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# Mental health management of elite athletes during COVID-19: a narrative review and recommendations

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## ABSTRACT

Elite athletes suffer many mental health symptoms and disorders at rates equivalent to or exceeding those of the general population. COVID-19 has created new strains on elite athletes, thus potentially increasing their vulnerability to mental health symptoms. This manuscript serves as a narrative review of the impact of the pandemic on management of those symptoms in elite athletes and ensuing recommendations to guide that management. It specifically addresses psychotherapy, pharmacotherapy and higher levels of care. Within the realm of psychotherapy, crisis counselling might be indicated. Individual, couple/family and group psychotherapy modalities all may be helpful during the pandemic, with novel content and means of delivery. Regarding pharmacotherapy for mental health symptoms and disorders, some important aspects of management have changed during the pandemic, particularly for certain classes of medication including stimulants, medications for bipolar and psychotic disorders, antidepressants and medications for substance use disorders. Providers must consider when in-person management (eg, for physical examination, laboratory testing) or higher levels of care (eg, for crisis stabilisation) is necessary, despite potential risk of viral exposure during the pandemic. Management ultimately should continue to follow general principles of quality health care with some flexibility. Finally, the current pandemic provides an important opportunity for research on new methods of providing mental health care for athletes, and consideration for whether these new methods should extend beyond the pandemic.

## INTRODUCTION

Elite athletes (defined as professional, Olympic/Paralympic or collegiate) suffer from many mental health symptoms and disorders at rates equivalent to or exceeding those of non-athletes.<sup>1</sup> The COVID-19 pandemic has created new mental health stressors for everyone; for athletes, these have been addressed in recent publications.<sup>2–5</sup> However, the pandemic's impact on management of mental health symptoms and disorders in athletes has received little scholarly attention. Management in general for athletes has focused on the cardiac complications, screening for asymptomatic disease, and return to sport, incorporating hygiene measures.<sup>6–8</sup> Here, we delineate management considerations for mental health symptoms and disorders in elite athletes. Options for management in elite athletes

during the pandemic span various treatment modalities, inclusive of community-based or outpatient psychotherapy, outpatient pharmacotherapy and higher levels of care,<sup>9</sup> all of which are addressed in this article. It is likely that these considerations will hold relevance into the foreseeable future given anticipated future waves of COVID-19.

## METHODS

We searched key databases (PubMed, SportDiscus, PsycINFO, Scopus and Cochrane) in May 2020. Search terms relating to COVID-19, elite athletes, athletes, sports, mental health, management and treatment were combined. No limits were placed on the search. Databases required slightly modified terminology to adhere to the databases' controlled vocabulary. Papers must have been available in English to be included in this manuscript. Using this strategy, 39 articles were identified. After screening for relevance, this was reduced to 6. References in the resulting papers were reviewed to identify additional related publications. Other literature was also reviewed, including that focused on non-pandemic management recommendations for elite athletes and pandemic recommendations for non-athletes, where there were gaps in elite athlete-specific and COVID-19-specific literature. Altogether, 109 relevant references and sources were found.

## PSYCHOTHERAPY

Psychotherapy is defined as the treatment of mental health symptoms or disorders or problems of living by psychological means, often based on therapeutic principles, structure and techniques.<sup>10</sup> It is often regarded as the treatment of choice for elite athletes with mild to moderate mental health symptoms and disorders.<sup>1 10</sup> This would seemingly remain the case during the COVID-19 pandemic, with athletes traditionally particularly well-suited to cognitive-behavioural therapy because they are accustomed to structure, direction, practice, goal setting and self-reliance.<sup>10 11</sup> However, the nature and delivery of psychotherapeutic interventions might vary because of the pandemic. For example, crisis counselling might be the preferred intervention<sup>12 13</sup> for athletes whose mental health is primarily being affected by direct effects of the pandemic, such as the morbidity or mortality of loved ones, friends and members of the athlete entourage; personal illness; devastating loss of one's home or job; a lost opportunity for an important athletic event (eg, World



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**Table 1** PTSD-type symptoms triggered by the pandemic and potential treatment modalities<sup>106–109</sup>

| Symptom category           | Manifestations  | Potential modalities  |
|----------------------------|---|---|
| Intrusion                  | Intrusive memories, nightmares, flashbacks, intense distress or physiological reactivity after exposure to reminders of the trauma  | ▶ Trauma-focused cognitive-behavioural therapy<br>▶ Prolonged exposure therapy    |
| Negative moods/cognitions  | Inability to recall events related to the trauma, distorted beliefs about the world, distorted blame of self/others for causing the trauma, fear, horror, guilt, anger, decreased interest in activities, feeling alienated from others, constricted affect | ▶ Cognitive processing therapy<br>▶ Eye movement desensitisation and reprocessing |
| Altered arousal/reactivity | Irritability, aggression, self-destructive behaviour, hypervigilance, exaggerated startle response, problems concentrating, sleep disturbance   |   |
| Avoidance                  | Shunning pandemic-related memories or external reminders of the trauma  |   |
| Dissociative               | Numbing, detachment, decreased awareness, derealisation, depersonalisation  |   |

PTSD, post-traumatic stress disorder.

