Journal of Rational-Emotive & Cognitive-Behavior Therapy
https://doi.org/10.1007/s10942-022-00460-4

The Socialisation of Athlete Irrational Beliefs

Ailish M. King[1] · Martin J. Turner[2] · Carolyn R. Plateau[1] · Jamie B. Barker[1]

Accepted: 2 May 2022

Abstract

According to Rational Emotive Behaviour Therapy (REBT), humans have a strong biological tendency to adopt self-defeating irrational beliefs which are subsequently driven by the socio-cultural environment one lives in Ellis (J Individ Psychol 32:145–168, 1976). Sport of all levels presents a unique environment which may serve to explain sport-related irrationalities harboured by athletes given that sport seems to endorse irrationality evident by the language used by key personnel and outlets (e.g., coaches and the media; (Turner in Front Psychol 7(9):1–16, 2016. https://doi.org/10.3389/fpsyg.2016.01423). An athlete's beliefs and philosophies are shaped by a myriad of people within and outside of sport with whom they look to for guidance, such as coaches, medical professionals, parents, and the media. These key social agents within an athlete's micro- and macro-environment harbour and model irrationality through their behaviour, language and processes. These irrationalities may then be internalized, giving rise to the development and maintenance of irrational beliefs in athletes. Research has consistently demonstrated the association between irrational beliefs and deleterious mental health outcomes in athletes, such as psychological distress (e.g., Turner in Bernard and Dryden (eds.) REBT: advances in theory, research, prevention, promotion, Springer Press, pp. 307–335, 2019). Therefore, the aim of our commentary is twofold: (1) to critically explore how key stakeholders within an athlete's micro- and macro- environment contribute to the development, maintenance, and strengthening of irrational beliefs in athletes and, (2) to provide guidance to key stakeholders on weakening irrational beliefs and strengthening rational beliefs, thereby promoting a healthy and successful sport environment and positive mental health outcomes in athletes.

Keywords Irrational beliefs · Rational beliefs · REBT · Sport psychology · Athlete · Socialisation

✉ Ailish M. King
a.king2@lboro.ac.uk

[1] School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, Leicestershire LE11 3TU, UK

[2] Department of Psychology, Manchester Metropolitan University, 53 Bonsall Street, Manchester M15 6GX, UK

Published online: 13 June 2022

"Citius, Altius, Fortius-Communiter" the Olympic motto which in English reads, "Faster, Higher, Stronger-Together" (IOC, 2021). Globally, athletes strive for these ideals which in and of themselves are appropriate within the context of sport. However, problems regarding mental health and long-term performance may arise if athletes create and self-perpetuate extreme, dogmatic and illogical (irrational) rules regarding these ideals (Turner, 2016). To illustrate, "I want to fulfil these ideals, and therefore I must. If I do not fulfil these ideals, it will be truly awful, and I won't be able to tolerate it. I will be a complete failure and will never be able to succeed". Within the sport environment, the irrational demand for successful performances at all times is verbally expressed daily, such as "must-win games" and "terrible performances". Through Rational Emotive Behaviour Therapy (REBT; Ellis, 1957), we provide an overview and commentary of the literature on how an athlete's socio-cultural environment contributes to the development, maintenance, and strengthening of irrational beliefs in athletes and provide guidance on how irrational beliefs can be discouraged and rational beliefs encouraged within this environment.

REBT is the first cognitive-behavioural therapy (CBT; David et al., 2005; Ellis, 1957), and rests in part on the ancient Stoic axiom that "people feel not disturbed by things, but by the views they take of them" (Epictetus, 55–135 A.D). During adversity (e.g., failure, rejection, discomfort), harbouring irrational beliefs underpins unhealthy emotions (e.g., excessive anxiety) and maladaptive behaviours (e.g., avoidance) which impede goal achievement (e.g., to survive and be happy) and may serve to exacerbate the adversity (Dryden & Branch, 2008; Dryden & Neenan, 2015; Ellis, 2007). This illustrates the GABC(DE) framework (Ellis, 1994) underpinning REBT which asserts that it is the beliefs (B) that one has about an activating event or adversity (A) that causes an individual to experience distress and associated consequences (C) which impede goal achievement (G). When an individual is engaged with REBT, irrational beliefs are disputed (D) and effective rational beliefs (E) are developed and strengthened.

