools

To our knowledge, there are no sport-specific assessment tools for mental health in youth athletes. A range of youth-appropriate general mental health screening tools are recommended by the Neurobiology in Youth Mental Health Partnership,[80] and may be used to augment sport-specific measures (the latter developed for and normed in adult athletes). A number of specific athlete-centered tools can provide valuable insights for the treating clinician as to current stressors faced by an athlete or predispositions and characteristics that may enhance case

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formulation and treatment approaches (e.g., sports-based perfectionism). Table 2 provides a summary of measures that may be useful to consider in assessing the youth athlete.

Collateral information

Ideally collateral information to augment the young person's self-report should be included as part of the assessment.[81] Clinicians should be sensitive to parental pressures as potential causes of distress. Since coaches identify that they have a role to play in youth athlete mental health through identifying issues and facilitating support,[82] they may also provide helpful collateral information. Any information gathering should be done transparently with the young person's support and consent.

Treatment with youth athletes

At the outset of treatment, it is important to clearly establish treatment goals in partnership with the youth athlete. While this is good practice in youth mental health, athletes may respond particularly well to this, given goal-driven tendencies established in sport. Goals may revolve around stress control, conflict resolution, sleep and energy management, injury recovery and pain management, mental preparation, and treatment of mental health symptoms or disorders.[83,84]

Psychological approaches

Psychological approaches should be considered the first line treatments for mental health symptoms or disorders in youth athletes, with pharmacological treatment indicated in more severe or complex cases. Since there is a dearth of evidence regarding the efficacy of various

interventions specific for youth athletes, clinicians are encouraged to extrapolate the existing evidence base and treatment guidance from the general population into the context of high-performance sport. Cognitive behavioral therapies (including 'third wave' approaches) may be well suited to youth athletes, given a range of inherent ingredients that overlap with sport: structure, direction, practice (homework), goal-setting, and self-reliance.[85,86] Given the role of parents in youth athlete support and/or stress, family therapy may be an important approach to consider in the treatment process for suitably qualified practitioners.[85] Compassion focused therapies are increasingly relevant to athlete well-being,[87,88] with enhanced self-compassion particularly suited for body image concerns,[89] performance failures,[90] or injury.[91] Finally, individualized education programs in schools may be helpful in the context of certain symptoms and disorders given the youth athlete's typical dual role as student.

Pharmacological considerations

Medication may be necessary for treatment of more severe mental health symptoms or disorders. If used in this population, medications should typically be combined with other approaches as described above. In adult athletes, considerations for prescribing medications include: 1) potential negative impacts on athletic performance; 2) potential performance enhancing effects; and 3) potential safety risks.[18] Those considerations also have relevance for youth athletes, though the extent to which that is the case varies by the particular sport and its demands, level of performance required, time frame within the athletic training/competition cycle, and anticipated duration of treatment.[18]

Common side effects that may negatively impact athletic performance in youth include sedation, weight gain, orthostatic hypotension, tachycardia, and tremor.[92] In general, clinicians

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aim to minimize side effects in youth (athletes or not). The overall impact of the medication on the youth athlete's functioning and health and the salience of sport in their life will all influence medication decisions. All else being equal, it is desirable to avoid performance-limiting side effects in youth athletes if possible, while not compromising on effective care.

Stimulant medications, typically prescribed for attention-deficit/hyperactivity disorder (ADHD), represent the primary group of psychiatric medications for which there are concerns about ergogenic (unfair) performance enhancement. Thus, at higher levels of competition, stimulants are typically prohibited unless an application is made for a medical exemption (called a Therapeutic Use Exemption or TUE).[93,94] There are typically no prohibitions at high school levels or below. For youth athletes appropriately prescribed and wishing to continue stimulants and who plan to compete at certain national or international levels, clinicians may be asked to supply medical information to help youth athletes apply for a TUE.[94] A second group of medications with prohibitions in some sports are beta blockers, which are sometimes prescribed for performance anxiety. This group may improve fine motor control and are prohibited at higher levels of competition in certain sports such as archery and shooting.[94]

The final area of consideration regarding medications for youth athletes are safety risks. Such risks may be especially relevant for youth athletes pushing themselves to physical extremes. For example, stimulants may be a risk for heat illness.[95] They may also decrease appetite, which can be a concern if athletes are expending large amounts of energy in sport but not able to maintain appropriate dietary intake.[18] However, academic considerations are paramount in youth, and as stimulants are often regarded as the gold standard treatment for ADHD, they should be used when necessary if there are no other contraindications (such as cardiac disease) and adequate hydration and nutrition can be ensured.[96] Secondly, medications

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where blood levels need to be tightly regulated can be difficult to manage in youth athletes, as levels may fluctuate depending on hydration and perspiration.[95] Finally, beta blockers may problematically lower blood pressure in youth athletes, who at baseline may tend to have low blood pressure.[18]

Anxiety and depression can be reasonably treated with selective serotonin reuptake inhibitors (SSRIs) in youth athletes. These have not been studied in youth athletes specifically, but several are approved for use in youth in general.[97] In small studies, SSRIs have not been shown to negatively impact performance in adults,[98,99] and fluoxetine may be a particularly reasonable choice in youth athletes. Little research guidance regarding specification medications is available for pharmacological treatment of other mental health disorders in youth athletes. Accordingly, best practices for the general population of youth should be followed, with careful consideration of sport performance and sport-specific safety demands.