Championships, Olympics) or collapse of social structure. The central objectives of crisis counselling, as opposed to more traditional psychotherapy, are ensuring safety, promoting return to functioning and providing immediately available resources.<sup>12–14</sup> Symptoms directly related to the pandemic might resemble those of acute stress disorder (for symptoms lasting 3 days to 1 month in duration) or post-traumatic stress disorder (PTSD, for symptoms lasting >1 month in duration). When these types of symptoms are present, PTSD-specific psychotherapy might be helpful for athletes (table 1).

Psychotherapy with athletes may occur at the individual, couple/family or group levels.<sup>10</sup> Couple/family psychotherapy might be needed by some elite athletes at this time; compared with athletes' usual frequent absences for travel, spending more time together could be a source of tensions. Group psychotherapy to replicate some team dynamics within therapy groups might also be useful for athletes during the pandemic, since they have lost much of their accustomed team structure.<sup>10</sup> These modalities are currently being offered in virtual formats (eg, telephone, video), depending on location.<sup>15</sup> Despite some delays in converting to virtual formats, increasingly, providers of psychotherapy offer virtual options for patients. Online artificial intelligence and self-help interventions and groups, such as Alcoholics Anonymous, are now being offered virtually as well.<sup>15–16</sup> However, providers and institutions with fewer resources, or those serving patients with fewer resources, have had more difficulties in offering virtual psychotherapeutic options.<sup>17</sup>

Depending on the particular mental health disorder, virtual psychotherapy may involve elements not normally available to the psychotherapist. For example, with screen sharing, the psychotherapist can help an athlete with an eating disorder fill a grocery cart through an online delivery service or engage in a video session during a meal, or help an athlete with obsessive-compulsive disorder or sport-related performance anxiety engage in live exposure therapy.<sup>18</sup> These practice changes may be worthy of retention post-pandemic.

As during non-pandemic times, there are many barriers to elite athletes commencing psychotherapy, including denial of psychological problems and stigma of receiving services.<sup>10–19</sup> It might be more challenging than usual to overcome these barriers during the pandemic, when athletes have become more accustomed to social withdrawal or have less contact with members of their entourage, who might otherwise be the first to notice mental health symptoms and to recommend referral for treatment. Accordingly, interventions at the level of entire teams, leagues and university athletics departments are warranted to increase the likelihood of athletes being connected with the psychotherapeutic resources from which they could benefit. Non-pandemic evidence suggests that athletes and core members

of their entourage benefit from psychoeducation, defined as an intervention designed to obtain and maintain mental health by providing information, educational materials and/or feedback/advice to individuals who might have mental health symptoms or disorders.<sup>10</sup> Thus, virtual psychoeducational sessions or written materials might benefit groups of athletes via provision of information about pandemic stressors relevant to athletes, strategies for overcoming them and mechanisms for referral to psychotherapy. For those athletes referred for individual psychotherapy as a result of group psychoeducational interventions such as this, expanded psychoeducation in addition to more formal crisis counselling, cognitive-behavioural therapy or other psychotherapeutic modalities if appropriate may have benefit.

## PHARMACOTHERAPY

Medications to treat mental health symptoms and disorders remain an important tool for management, especially for those with moderate to severe symptoms.<sup>1</sup> For some elite athletes and many categories of medications, these treatments will remain the same. However, some circumstances have changed because of the pandemic; these will be highlighted here.

### Stimulants

Changes to paradigms of pharmacotherapeutic management of elite athletes who are prescribed stimulants, for example, for attention-deficit/hyperactivity disorder (ADHD), are particularly evident in some countries. Some jurisdictions have relaxed the arrangements for prescribing stimulants so that these can be prescribed without a face-to-face consultation subject to clear safeguards. Early in the pandemic, for example, the USA suspended the Ryan Haight Act<sup>20</sup> that historically prohibited prescribing stimulants for new patients establishing care with a prescriber during a telehealth visit. Prescribers in the USA can now prescribe a stimulant if the following criteria are met: 1) the prescription is issued for a legitimate medical purpose by a practitioner acting in the usual course of their professional practice; 2) the telemedicine communication is conducted using an audio-visual, real-time, two-way interactive communication system and 3) the practitioner is acting in accordance with applicable Federal and State laws.<sup>20</sup> This exception remains in effect for the duration of the public health emergency, as declared by the US Secretary of the Department of Health and Human Services.<sup>20</sup>

However, there are important considerations for prescribers who work with elite athletes. Typically, it is recommended to check vital signs (eg, pulse, blood pressure) and possibly laboratory tests (eg, drug toxicology screen) before prescribing stimulants in this population.<sup>21</sup> While no definitive guidelines for elite athletes are available during this pandemic, if checking

laboratory tests remains possible, or if recent (eg, within the past 3 months, depending on index of suspicion) results are available to the prescriber and no significant cardiovascular or substance use risk factors are present, it might be reasonable to start a stimulant for an athlete never seen in-person previously. More information on the issue of when to request an elite athlete be present for in-person evaluation is provided in the section “virtual versus in-person care” below.