Stored in the human mind, beliefs are evaluative notions which can be rational or irrational (David et al., 2010). Irrational beliefs are rigid, extreme, illogical and inconsistent with reality which sabotage goal achievement (Dryden & Neenan, 2015). There are four core irrational beliefs: (1) demandingness (i.e., the belief that things should, must and ought to be the way one wants), (2) awfulizing (i.e., the exaggerated belief that the adversity is truly awful), (3) low frustration tolerance (i.e., the belief that the adversity is intolerable) and (4) self/other/life depreciation (i.e., assigning a global negative judgement to the self/others/life when demands have not been met; Dryden & Branch, 2008). By way of contrast, rational beliefs are flexible, non-extreme, logical, and consistent with reality which facilitate goal achievement (Dryden & Neenan, 2015). There are four core rational beliefs: (1) preferences (i.e., the belief that it would be desirable for things to be the way one wants), (2) anti-awfulizing (i.e., the belief that the adversity is bad but not truly awful), (3) frustration tolerance (i.e., the belief that the adversity is tolerable) and (4) self/other/life acceptance (i.e., accepting oneself/others/life despite an undesirable reality; Dryden & Branch, 2008). In clinical, sub-clinical and non-clinical populations, irrational beliefs have been associated with psychological distress including anxiety, depression, anger, and guilt (for a review see Vîslă et al., 2016) as well

as dysfunctional behaviours including self-harming, medication use and aggression (for a review see Szentagotai & Jones, 2010). While the research pertaining to the association of irrational beliefs and mental health in athletes is limited, irrational beliefs have been associated with burnout (Turner & Moore, 2016) and psychological distress including anger, anxiety, and depression (Turner et al., 2019). Given the deleterious effects of irrational beliefs on athlete mental health, our commentary will focus on the socialisation of an athlete's irrational beliefs.

Scholars have proposed that while there is a biological basis for irrationality, irrational beliefs are influenced and driven by our socio-cultural environment (David & DiGiuseppe, 2010; Ellis, 1976). Ellis cogently argued that all societal and cultural institutions, such as schools and places of worship, promote irrational beliefs thus society helps drive irrationality. In extending this line of thought, it is generally acknowledged that those who operate within an environment rich in irrational beliefs, are likely to develop such irrational beliefs whereas those operating within a rational environment, will mainly develop rational beliefs (David & DiGiuseppe, 2010). Thus, rationality or irrationality is in part, dependent on the sociocultural environment one lives in.

Sport is a unique sociocultural environment which may explain the sport-related irrationalities harboured by athletes, such as "I want to, and therefore I must, perform well and win others' approval" (e.g., Turner & Allen, 2018; Turner et al., 2019). Athletes occupy a social world and do not operate in isolation. Indeed, an athlete's beliefs and philosophies are shaped by many people within sport (e.g., coaches, medical professionals and parents) and a myriad of people outside of sport (e.g., peers and teachers). Daily, athletes look towards these individuals for feedback, guidance and support (Knight et al., 2018). The manner of these interactions could play a role in shaping irrational beliefs as they are exacerbated by key social agents whom we look to for guidance (Sharf, 1996). Adopting a whole-person and whole-environment perspective, athletes are subject to environmental influences from micro- and macro-levels of athletic and non-athletic domains which vary as the athlete transitions through their career (see the Athletic Talent Development Environment Model [Henriksen et al., 2010] and the Holistic Athlete Career Model [Wylleman et al., 2013]). The whole-person perspective frames the athlete as a person engaged in sport who has other non-sport endeavours. The whole-environment perspective considers an athlete's micro-environment, typically comprised of daily communications and interactions (e.g., parents and coaches), as well as their macro-environment which affect but do not directly contain the athletes (e.g., the media). In this commentary, we widen the lens (Schinke & Stambulova, 2017) and adopt a perspective which spans the whole-person and whole-environment thereby enabling the consideration of how those within an athlete's micro- and macro-environment contribute to irrational beliefs in athletes.

