

Running head: Mental health and mental toughness

Are Mental Toughness and Mental Health Contradictory Concepts in Elite Sport? A

Narrative Review of Theory and Evidence

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Abstract

Athlete development and management encompass a complex interaction of biological, psychological, and social factors. Within elite sport, multidisciplinary sport science and medicine teams play an important role in achieving an optimal balance between preventing athlete ill-health and optimizing health and performance. The psychological aspects of athlete health and performance have gained increased attention over the past two decades, with much of this research concerned with the mental health of athletes and the concept of mental toughness. Recently, it was proposed that mental health and mental toughness are contradictory concepts in the world of elite sport. Although an interesting proposition, this claim was not substantiated. Thus, the purpose of this narrative review was to evaluate theory and evidence regarding the thesis that mental health and mental toughness are contradictory concepts in the world of elite sport, with the view to advance scholarly knowledge and inform professional practice. A critical evaluation of this literature suggests that mental toughness may represent a positive indicator of mental health, or facilitate its attainment, rather than be at odds with it. When implemented alongside multilayered approaches to organizational change (e.g., group structures, policies), mental toughness could be used as a ‘hook’ to attract athletes into settings that can open dialogue on the importance of mental health and improve knowledge of key issues (e.g., stigma, symptoms).

Keywords: mentally tough; mental health stigma; organizational stressors; self-actualization; stress; thriving

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26 The psychological aspects of athlete health and performance have gained increased attention
27 over the past two decades, with much of this research concerned with the mental health of
28 athletes and the concept of mental toughness. It was recently proposed that mental health and
29 mental toughness are contradictory concepts in the world of elite sport¹. The central thesis of
30 this argument is that the culture in sport is one where there is stigma associated with athlete
31 mental health issues, and therefore any desire to obtain professional help is undermined by
32 the fear of being labeled ‘mentally weak’. At first glance, the proposed contradiction between
33 mental health and mental toughness has intuitive appeal; however, a short yet thought-
34 provoking editorial of this nature precludes the opportunity to develop arguments fully, such
35 that the central concepts remained undefined and many of the key assertions were
36 unsubstantiated. This point is particularly pertinent as the readership of sport science and
37 medicine journals may be unfamiliar with the intricacies and details of the literatures on
38 mental health and mental toughness, and therefore there is a danger of misinterpretation or
39 uncritical acceptance of the essential proposition. As theory and evidence are essential to
40 scientific progress and informed professional practice, the purpose of this narrative review is
41 to evaluate substantive and empirical perspectives that can shed light on the target question;
42 that is, are mental health and mental toughness contradictory concepts in elite sport? A
43 narrative review was the preferred approach for two reasons: (i) collectively, we have
44 published over 40 papers or chapters on mental toughness and therefore have a sound
45 understanding of this literature base; and (ii) an electronic search of several databases (Web
46 of Science, Scopus, OvidSP and EBSCO) using key terms (“mental toughness” OR “mentally
47 tough” AND “mental health” OR “mental illness”) identified fewer than 15 papers, most of

48 which were irrelevant to the focus of this review (e.g., no data on the association between
49 mental toughness and indicators of mental health). Cognizant of this key information, it is our
50 hope that sport science and medicine personnel will be better positioned to evaluate,
51 diagnose, and manage issues that are important for athlete mental health and/or performance.

52

53 **Synopsis of Stimulus Editorial**

54

55 In a recent issue on mental health care in athletes, readers were provided with a timely
56 reminder of the demands and challenges faced by elite athletes and the potential deleterious
57 effects of such stressful events. Focused specifically on the concepts of mental health and
58 mental toughness, Bauman contextualized his editorial with a brief historical overview of the
59 importance of mental illness for human society and the prevalence of mental health issues
60 among adults in the US. The main essence of the editorial served to answer the question,
61 “Are mental toughness and mental health seen as contradictory in elite sport?” Referring
62 briefly to the historical, social and cultural conditions of sport (e.g., profit and success driven
63 organizations, media glorification of successful athletes), Bauman summarized elite sport as
64 an environment where the perceived consequences of appearing ‘weak’ outweigh the
65 incentives of seeking help. Thus, the answer to this target question was yes; mental toughness
66 and mental health are contradictory concepts in elite sport.