### Medications for bipolar and psychotic disorders

Medications most commonly used for bipolar and psychotic disorders are another important area of pharmacological consideration for athletes during the pandemic. Typically, laboratory evaluations are conducted at regular intervals for patients taking certain mood-stabilising medications (eg, lithium, valproic acid)<sup>22</sup> and atypical antipsychotics (eg, aripiprazole, quetiapine, clozapine).<sup>23</sup> For lithium, routine laboratory tests include lithium blood levels, thyroid function and kidney function.<sup>22</sup> Lithium can be a particularly challenging medication to prescribe in athletes because blood levels may fluctuate during high-intensity exercise, sweating and associated dehydration—or as a consequence of sport-associated eating disorders.<sup>1 24–27</sup> Thus, while some prescribers might be willing to delay routine laboratory monitoring for non-athletes during the pandemic,<sup>28</sup> such a delay might well be inadvisable for athletes. This might especially be true in locations where the pandemic is overlapping with warmer seasons, during which sweating and dehydration might be more likely in athletes. Haematological parameters of valproic acid and other mood stabilisers are seemingly less directly impacted by sport; thus, brief delays in monitoring athletes taking these medications might be reasonable.<sup>28</sup> However, for any mood stabilisers that normally require laboratory monitoring, baseline values should be obtained as usual if the provider is considering a new prescription.<sup>22</sup>

For atypical antipsychotics, routine laboratory monitoring, ranging anywhere from weekly (eg, during the first months of starting a patient on clozapine) to annually (eg, patients stable on other atypical antipsychotics), is typically recommended. The question also arises with these agents as to how often prescribers should be checking laboratory tests, including fasting blood sugar and fasting lipids (and for clozapine, absolute neutrophil counts and clozapine blood levels), during the pandemic. Although pandemic guidelines are not readily available, nuanced consideration is reasonable.<sup>28</sup> For example, if an athlete's fasting blood sugar and lipids have been normal for several years, and they are taking a low dose of an atypical antipsychotic among the least likely in the class to cause metabolic disturbance (eg, ziprasidone, aripiprazole), it may be reasonable to delay usual monitoring. However, if the athlete is taking a high dose of a typically more metabolically problematic medication in this class (eg, olanzapine, quetiapine), and/or if they have had past abnormal or marginal fasting blood sugar or lipid values, adherence to usual testing schedules seems prudent.

In some countries, including the USA, routine laboratory monitoring of absolute neutrophil count (ANC) is required for athletes taking clozapine and must be on file at the pharmacy before they can refill the medication.<sup>29</sup> However, during the pandemic, the US Food and Drug Administration has stated that laboratory monitoring requirements will not be enforced.<sup>30</sup> Thus, prescribers are advised to decide if they recommend that their patients get their laboratory tests done, based on current public health circumstances and the individual patient.<sup>30</sup> Recently, a consensus statement has been published stating that,

if certain criteria are met, monitoring ANC values may occur every 3 months.<sup>31</sup> However, it may be advisable to retain usual laboratory protocols for athletes on clozapine, especially those in endurance sports or with relative energy deficiency in sport (RED-S), as these groups may have altered immune function<sup>32</sup> or lower total white cell and ANC values at baseline.<sup>33</sup> Importantly, the statement also notes that patients with COVID-19 might be at risk of clozapine toxicity.<sup>31</sup>

For all antipsychotic medications, providers would normally conduct baseline and intermittent Abnormal Involuntary Movement Scale (AIMS) examinations to evaluate for movement disorders such as tardive dyskinesia that can result from these medications. A partial AIMS examination can be conducted via virtual video appointment, but full implementation would require in-person visits at periodic intervals<sup>34</sup> and would be recommended for elite athletes, whose careers would be impacted by movement disorder side effects of medications.<sup>24</sup>

### Antidepressants

For many antidepressants, there does not appear to be any new or unique guidance to offer for athletes during the pandemic. Tricyclic (eg, amitriptyline, nortriptyline) and serotonin-norepinephrine reuptake inhibitors (eg, venlafaxine, duloxetine) may be exceptions, although there are no published pandemic guidelines for these medications. As with lithium, blood levels of tricyclic antidepressants might fluctuate depending on exercise status, although this has not been well-studied in athletes and is not felt to be a common problem.<sup>1</sup> While tricyclic antidepressants are not often recommended for elite athletes owing to side effects and safety concerns,<sup>1</sup> if pre-pandemic blood levels were in the non-toxic range with no intervening changes in potentially interacting medications or worsening side effects,<sup>35</sup> delayed checking of blood levels during the pandemic may be reasonable.