Summary

Youth athletes represent a unique but largely neglected population in clinical mental health research. Aside from psychological performance enhancement, much remains unknown about the problems and treatment approaches specific to this group. Clinicians new to working with this population are advised to upskill as much as possible regarding contextual factors and the psychosocial stressors faced by youth athletes. A range of key psychosocial stressors and risks have been identified in this review. Clinicians should consider these in the assessment and treatment of youth athlete mental health. However, given the near absence of an athlete-specific evidence base, there will be a need to rely on the general non-athlete mental health research literature when making treatment decisions. By providing high quality and timely assessment

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and treatment, clinicians can also play a key role in the early intervention and prevention of troubling future distress that young people may go on to experience in adulthood.

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Box 1. Considering culture and minority perspectives

Clinicians should make every effort to be aware of the potentially differing experiences of individuals who identify from groups that may experience discrimination, bullying, or abuse. In young people particularly, there is evidence that athletes identifying as from sexual, gender, or racial-ethnic minority groups can have a negative sporting experience for a range of reasons. For example, youth athletes may feel unwelcomed, unable to express themselves, and demonstrate reduced help-seeking.[100-103] Discussion of this experience should be welcomed and supported by clinicians.

Box 2. Putting the person before the athlete – A brief caution

While sport participation has been the focus of this clinical review, we caution against over-emphasizing the role of sport when this may not be the relevant factor to the young person. Many athletes feel that they are seen as 'the athlete' throughout many interactions in their social and academic life, which can lead to a reduction and rejection of their unique identity and experience. Clinicians should be careful not to fall into this trap. Many athletes may be experiencing a significant mental health problem that is related to concerns *outside of* sport (e.g., relationship breakup, death in the family), or a longstanding condition. Any clinician working with an athlete should endeavor to work from a person-centered approach where there is capacity for the 'human' experience to be emphasized before the 'athlete'.

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Table 1. Stressors in youth sport and corresponding considerations for treating clinicians

	Clinics Care Points	Suggested Reading
Perfectionism	• Demonstrate understanding and empathy towards the exceptional standards required for success in elite sport, while conveying that harsh self-criticism can be detrimental to well-being and performance. • Be aware of 'perfectionistic concerns' and ideas relating to demanding standards or perceived negative evaluation from others. • Provide psychoeducation to help the athlete identify both the positive and negative aspects of perfectionism on mental health and performance.	Hill et al (2018)[32] Hill et al (2017)[104]
Burnout and Specialization	• Understand/monitor the athlete's current workload (not just their current sporting requirements, but also the academic and social demands they are balancing). • Assess for symptoms of burnout: physical and emotional exhaustion, reduced sense of accomplishment, and sport devaluation. This should be differentiated from depressive symptoms, though symptom overlap can occur. • Work with the athlete to identify what they enjoy(ed) about their sports participation, and how this may have recently changed.	Pacewicz et al (2019)[105] Brenner et al (2019)[y36] DiSanti et al (2019)[y37]

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	• Support the athlete and caregivers in reframing expectations of sports participation to emphasize that fun and development are important, even at elite-youth levels. Highly specialized and demanding training regimes are not necessarily effective strategies for sporting success, and can lead to reduced well-being, burnout and subsequent dropout. • Help the athlete to understand their values and potential non-sporting pursuits to expand identity and promote role balance.	
Injury	• Try to understand what is causing the distress in response to injury (e.g., physical pain, frustration with rehabilitation, trauma, isolation, and fear of re-injury or not returning to prior ability) so as to inform treatment approaches. • Compassion- and acceptance-based approaches are helpful, given that injury is an almost inevitable outcome of elite sport. • Help the athlete learn to transform their injury into an opportunity for growth and development.	Rist et al (2020)[106] Ross et al (2019)[107] Baranoff et al (2019)[108]
Concussion	• Psychological symptoms following concussion in youth athletes are common. • Athletes may be poor at recognizing, or may actively downplay, concussive symptoms. Adapted phrasing for	Rivara et al (2020)[y62] Rice et al (2018)[59] Covassin et al (2017)[y61]

	describing concussion (using lay language or sports slang; e.g., "blacked out" rather than "loss of consciousness") may assist in recognition. • Given the severe potential neurological consequences of repetitive head trauma, treating practitioners should include specialist neuropsychologists, neurologists, sports medicine physicians, or others with relevant expertise in the assessment of symptoms and recommendations for future sport involvement.	
Interpersonal Conflict	• Bullying and conflict occur in sport, and it is important to identify the athlete's key relationships that are centered in sport. • Be particularly cognizant of any negative interpersonal experiences for athletes who identify as from a minority group. • Collect collateral information from parents and coaches if the athlete provides consent.	Wachsmuth et al (2017)[109] Knight et al (2017)[y46]
Abuse and Harassment	• Abuse may not be disclosed by the athlete where it exists. • Aim to sensitively assess for potential experiences of trauma or maltreatment that may have gone unreported. • Consider sport-specific forms of abuse such as body shaming, and encouragement to dope, cheat, or play when injured/concussed.	Kerr et al (2019)[y50] Mountjoy et al (2016)[110] Mountjoy et al (2015)[49] Stirling (2009)[47]