67

68 **Conceptual Perspectives of Mental Health and Mental Toughness**

69

70 Contemporary conceptualizations acknowledge that mental health encompasses the presence
71 of positive indices (e.g., vitality) *and* absence of negative symptoms (e.g., depression)². In
72 1999, David Satcher, the Surgeon General (p. 4) defined mental health as “a state of

73 successful performance of mental function, resulting in productive activities, fulfilling
74 relationships with people, and the ability to adapt to change and to cope with adversity”³.
75 This perspective has been reinforced by the World Health Organization, who defined mental
76 health as “a state of well-being in which the individual realizes his or her own abilities, can
77 cope with the normal stresses of life, can work productively and fruitfully, and is able to
78 make a contribution to his or her community”⁴. These definitions underscore two key features
79 of mental health that are pertinent to the purpose of this narrative review. First, mental health
80 is not simply the absence of psychopathology or mental illness, but rather encompasses a
81 consideration of two broad yet interrelated dimensions of positive and negative indices that
82 are essential components of optimal functioning². Second, mental health is state-like and
83 therefore a dynamic construct, such that one could be considered as high in mental health at
84 one point in time but low in mental health at another point. Without specific reference to such
85 definitional points in a critical editorial¹, it may be concluded mistakenly that mental health is
86 concerned solely with the presence or absence of illness or pathological issues.

87

88 Current perspectives suggest that mental toughness represents a collection of personal
89 resources that are salient for goal-directed behavior despite varying degrees of situational
90 demands⁵. Mental toughness is an aspect of psychological individuality that encompasses the
91 aggregation and integration of resources over time through one’s experiences with stress and
92 adversity⁶. Broadly speaking, these personal resources are said to foster goal-directed
93 behavior by enabling individuals to *strive* (i.e., direction and magnitude of effort expended
94 on a task), *survive* (i.e., manage everyday challenges or overcome major adversities) and
95 *thrive* (i.e., experience growth through one’s experiences)⁷. Hence, there are two core
96 features of the conceptualization of mental toughness that are pertinent to the purpose of the
97 present paper. First, mental toughness is an aspect of psychological individuality made up of

98 positive indices of personal resources (e.g., self-efficacy, optimism). Consistent with this
99 perspective, mental toughness is one of the most prevalent concepts of the broader field of
100 positive psychology within the sport sciences⁸. Second, mental toughness is a salient
101 construct for positive human functioning in the face of situational demands, which might vary
102 from the ‘ups and downs’ of everyday life (e.g., learning new team strategies) to major
103 adversities (e.g., season ending injury). The exclusion of a conceptually sophisticated
104 definition of mental toughness in a critical editorial¹ is an important omission.

105

106 Are mental health and mental toughness contradictory concepts? Intuitively, it is easy to see
107 how readers who may be unfamiliar with these literatures may agree with the affirmative to
108 this question¹. Nevertheless, a consideration of definitions and theory suggests that mental
109 toughness may represent a positive indicator of mental health, or facilitate its attainment,
110 rather than be at odds with it. Both mental toughness and mental health share conceptual
111 overlap in terms of positive functioning (e.g., subjectively and objectively assessed) and the
112 centrality of stress and adversity. In this sense, self-actualization, or the fulfillment of one’s
113 potential⁹, is a key conceptual thread between mental health and mental toughness. Stress is
114 ubiquitous in contexts such as elite sport where high performance underpins innovation,
115 success, and competitive advantage. Stressors experienced by athletes emanate from their
116 interactions with multiple aspects of their lives and the sporting environments, including
117 personal (e.g., work-life interface, family issues), competition (e.g., inadequate or disrupted
118 preparation; risk of injury; expectations of media, sponsors, coaches) and the organizational
119 contexts (e.g., selection processes, cultural and team issues)^{10,11,12,13}. Unsurprisingly, there are
120 many reasons why athletes are vulnerable to mental health problems, such as the considerable
121 investments of time and energy, commitment to the identity of an athlete with little
122 exploration of other aspects of self, competitive failure, injury, and recurring separation and

123 reconnection with family and friends from travel¹⁴. The extent to which these stressors and
124 adversities are detrimental to performance or mental health is dependent upon the resources
125 athletes have available to cope with these events¹³. Conceptualized as a collection of personal
126 resources that enables athletes to withstand stressors and adversities, mental toughness is
127 expected to promote the fulfillment of one's potential⁷ and therefore contribute to the
128 attainment of mental health. From a theoretical perspective, therefore, mental health and
129 mental toughness do not appear to be contradictory concepts.