Cardiac monitoring during non-pandemic times is recommended for patients taking tricyclic or serotonin-norepinephrine reuptake inhibitor antidepressants<sup>36</sup> and some selective serotonin reuptake inhibitors (ie, citalopram and escitalopram if high doses are used).<sup>37</sup> For all of these situations, if a new prescription is being considered, it is reasonable to obtain a baseline and at least one follow-up blood pressure measurement, and an ECG for athletes at relatively higher risk for cardiovascular events.<sup>36</sup> This guidance is especially relevant for athletes, for whom cardiac emergencies are possible due to extreme physical activity. In addition, cardiac complications have been reported in 21% of patients hospitalised for COVID-19, leading to recommendations for advanced cardiac testing (eg, high-sensitivity troponin, ECG, echocardiogram) in competitive athletes who test positive via screening tests for COVID-19, whether they are symptomatic or asymptomatic.<sup>6</sup> Moreover, athletes might be less likely to tolerate orthostatic hypotension as a side effect of tricyclic antidepressants, since they have lower average blood pressures at baseline.<sup>1</sup> Thus, in sum, there are several reasons why cardiac monitoring of athletes on tricyclic, serotonin-norepinephrine reuptake inhibitor or high-doses of some selective serotonin reuptake inhibitors should continue unabated during the pandemic.

### Medications for substance use disorders

During the pandemic, athletes with substance misuse and substance use disorders may be at increased risk of substance withdrawal (eg, during quarantine or isolation)<sup>38</sup> or, conversely, increased use of substances,<sup>39</sup> including recreational and ergogenic substances. Factors likely contributing to increased

substance use among athletes during the pandemic include less sport-related drug testing,<sup>40</sup> social isolation, less immediate need to maintain fitness and meet workout goals, loss of structure and self-treatment of high stress levels and worsened mental health symptoms.<sup>38 41</sup>

During this time of potentially greater substance use risks, athletes may have more difficulty obtaining treatment, including medications, for the management of acute and post-acute substance withdrawal and relapse prevention.<sup>42</sup> There have also been changes in allowable prescription practices and prescribing recommendations for substance use disorders during the pandemic. This is especially true for medications used to treat opioid use disorder and for substances more commonly misused by athletes, including alcohol, nicotine and cannabis.

For opioid use disorders, an increased number of take-home doses of methadone and buprenorphine (up to 1 month at a time) is now allowed in some countries.<sup>43</sup> Elite athletes with opioid use disorders might be more inclined to address these issues now, if they are on an enforced hiatus. Opioids (including methadone and buprenorphine) are prohibited by the National Collegiate Athletic Association (NCAA),<sup>44</sup> some professional sports leagues and *in-competition* by WADA.<sup>45</sup> Thus, while treatment with these medications would typically require a break in competition for elite athletes,<sup>46 47</sup> their use during the pandemic may be less disruptive to training/competition cycles. Urine drug testing by providers is typically routine in those being treated with methadone and buprenorphine for opioid use disorders, but while accessing such testing remains difficult or risky, some groups have recommended that access to these medications should not be conditional on urine drug testing.<sup>48</sup> With any relaxation of the treatment parameters for management of opioid use disorders, providers should be vigilant about the risk of opioid overdoses in their athlete-patients and consider prescription of naloxone for at-risk athletes and their entourage to have available in the event of overdose.

The pandemic has also had important implications for pharmacologic management of alcohol misuse and alcohol use disorder in athletes. Athletes felt to be at risk for alcohol withdrawal should be contacted by their providers, with details of how alcohol withdrawal presents, the need for medical attention if it were to develop and options for how to obtain medical attention. Medications to manage withdrawal, reduce cravings and prevent relapse on alcohol may be less available as some providers may not be comfortable prescribing these in an outpatient setting or via telemedicine.<sup>49</sup> However, for management of alcohol withdrawal, outpatient/telemedicine prescribing is feasible since most elite athletes have good general health and therefore are less likely to experience severe withdrawal (eg, seizures, delirium tremens) or serious medical complications (eg, alcohol-related hepatitis). Withdrawal can be managed using standard fixed-schedule or symptom-triggered protocols with benzodiazepines such as diazepam, lorazepam or chlorodiazepoxide.<sup>50</sup> Once acute withdrawal is managed, medications to reduce cravings and prevent relapse should be considered. Standard options include disulfiram, naltrexone and acamprosate, which have approval for these indications in some countries, and gabapentin, which can be used off-label.<sup>51 52</sup> Since both disulfiram and naltrexone can cause hepatotoxicity, liver function testing should be obtained before initiation and as part of monitoring,<sup>53</sup> although this is more challenging during the pandemic.