	• Be conscious in considering the important consequences an athlete may perceive as a result of disclosing an abusive relationship. However, child safety must be of the foremost concern.	
Weight and Body Image	• Concerns around body weight and image are common in athletes, and require significant clinical attention. • Screening for eating disorders following the emergence of any new body image concerns is important to reduce the potential for missed diagnoses. • These concerns may relate specifically to the particular demands of the sport in question (e.g., weight dependent and aesthetic sports). Have a good awareness of, or openness to learn about, the particular requirements of the sport in order to build trust and credibility in aligning treatment goals with the athlete. • Multidisciplinary care and specialist treatment are typically required for any diagnosed disorder.	Wells et al (2020)[66] Stoyel et al (2020)[70] Karrer et al (2020)[y71]
Sleep	• Poor sleep is a common problem in youth athletes • Obtain accurate information about the young person's sleeping habits and any disruptions that may be present. • There are many approaches to sleep extension that can be helpful, including sleep hygiene psychoeducation and cognitive behavioral approaches.	Vlahoyiannis et al (2020)[73] Kroshus et al (2019)[y111] Gupta et al (2017)[112]

Note: Clinics care points are designed to communicate evidence-based tips for treatment; [y]: Article relates predominantly to youth (including collegiate) athletes.

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Table 2. Sport-specific measures for mental health and related stressors in athletes

Construct	Measure	Description
Athlete Mental Health: General Assessment	International Olympic Committee Sport Mental Health Assessment Tool 1[113]	• This is a sequential assessment guiding a clinician through identification of mental health concerns. • The Athlete Psychological Strain Questionnaire[114] is used as a triage tool, and may be an appropriate option as a stand-alone measure (see below).
	Athlete Psychological Strain Questionnaire[114]	• A 10-item self-report measure assessing psychological strain related to sporting environments with the following subscales: self-regulation, performance, and coping.
	Sport Interference Checklist[115]	• A 26-item self-report measure that assesses behavioral and cognitive factors that are reported to interfere with sport performance in training and competition, as well as the athletes' likelihood of seeking help for the problem.
	Sport Mental Health Continuum—Short Form[116]	• A 14-item self-report measure that assesses sport-related wellbeing, with the following subscales: subjective, psychological, and social.
Perfectionism	Sport Multidimensional Perfectionism Scale[117]	• A 34-item self-report measure with the following subscales: Personal Standards, Concern over Mistakes, Perceived Parental Pressure, and Perceived Coach Pressure. • While a second version of this scale exists that includes Doubts about Actions and Organization sub-scores, the

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		value of these is negligible and the original version remains more widely used.
Athletic Identity	Athlete Identity Measurement Scale[118]	• A 7-item self-report measure with the following subscales: social identity, exclusivity, negative affectivity.
Sleep	Athlete Sleep Screening Questionnaire[119]	• A 15-item self-report measure with the following subscales: Total Sleep Time, Insomnia, Sleep Quality, Chronotype, Sleep Disordered Breathing, and Travel Disturbance.
Self-Compassion	Self-Compassion Scale[120]	• A 26-item self-report measure with the following subscales: Self-kindness, Self-judgment, Common Humanity, Isolation, Mindfulness, and Over-identification. • Adapted wording to reflect sports environments has been used in research, and may achieve more reflective responses.
Burnout	Athlete Burnout Questionnaire[121]	• A 15-item self-report measure assessing the three domains of athlete burnout: Emotional/physical exhaustion, Sport devaluation, and Reduced sense of accomplishment.
Body Image and Weight Concerns	Eating Disorders Screen for Athletes[122]	• A 6-item self-report screening measure that may identify athletes at risk for an eating disorder. • Unlike other sport-specific measures of disordered eating, this scale is reported to be valid with males.
	Brief Eating Disorder in Athletes Questionnaire 2[123]	• A 9-item self-report measure that can help distinguish between female athletes with or without an eating disorder.

Note: These scales should supplement, rather than replace, gold-standard measures (e.g., Quick Inventory of Depression Symptoms or the Generalised Anxiety Disorder Scale), for which we assume clinicians are already familiar. We highlight that the psychometric properties of many of these scales have not been rigorously assessed within adolescent samples. Therefore, clinical judgement is required when interpreting the results of these measures. We suggest these measures may be more useful for information collection and understanding of the athlete's current experiences, rather than with the goal of assessing clinical cut-off scores.

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