130

131 **Empirical Perspectives of Mental Health and Mental Toughness**

132

133 In addition to theoretical and definitional perspectives, it is important to consider evidence
134 that may dis/confirm the proposition that mental toughness and mental health are
135 contradictory concepts in elite sport. Unfortunately, there is no published research that has
136 directly tested this thesis with elite athletes, thus reinforcing the natural appeal of the
137 proposition that mental health and mental toughness are contradictory concepts¹. Elite
138 athletes have been the subject of past research on mental toughness; however, their data is
139 typically analyzed in combination with performers from other competitive levels. Thus, there
140 is a need to consider related research on mental toughness with non-elite athletes and
141 performers from other achievements contexts (e.g., education, military) to provide insight on
142 the evidence base regarding the contradictory nature of mental health and mental toughness.

143

144 In examining the validity of various tools designed to operationalize the mental toughness
145 construct, researchers have sought to ascertain convergent validity with concepts that are
146 representative of positive or negative symptoms of mental health. Research with adolescent
147 athletes has revealed an inverse association between various dimensions of self-reported

148 mental toughness and depression ($-0.10 < r > -0.24$), stress ($-0.14 < r > -0.30$), and anxiety (-
149 $0.17 < r > -0.25$)¹⁵, and a positive association between mental toughness and positive affect (r
150 $= 0.40$)¹⁶. Among adolescent and adult cricketers, self-reported mental toughness has been
151 shown to be inversely related with dimensions of the burnout syndrome, including emotional
152 and physical exhaustion ($-0.15 < r > -0.23$), reduced sense of accomplishment ($-0.33 < r > -$
153 0.44), and devaluation of sport ($-0.19 < r > -0.41$)¹⁷. Within the context of educational
154 achievement, mental toughness has been found to be associated with higher levels of positive
155 indices (thriving, $\beta = 0.64$; positive emotions, $\beta = 0.58$) and lower levels of negative
156 symptoms (composite of depression, anxiety and stress, $\beta = -0.32$) of mental health among
157 university students over the course of a university semester⁵. Collectively, these cross-
158 sectional and longitudinal results suggest that athletes who are high on mental toughness tend
159 to report lower levels of negative symptoms and higher levels of positive indices of mental
160 health.

161

162 Research supports the notion mental toughness enhances goal-directed behavior in the face of
163 situational demands that vary in magnitude. Within the context of sport, mental toughness has
164 been associated with higher performance among adolescent cross-country runners ($\beta =$
165 0.39)¹⁶. A 12-month intervention in which cricketers received repeated exposure to
166 punishment-condition stimuli in the training environment resulted in improvements in coach-
167 rated mental toughness for the experimental but not control group ($d = 0.91$). In turn, the
168 experimental group demonstrated improvements in competitive performance statistics ($d =$
169 0.85) and indoor batting assessments against pace bowling ($d = 0.81$) over the 12-month
170 period¹⁸. In an educational context, mental toughness has been shown to be associated with
171 academic ($\beta = 0.38$) and social goal progress ($\beta = 0.18$) over the course of a semester among
172 university students⁵. Finally, research has supported the adaptive nature of mental toughness

173 for performance within military settings. Instructor-rated mental toughness is positively
174 associated with end of course performance ($r = .33$) among infantry recruits, and selection
175 test performance ($r = 0.36$) for the specialized Parachute Regiment of the British Army¹⁹.
176 These latter findings are consistent with data based on self-assessed mental toughness, such
177 that male candidates who reported higher levels of mental toughness were three times more
178 likely (OR = 3.48) to pass a 6-week Special Forces selection test⁵. As performance failure
179 may elevate athletes' risk of mental ill-health^{20,21}, mental toughness should reduce this risk
180 because it fosters high performance. Collectively, this evidence supports the notion that
181 mental toughness is an important resources for self-actualization or the fulfillment of one's
182 potential⁹.

183

184 Are mental health and mental toughness contradictory concepts? To date, there is no
185 published research that has directly tested this thesis with elite athletes. Consideration of
186 related research with adolescent athletes, students, and military personnel provides
187 preliminary support for the theoretical expectation that mental toughness represents a positive
188 indicator mental health, or facilitates its attainment (e.g., ability to adapt, successful
189 performances, work productively), as opposed to the notion that it is at odds with it.