Medications to manage nicotine withdrawal or to prevent nicotine use disorder relapse are important because oral tobacco use is more common in elite athletes in some sports compared with non-athletes,<sup>46 54</sup> and treatment of these disorders should

not be delayed during the pandemic given significant impact on health.<sup>55</sup> While some types of nicotine replacement therapy (NRT) (eg, nicotine gum, lozenge and patch) are available without a prescription in some countries, others (eg, nicotine nasal spray and inhaler) may require a prescription. Other medications to consider are bupropion and varenicline, the former either alone or in combination with NRT.

Cannabis has become the most widely used illicit/banned substance by athletes in recent years.<sup>46 56</sup> Use rates of cannabinoids may be increasing further in some elite sports during the pandemic, following recent removal of cannabidiol (CBD) from the WADA Prohibited List *in-competition*<sup>57</sup> and tetrahydrocannabinol (THC) and CBD from the prohibited lists in some professional sports,<sup>58</sup> with reduced testing and a shift away from sanctions in favour of treatment in the professional sports.<sup>58</sup> In addition, as cannabis medicalisation and legalisation have expanded in several countries, levels of THC—the main psychoactive substance in cannabis—have increased dramatically, while levels of CBD—a THC effect modulator—have decreased.<sup>59</sup> The expanded use of high potency cannabis during the COVID-19 pandemic may result in increased rates of cannabis use disorder and attendant increases in cannabis-induced cognitive impairment, lack of motivation, anxiety, depression and psychosis<sup>60</sup> in elite athletes.

Thus, as with other substances, treatment of cannabis use disorder in elite athletes should not be delayed during the pandemic given the potential for serious consequences. While the evidence base for medications to manage cannabis withdrawal or prevent cannabis use disorder relapse is not as strong as for alcohol or nicotine, there are options. For withdrawal-related sleep and appetite disturbances, short courses of sedating medications such as mirtazapine or zolpidem can be considered, while gabapentin may help with withdrawal symptoms such as cravings, anxiety and memory impairment.<sup>61</sup> While sedating medications may cause impaired sport performance and thus are not commonly recommended for long-term use in most elite athletes,<sup>1</sup> short courses, especially during hiatus from sport, are reasonable.

### General pharmacological considerations

Prior to considering changes from routine monitoring or prescribing protocols for psychiatric medications, risks versus benefits should be discussed thoroughly with the athlete. Factors to consider include any past laboratory or physical examination findings, their personal and sport-specific risks for complications from medications, and challenges to in-person evaluations.

Another overarching consideration in pharmacotherapy for athletes with mental health symptoms and disorders is dispensing larger quantities of medication than usual. Prescribers are commonly asked to approve a 90-day (or longer) supply of medications, often because larger supplies are cheaper for patients. Suicide risk and potential lethality of a given medication should continue to be carefully considered in such requests.<sup>62</sup> However, in pandemic conditions, prescribers might reasonably consider prescribing larger quantities of medications. In some geographic areas and under some coverage plans, such prescriptions (with some exceptions for controlled substances) are now being allowed.<sup>63 64</sup> This consideration requires the prescriber to balance the patient's risks of going to a pharmacy during the pandemic (or running out of medication if quarantined at home), versus access to larger quantities of medication that could be dangerous if an overdose occurs. Additionally, because some athletes will be away for months (eg, when a future semester

of in-person classes/sport has been cancelled), prescribers might receive requests to authorise refills of up to 6 months or more of a medication. The same risk-versus-benefit consideration would apply in this situation. Finally, athletes might not be able to fill their prescriptions routinely in their current location, which also bears consideration.

### VIRTUAL VERSUS IN-PERSON CARE

For some athletes, care for mental health symptoms and disorders during this pandemic is being provided by telemental health.<sup>17</sup> Telemental health refers to the use of information and communications technologies, including videoconferencing, to deliver mental healthcare remotely, including psychotherapy, mental health evaluations and medication management.<sup>65</sup> During the COVID-19 pandemic, virtual care protects athletes and healthcare providers from virus exposure and avoids care disruptions.<sup>17 66</sup> During non-pandemic times, telehealth methods have been successfully implemented with various populations, across a range of mental health symptoms and disorders.<sup>67</sup> Telehealth for mental healthcare has not been systematically studied in athletes, but this method of care delivery is feasible for athletes with other medical needs.<sup>68-70</sup>

For athletes in some countries, remote provision of mental healthcare has necessitated changes in licensure rules.<sup>17</sup> For example, in the USA, during non-pandemic times, a physician must be licensed in the state where the patient is physically located,<sup>17</sup> and most physicians are only licensed in a single state.<sup>71</sup> Currently, many collegiate and other elite athletes may not be where their team, coach, university and/or healthcare providers are located. Several, but not all, states have loosened their licensure requirements to allow telehealth care across state lines.<sup>72</sup> In some cases, these new requirements are stricter for physicians than psychologists.<sup>72</sup> It is difficult to determine whether international treatment is allowed during the pandemic, and this matter needs further clarification. Healthcare providers should remain updated about any evolving licensure requirements where they live. This might involve checking online databases of up-to-date regulations in advance of each athlete's telehealth session and documenting accordingly.

As in the general public, some athletes will not have access to relevant technology, reliable internet service or a private space, and they may lack the digital literacy needed to participate in a virtual appointment.<sup>73</sup> Telehealth has also presented challenges for athletes with language barriers (eg, when the athlete speaks a different language than the provider) or communication-related disabilities (eg, when the athlete is deaf or hard of hearing).<sup>68</sup> Thus, while increased options for telehealth are lauded by many as increasing access to care, there likely are athletes for whom the opposite is true.<sup>73</sup> In such cases, the provider can suggest alternatives, such as carefully timed, brief phone check-ins, virtual appointments from internet 'hot spots' in an athlete's community, use of virtual interpreters or referral to local providers where the athlete is now located.<sup>68</sup>

Another issue in remote mental healthcare is that of insurance/payer coverage for services.<sup>17 66</sup> Public and private insurers/payers have been covering more telehealth services recently because of COVID-19, but the duration of this expanded coverage is uncertain.<sup>17 66 74</sup>

Finally, consideration must be given to if/when in-person appointments might be recommended.<sup>66</sup> For example, remote care may be inadequate in cases of acute suicidality or new-onset psychosis. This is also a relevant concern for individuals with eating disorders, which are disproportionately common

among elite athletes.<sup>75-79</sup> It is hypothesised that COVID-19, with attendant food insecurity and panic buying, will exacerbate the already complex, problematic relationship that patients, including athletes, with eating disorders have with food.<sup>80</sup> For athletes with eating disorders, during most in-person visits, at least some aspects of physical examination would be conducted (including blinded weight, blood pressure, heart rate, temperature and examination of the throat, heart, lungs and extremities).<sup>81</sup> Laboratory tests, ECGs or radiological imaging are also commonly obtained in athletes with eating disorders during non-pandemic times.<sup>81</sup> The provider must now consider if it is worth the risk of having athletes with eating disorders keep in-person appointments for these check-ups during the pandemic. If patients are malnourished or experience rapid weight loss, have frequent eating disorder behaviours, develop secondary amenorrhoea or experience syncope, near syncope or palpitations, then in-person examination and testing would be particularly prudent.<sup>81</sup>

For athletes with eating disorders but none of the above characteristics, standard treatment approaches may be reconsidered,<sup>80</sup> with in-person evaluation cautiously delayed depending on an individual's risk profile. Weighing risks versus benefits in discussions with the athlete and, as relevant, other members of the treatment team, is appropriate.<sup>18</sup> One option is to have the athlete purchase a home blood pressure/pulse monitor, or to have institutions/leagues purchase those monitors for their athletes.<sup>18</sup> Athletes can then monitor their vital signs on their own, possibly with the provider watching via telehealth.<sup>18</sup> However, it may be more problematic to ask athletes with eating disorders to monitor their own weights, which could trigger symptom worsening.<sup>18</sup>

Athletes who take stimulants also should also have regular monitoring of vital signs.

### LEVELS OF CARE

As during non-pandemic times, some athletes will need higher levels of mental healthcare compared with standard outpatient treatment. These levels of care include: intensive outpatient (typically a few days a week for a few hours each day); partial hospitalisation (typically at least 5 days a week for at least 4 hours per day); residential (residing in a facility reminiscent of a home for the length of treatment, which is often several weeks or more) and inpatient hospitalisation (in a traditional psychiatric unit, which may be freestanding or part of a multi-specialty hospital). In some countries, mental health 'hospital in the home' initiatives have been expanded during COVID-19, to provide daily acute mental healthcare by specialist outreach teams.<sup>82</sup> For some athletes, being on hiatus might seem like a good time for these types of treatments, for example, for severe ongoing eating disorders, depression, substance use disorders, obsessive-compulsive disorder, trauma disorders or other mental health disorders. However, such programmes may have a higher threshold for admissions during the pandemic, especially if in-person participation is required.<sup>83</sup> Moreover, some pandemic-related aspects of higher levels of care have changed, for example, in-person group therapies and family meetings are now less likely; providers will be wearing personal protective equipment; and visitors, including teammates who might otherwise normally rally around a hospitalised member, are typically not allowed.<sup>83 84</sup> On the other hand, some intensive outpatient and partial hospitalisation programmes have new virtual options for participation.<sup>85</sup> However, while brief virtual programmes for some mental health disorders have demonstrated clinical

efficacy, their efficacy in half-day and full-day programmes remains unclear.<sup>80</sup> Furthermore, some virtual programmes may not allow out-of-state/country participants, thereby limiting options for elite athletes.