190

191 **Prevalence of Mental Ill-Health Among Athletes**

192

193 To better appreciate the significance of the target proposition¹, it is important to consider the
194 prevalence of negative indices of mental health among elite athletes. This point is particularly
195 pertinent as these statistics were not presented to the reader in the stimulus editorial for this
196 narrative review, but rather focused on the prevalence of negative indices of mental health
197 among adults in the US¹. There is good reason to believe that elite athletes are at increased

198 vulnerability to mental health problems when compared with the general population. In
199 addition to negative life events (e.g., death of a loved one) that one typically encounters at
200 some point in their lives²², athletes experience a broad range of stressors and adversities that
201 are unique to the sporting context^{10,13,23} and which have the potential to increase their risk for
202 mental health problems. For many sporting endeavors, individuals are often in their athletic
203 peak²⁴ during a developmental period where the risk for the onset of mental health problems
204 is high^{20,25}. This sensitive developmental period for the onset of negative symptoms, coupled
205 with the combination of stressors and adversities that are specific the athlete role and life in
206 general, is likely to amplify athletes' risk of mental health problems. Contrary to this
207 expectation, findings from a systematic review of the mental health and well-being of elite
208 athletes indicated that levels of high-prevalence negative symptoms of mental health (e.g.,
209 anxiety, depression) among elite athletes is broadly similar to the general population²⁶.

210

211 **Mental Health Stigma and Mental Toughness**

212

213 Regardless of whether or not athletes are more vulnerable to mental health problems when
214 compared with the general population, it is important that athletes who experience mental ill-
215 health are connected with clinicians who are equipped to help reduce and prevent the
216 associated symptoms and dysfunctions (e.g., affect, motivation). With increased support
217 systems for mental health care within sport settings¹, it is critical that athletes seek out and
218 engage in evidenced-based services in response to negative symptoms of mental health or
219 proactively for prevention purposes^{27,28,29}. Although there are many roadblocks to seeking
220 help (e.g., poor mental health literacy, negative past experience), stigma is considered the
221 most important barrier among young elite athletes²⁰ and college athletes³⁰. This finding is
222 consistent with reports from the general population, where stigma is also considered a major

223 barrier to help seeking for mental health³¹. Stigma is a multifaceted concept that encompasses
224 different types such as personal aspects, perceptions of stigma in others, internalized
225 dimensions, reluctance to disclose to others, desire for control or social distance, and a
226 perception that illness is a result of personal weakness³². Despite a need for psychological
227 services within sporting contexts – both for performance and mental health issues – athletes
228 underutilize such services on account of the perceived stigma from others^{33,34,35}.

229

230 Culture, sport type, and gender are important determinants of athletes' attitudes towards
231 psychological consultation and counseling, particularly with regard to fears of being
232 stigmatized by others as weak, deficient, or psychologically unfit^{30,36}. Thus, an important
233 question with regard to the primary purpose of this paper is whether or not the problem of
234 mental health stigma is related to the concept of mental toughness; however, no research to
235 date has directly examined this question among elite athletes. There is reason to believe that
236 the social and cultural conditions of sport may foster conditions in which personal resources
237 such as those encompassed by mental toughness (e.g., overcoming obstacles, perseverance)
238 are valued so highly that athletes may be less likely or unwilling to seek help for mental
239 health issues because of the anticipation of personally being perceived or treated unfairly.
240 Research on the subcultural ideals, beliefs and values of mental toughness in the Australian
241 Football League^{37,38} indicated that players who internalized perceived 'mentally tough'
242 dimensions of the social-cultural context (e.g., play through injury or fatigue, view adversity
243 as a challenge rather than threat) are often held in high regard, when compared to those
244 players who do not conform to these standards. Although not directly related to the issue of
245 mental health stigma, several of the behaviors found to underpin the socio-cultural features of
246 mental toughness in these contexts (e.g., ongoing improvement, uncompromising efforts,
247 infallibility, selflessness) capture an idealized form of masculinity that may have some

248 relevance to help seeking behavior. Athletes who seek professional help to deal with mental
249 health problems can be viewed by other athletes and coaches as ‘weak’³⁴. Nevertheless, as
250 both of these studies represent case examples of an individual athlete³⁷ or team³⁸, it cannot be
251 assumed that these subcultural ideals, beliefs and values are representative of other teams or
252 sports.

253

254 **Concluding Thoughts**

255

256 Research on mental health and the stigma associated with seeking professional help for
257 negative symptoms (e.g., depression, substance abuse) among elite athletes is limited²⁶, and
258 even less is known about the role of mental toughness as an aspect of personality or
259 subculture of sport that may foster perceptions that individuals with mental health disorders
260 are weak, flawed, or incompetent. Self-actualization, or the fulfillment of one’s potential⁹, is
261 a key conceptual thread between mental health and mental toughness. Thus, theory suggests
262 that mental toughness may represent a positive indicator of mental health or facilitate its
263 attainment, rather than be at odds with it. However, there is no research that has directly
264 tested this thesis in elite athletes. Related research that has examined mental toughness
265 among general samples of athletes, students, employees, and military personnel has shown
266 that mental toughness is positively associated with goal progress, objective performance, and
267 positive symptoms of mental health (e.g., thriving), but is inversely related with negative
268 symptoms of mental health (e.g., depression). On the basis of this review of theory and
269 evidence, therefore, it seems premature to propose that mental health and mental toughness
270 are contradictory concepts in the world of elite sport.

271

272 More broadly, the notion that mental health and mental toughness are contradictory concepts
273 in elite sport may be too simplistic. First, what is considered ‘healthy’ is dependent on socio-
274 cultural factors (e.g., geography, societal virtues) that may vary across time, context, or
275 culture³⁹. In collectivist cultures (e.g., China), for example, the welfare of the group takes
276 precedence over an individual’s interests, which contrasts with individualist cultures where
277 the welfare of the client is the primary focus⁴⁰. Second, the extent to which the subcultural
278 norms, beliefs and values of mental toughness within particular sporting environments foster
279 an idealized form of masculinity and therefore reduce help seeking intentions and
280 behaviors^{37,38} likely depends on factors like age, gender, and sport type. For example, when
281 compared with men, women display a greater tolerance to the stigma associated with mental
282 health problems and help-seeking behavior and therefore are more likely to discuss problems
283 and admit vulnerability^{41,42}. From a social identity perspective⁴³, whether or not an athlete
284 “buys in” to the subcultural ideals of mental toughness within team should depend on the
285 degree to which one identifies with that team (see also^{44,45}).

286

287 Multidisciplinary sport science and medicine teams play an important role in the evaluation,
288 diagnosis, and management of a range of psychological, social and physiological factors
289 central to athlete performance and health⁴⁶. Key here is achieving an optimal balance between
290 preventing ill-health and optimizing health and performance⁴⁷. When it comes to mental
291 health and performance, however, this distinction is not always so clear cut. Differentiating
292 non-pathological indices (e.g., reduced energy, performance anxiety) from pathological
293 symptoms (e.g., sleep disturbances such as insomnia) can be difficult for clinicians,
294 particularly in cases where there are several similarities in presenting issues such as major
295 depressive disorder and overtraining⁴⁸. It is therefore important that scientists and clinicians

296 understand these nuances so that they can be diagnosed and managed using evidence-based
297 techniques²⁸.

298

299 The theory and evidence reviewed in this article suggests that mental toughness may
300 represent a positive indicator of mental health, or facilitate its attainment, rather than be at
301 odds with it. As a concept that resonates with most athletes and coaches as central to high
302 performance, interventions that are marketed as targeting mental toughness could be used as a
303 ‘hook’ to attract athletes (and coaches and sport scientists) into settings that can open
304 dialogue on the importance of mental health and improve knowledge of key issues (e.g.,
305 stigma, symptoms). In other words, athletes and coaches may be more likely to show interest
306 and engage in programs that are branded as ‘mental toughness development’ than they are for
307 mental health services on account of the perceived stigma from others^{33,34,35}. Such efforts will
308 be most effective when they target norms, beliefs, and values of key stakeholders who
309 operate across different layers of an organization and which consider individual (e.g., needs
310 and competencies, mental health literacy), intra-group (e.g., administrative and technical
311 resources), inter-group (e.g., common understanding of goals) and organizational factors
312 (e.g., policies)^{49,50}.