Athletes with substance use disorders represent a special population for whom careful consideration of higher levels of care is needed. Currently, admitting athletes with severe substance use disorders into the higher-level care they need may be challenging, but should be considered, since postponement could have negative consequences.<sup>86</sup>

Across diagnostic categories, providers should continue to seek higher levels of care for their athletes when risks of continuing outpatient management are too great. For example, athletes who are suicidal with plan and intent to act, manic, acutely psychotic or grossly negligent in self-care because of mental health symptoms should undergo inpatient hospitalisation.

### RELEVANT PRINCIPLES OF MENTAL HEALTH INTERVIEWING AND DIAGNOSIS OF ATHLETES

An effective plan to manage mental health symptoms and disorders cannot be developed unless a comprehensive biopsychosocial diagnostic evaluation is undertaken. Here, we review salient points regarding mental health symptoms and disorders in athletes that are relevant to this pandemic.

The pandemic certainly could cause or worsen some mental health symptoms and disorders such as anxiety (eg, about contracting the virus), obsessive-compulsive disorder (eg, with increased obsessive hand washing), PTSD, depression and suicidality in athletes,<sup>2</sup> who are often young and thus developmentally less prepared to deal with the uncertainty that the pandemic has wrought. Athletes are used to being highly physically active, but with the sudden cessation of most sports and the movement of much academic instruction online, some athletes have had a sudden and marked reduction in physical activity.<sup>87</sup> As physical activity is regarded as having antidepressant<sup>88</sup> and anxiolytic<sup>89</sup> effects, this change alone could substantially worsen mental health. Other relevant factors in worsening mental health symptoms and disorders in athletes include: social isolation; cancelled schedules and games and associated uncertainty about how to recalibrate training plans; loss of income; loss of training venues and access to training staff, teammates and coaches; family infection risks; loss of daily routines and self-care; anxiety about contracting COVID-19 during sporting events or otherwise and persistent community distress and family conflicts, including living situations that might be high risk for interpersonal violence.<sup>3-5 87 90-92</sup>

It is also known that times of transition within sport represent particular challenges for elite athlete mental health.<sup>1</sup> Cessation of sport due to the pandemic, with this equating to sport retirement for some athletes (eg, those who had been planning to retire after 2020, or those who had been in their last season of collegiate participation), could be particularly challenging transitions. Retirement from sport is associated with worsening mental health if it is involuntary, there was less retirement planning, there is less social support and there is higher athlete identity.<sup>93 94</sup> Retirement from sport due to COVID-19 is likely associated with many of those poor prognostic factors.

Finally, there are likely to be new stressors for athletes who return to sport once that is possible. For example, injuries might be more likely if resumption of pre-pandemic training levels is rapid, and return-to-play protocols for athletes who previously contracted COVID-19 may include cardiovascular assessment, which anecdotally incites anxiety for some athletes.<sup>6</sup> Additionally,

tactile communication (eg, touching via high fives or pats on the back) has historically been important among teammates as it promotes cooperation and trust during sporting events,<sup>95</sup> but athletes may be required to avoid this form of communication in the near term.

Given these contextual stressors, providers may make new mental health diagnoses in athletes during this time,<sup>4 96</sup> while taking care not to overpathologise normative and expected levels of adjustment stress that do not cause significant distress nor dysfunction. Much can presumably be done via virtual appointments as necessary. However, some diagnoses are more challenging to make without in-person assessment, such as a new diagnosis of ADHD. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), several symptoms to substantiate such a diagnosis must have been present prior to the age of 12 years,<sup>97</sup> but the athlete might not be coming to clinical attention until now. The NCAA, WADA and some professional sports leagues prohibit use of stimulants unless various diagnostic criteria are met.<sup>98 99</sup> The NCAA notes that those criteria for use of stimulants include consideration of use of ADHD rating scales.<sup>98</sup> WADA specifies that 'in the diagnostic assessment there should ideally be reference to the use of validated diagnostic instruments and scales assessing symptoms and impairment'.<sup>99</sup> Such testing, which can be lengthy and multimodal, may be challenging to carry out virtually. Any change in timelines needed to assess for this disorder should be communicated to athletes, and virtual options explored if possible.

Screening for suicidality and, if necessary, associated crisis planning, is important during this pandemic<sup>100</sup> and informs management of an athlete's care, especially for the level of care recommended. Definitive data are not yet available, but some are concerned that the pandemic could increase suicide risk.<sup>100</sup> Several factors that might contribute to such a risk, and about which providers should ask, include social isolation, economic difficulties and barriers to accessing usual mental health treatment during the pandemic.<sup>100</sup> Providers who are concerned about their athletes' safety in the context of mental health should ask about access to firearms, especially given the recent surge in firearms sales in some countries.<sup>101</sup> Even if guns are not purchased with the intent to end one's life, their presence in the home is associated with higher risk of suicide.<sup>102 103</sup> Reducing access to other means of suicide (eg, excessive medication, access to high buildings) is also indicated when conducting suicide risk assessment. Finally, suicides tend to peak in the late spring in the Northern Hemisphere, which overlaps with some peaks of COVID-19 impact,<sup>104</sup> including its effect on spring and summer sports.

### DISCUSSION

COVID-19 has wrought changes to most aspects of athletes' lives, including their very identities and livelihoods. For some, the pandemic and attendant social isolation has presented an opportunity to develop or enhance their non-athlete identities, which may be beneficial to their mental health, particularly post-retirement.<sup>94</sup> Any such 'benefits', however, are far outweighed by the challenges presented by COVID-19. As it is unclear how long COVID-19-related changes will persist, providers must tailor assessment and treatment offerings accordingly. Athletes may be at heightened risk for mental health symptoms and disorders, and careful consideration of the pandemic's impact on management of those symptoms and disorders is paramount. General principles of high-quality healthcare should still be followed, with some flexibility. Mainstays of mental health management,

that is, psychotherapy and pharmacotherapy, remain. However, their implementation may be different during the pandemic. Extrapolation from prior pandemics is of little utility, but there is some ability to extrapolate what we know about use of virtual treatment modalities. Moreover, management and diagnostic considerations particular to athletes can be applied to what we know about the pandemic, to surmise impacts on athletes' mental health and make appropriate recommendations. For example, athletes are more likely to have eating disorders than the general population, and certain aspects of the pandemic intuitively and anecdotally heighten that risk. Such disorders are of particular concern during the pandemic because many aspects of management would ideally occur in-person.

The research and associated recommendations included in this paper primarily represent and are suited for high-income countries; these have more health services compared with low-income and middle-income countries. There may be culturally appropriate ways to manage athlete mental health during this pandemic that do not fall under the usual published research and clinical categories of 'psychotherapy' and 'pharmacotherapy'.

The current pandemic is an important opportunity for research on new methods of providing mental healthcare for athletes, and consideration should be given to whether these new methods should extend beyond the pandemic. For example, since elite athletes typically travel frequently, they might particularly benefit from all types of telehealth even after the pandemic ends. However, they would still need access to the resources necessary to participate in telehealth, and providers would need to be mindful of any new disparities or untoward consequences that might result from increased use of telehealth. Security and confidentiality when undertaking telehealth with elite athletes should be serious considerations, given that this is a population who may be well known in the public sphere. Moreover, licensure regulations and insurance/payer coverage would need to change permanently for many athletes to participate in telehealth services in the future. Furthermore, advocacy (ranging from individual providers to professional medical societies and government leaders) would be necessary to address health equity issues such as those related to digital technology and current insurance/payer coverage. In-person healthcare for mental health symptoms and disorders must remain an option, and future guidance should help providers of mental healthcare for athletes understand how best to blend virtual and in-person care. Finally, providers would need to be willing to provide care virtually on an ongoing basis. Historically, there has been limited uptake of telehealth services, attributed in large part to providers' unwillingness to adopt this modality.<sup>105</sup> The essentially forced usage of virtual healthcare brought about by this pandemic might increase providers' interest in using such technology in the long-term. Regardless of the modalities of care provided during the post-pandemic period, continued close screening for and management of mental health symptoms and disorders in elite athletes will be needed well into the future, as the impact on this population is likely to continue, even after return to sport.

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#### What is already known

- ▶ Elite athletes suffer from many mental health symptoms and disorders at rates equivalent to or exceeding those in the general population.
- ▶ The COVID-19 pandemic has created several new stressors for elite athletes.
- ▶ Management for athletes during the COVID-19 pandemic has focused on cardiac complications, screening for asymptomatic disease and return to sport, incorporating hygiene measures.

#### What are the new findings

- ▶ The COVID-19 pandemic has created changes in the way in which management of mental health symptoms and disorders in elite athletes—inclusive of community-based or outpatient psychotherapy, outpatient pharmacotherapy and higher levels of care—should be delivered.
- ▶ Within the realm of psychotherapy, crisis counselling and other forms of individual psychotherapy, couple/family and group psychotherapy all may be helpful during the COVID-19 pandemic, with novel content and means of delivery.
- ▶ Some important aspects of pharmacotherapy for management of mental health symptoms and disorders in elite athletes have changed during the pandemic, particularly for certain classes of medication including stimulants, medications for bipolar and psychotic disorders, antidepressants and medications for substance use disorders.
- ▶ It is important for providers to consider when in-person management or higher levels of care for mental health symptoms and disorders are necessary for elite athletes, despite potential risk of viral exposure during the COVID-19 pandemic.

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