References

1. Bauman NJ. The stigma of mental health in athletes: are mental toughness and mental health seen as contradictory in elite sport? *Br J Sports Med* 2016;50(3):135–6.
2. Keyes CLM. Mental illness and/or mental health? investigating axioms of the complete state model of health. *J Consult Clin Psychol* 2005;73(3):539-48.
3. U.S. Public Health Service. (1999). *Mental health: a report of the Surgeon General*. Rockville, MD: Author.
4. WHO. *Mental Health Action Plan 2013 – 2020*. Geneva: World Health Organization, 2013.
5. Gucciardi DF, Hanton S, Gordon S, et al. The concept of mental toughness: tests of dimensionality, nomological network, and traitness. *J Pers* 2015;83(1);26-44.
6. Anthony DR, Gucciardi DF, Gordon S. A meta-study of qualitative research on mental toughness development. *Int Rev Sport Exerc Psychol*, in press. doi: 10.1080/1750984X.2016.1146787
7. Mahoney J, Ntoumanis N, Mallett C, et al. The motivational antecedents of mental toughness: a self-determination theory perspective. *Int Rev Sport Exerc Psychol* 2014;7(1):184-197.
8. Rusk RD, Waters LE. Tracing the size, reach, impact, and breadth of positive psychology. *J Posit Psychol* 2013;8(3):207-221.
9. Maslow A. A theory of human motivation. *Psychol Rev* 143;50(4):370–396.
10. Arnold R, Fletcher D. A research synthesis and taxonomic classification of the organizational stressors encountered by sport performers. *J Sport Exerc Psychol* 2012;34(3):397-429.
11. Hanton S, Fletcher D, Coughlan G. Stress in elite sport performers: a comparative study of competitive and organizational stressors. *J Sport Sci* 2005;23(10):1129-1141.

12. Mellalieu SD, Neil R, Hanton S, et al. Competition stress in sport performances: stressors experienced in the competition environment. *J Sport Sci* 2009;27(7):729-744.
13. Sarkar M, Fletcher D. Psychological resilience in sport performers: a review of stressors and protective factors. *J Sport Sci* 2014;32(15):1419-1434.
14. Hughes L, Leavey G. Setting the bar: athletes and vulnerability to mental illness. *Br J Psychiatry* 2012;200(2):95-6.
15. Gucciardi DF, Jones MI. Beyond optimal performance: mental toughness profiles and developmental success in adolescent cricketers. *J Sport Exerc Psychol* 2012;34(1):16-36.
16. Mahoney JW, Gucciardi DF, Ntoumanis N, et al. Mental toughness in sport: motivational antecedents and associations with performance and psychological health. *J Sport Exerc Psychol* 2014;36(3):281-292.
17. Gucciardi DF, Gordon S. Development and preliminary validation of the cricket mental toughness inventory (CMTI). *J Sports Sci* 2009;27(12):1293-1310.
18. Bell JJ, Hardy L, Beattie S. Enhancing mental toughness and performance under pressure in elite young cricketers: a 2-year longitudinal intervention. *Sport Exerc Perform Psychol* 2013;2(4):281-297.
19. Arthur CA, Fitzwater J, Hardy L, et al. Development and validation of a military training mental toughness inventory. *Mil Psychol* 2015;27(4):232-241.
20. Gulliver A, Griffiths KM, Christensen H. Barriers and facilitators to mental health help-seeking for young elite athletes: a qualitative study. *BMC Psychiatry* 2012;12:157.
21. Hammond T, Gialloredo C, Kubas H, et al. The prevalence of failure-based depression among elite athletes. *Clin J Sport Med* 2013;23(4):273-7.
22. Bonanno GA. Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *Am Psychol* 2004;59(1):20-28.

23. Sarkar M, Fletcher D, Brown DJ. What doesn't kill me...: adversity-related experiences are vital in the development of superior Olympic performance. *Psychol Sport Exerc* 2015;18(4):475-9.
24. Allen SV, Hopkins WG. Age of peak competitive performance of elite athletes: a systematic review. *Sports Med* 2015;45(10):1431–1441.
25. Gulliver A, Griffiths KM, Christensen H, et al. Internet-based interventions to promote mental health help-seeking in elite athletes: an exploratory randomized controlled trial. *J Med Internet Res* 2012;14(3):e69.
26. Rice SM, Purcell R, De Silva S, et al. The mental health of elite athletes: a narrative systematic review. *Sports Med* 2016; 1-21. doi: 10.1007/s40279-016-0492-2
27. Keyes CLM. Promoting and protecting mental health as flourishing: a complementary strategy for improving national mental health. *Am Psychol* 2007;62(2):95-108.
28. Glick ID, Stillman MA, Reardon CL, et al. Managing psychiatric issues in elite athletes. *J Clin Psychiatry* 2012;73(5):640–644.
29. Reardon CL, Factor RM. Sport psychiatry: a systematic review of diagnosis and medical treatment of mental illness in athletes. *Sports Med* 2010;40(11): 1–20.
30. Van Raalte J, Brewer D, Brewer B, et al. NCAA division II college football players' perceptions of an athlete who consults a sport psychologist. *J Sport Exerc Psychol* 1992;14(3): 273-282.
31. Clement S, Schauman O, Graham T, et al. What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychol Med* 2015;45(1):11–27.
32. Jorm AF, Oh E. Desire for social distance from people with mental disorders. *Aust N Z J Psychiatry* 2009;43(3):183–200.

33. Storch, EA, Storch, JB, Killiany EM, Roberti JW. Self-reported psychopathology in athletes: A comparison of intercollegiate student-athletes and non-athletes. *J Sport Behav* 2005;28(1):86–98.
34. Watson J. College student-athletes' attitudes toward help-seeking behavior and expectations of counseling services. *J Coll Stud Dev* 2005;46(4): 442-9.
35. Watson JC. Student-athletes and counseling: Factors influencing the decision to seek counseling services. *Coll Stud J* 2006;40(1):35– 42.
36. Martin SB, Lavallee D, Kellmann M, et al. Attitudes toward sport psychology consulting of adult athletes from the United States, United Kingdom, and Germany. *Int J Sport Exerc Psychol* 2004;2(2):146-160.
37. Tibbert SJ, Andersen MB, Morris, T. What a difference a “mentally toughening” year makes: the acculturation of a rookie. *Psychol Sport Exerc* 2015;7:68-78.
38. Coulter TJ, Mallett CJ, Singer JA. A subculture of mental toughness in an Australian football league. *Psychol Sport Exerc* 2016;22: 98-113.
39. Vaillant GE. Mental health. *Am J Psychiatry* 2003;160(8):1373–1384.
40. Si G, Duan Y, Li H-Y, et al. The influence of the Chinese sport system and Chinese cultural characteristics on Olympic sport psychology services. *Psychol Sport Exerc* 2015;17:56-67.
41. Martin SB, Akers A, Jackson AW, et al. Male and female athletes' and nonathletes' expectations about sport psychology consulting. *J Appl Sport Psychol* 2001;13(1):19–40.
42. Addis ME, Mahalik JR. Men, masculinity, and the contexts of help seeking. *Am Psychol* 2003;58(1):5–14.
43. Rees T, Haslam SA, Coffee P, et al. A social identity approach to sport psychology: principles, practice and prospects. *Sports Med* 2015;45(8):1083-96.

44. Morgan PBC, Fletcher D, Sarkar M. Defining and characterizing team resilience in elite sport. *Psychol Sport Exerc* 2013;14(4):549-559.
45. Morgan PBC, Fletcher D, Sarkar M. Understanding team resilience in the world's best athletes: A case study of a rugby union World Cup winning team. *Psychol Sport Exerc* 2015;16(1):91-100.
46. Reid C, Stewart E, Thorne G. Multidisciplinary sport science teams in elite sport: comprehensive servicing or conflict and confusion? *Sport Psychol* 2004;18(2):204-17.
47. Dijkstra HP, Pollock N, Chakraverty R, et al. Managing the health of the elite athlete: a new integrated performance health management and coaching model. *Br J Sports Med* 2014;48(7):523-531.
48. Schwenk TL. The stigmatization and denial of mental illness in athletes. *Br J Sports Med* 2000;34(1):4-5.
49. Fletcher D, Wagstaff CRD. Organizational psychology in elite sport: its emergence, application and future. *Psychol Sport Exerc* 2009;10(4):427-434.
50. Sebbens J, Hassmén P, Crisp D, Wensley. Mental health in sport (MHS): improving the early intervention knowledge and confidence of elite sport staff. *Front Psychol* 2016;7:911.