A growing body of evidence supports the application of REBT with athletes by sport psychologists as a means of reducing irrational beliefs and enhancing rational beliefs (see Jordana et al., 2020 for a systematic mapping review). Arguably, encouraging athletes to weaken their irrational beliefs and strengthen their rational beliefs should not reside with the sport psychologist alone, given the whole-environment socialisation of beliefs (Evans et al., 2018). Indeed, an approach with longer-lasting

and boarder influence on irrationality could include interventions that span a whole-person and whole-environment perspective aimed to impede irrational beliefs and promote rational beliefs (Turner, 2016). Therefore, the aim of our commentary is twofold: (1) to critically explore how key stakeholders within an athlete's micro- and macro-environment contribute to the development, maintenance, and strengthening of irrational beliefs in athletes and, (2) to provide guidance to key stakeholders on weakening irrational beliefs and strengthening rational beliefs, thereby promoting a healthy and successful sport environment and positive mental health outcomes in athletes.

Micro-environment

Influences Within the Home

First and foremost, children are influenced by their parents within a home environment who directly influence how children grow, behave, and develop (Maccoby, 2000). For the purposes of our commentary, the term parent also refers to guardian. From an REBT perspective, children are "gullible to and seriously influenced by their parent's absolutistic musts, should, ought's, demands and commands" (Ellis, 1994, pp. 13–14). Indeed, a body of research has demonstrated that parents display high levels of irrational beliefs (David, 2014; Gavita & Calin, 2013; Trip et al., 2019). Accordingly, several specific parent rational and irrational beliefs measures have been created (e.g., Parent Irrational Belief Scale [a revision by Joyce, 1995 of Berger's 1983 Belief Scale] and Parental Rational and Irrational Beliefs Scale [Gavita et al., 2011]). In a systematic review conducted by Barlow et al. (2003), children who operated within an environment high in irrational beliefs (i.e., parents who display high levels of psychopathology and irrational beliefs), also reported higher levels of irrational beliefs. This demonstrates that if parents harbour irrational beliefs, they can be passed onto their offspring via intergenerational transmission resulting in their children also harbouring irrational beliefs. The unanswered question is how. One explanation is that the more distressed parents are, the more likely they are to exhibit and model irrational beliefs to their children thereby increasing the child's exposure to irrational beliefs (Alloy et al., 2001). In sport, parents are often involved in their child's athletic pursuits adopting multiple roles, such as coach, spectator, and chauffeur (Fredricks & Eccles, 2004). Thus, considering the proximal role of the parent, there are ample opportunities for them to exhibit and model irrational beliefs and A-C thinking.

Social Learning Theory (SLT) provides a useful framework for us to consider how intergenerational transmission of irrational beliefs occurs (Bandura, 1977). SLT proposes that most of our behaviour is learned through observational learning and modelling, specifically behavioural and verbal modelling. Governed by four sub-processes, learning by observation requires the child to attend to relevant aspects of the model's behaviour (i.e., attentional processes) which is then encoded (i.e., retention processes). Following the acquisition of the behaviour, the behaviour may be expressed by the observer if/when they have the physical capability to perform the

behaviour (i.e., motoric reproduction processes) and if it was positively reinforced and favourably received (i.e., reinforcement and motivational processes). One common source of unhealthy anger in parents within youth sport is perceived referee unfairness (Omli & LaVoi, 2012) which we will now illustrate with an example. At a soccer game, a parent watches the referee blow the whistle in response to a perceived foul made by the parent's child and gives a free kick to the opposition. The parent believes that the referee's decision is unfair. In response, the parent starts ranting at the referee calling them derogatory names, gesticulating and pacing the pitch. Other parents from the same team verbalise their agreement and also jeer at the referee. The child, who is attending to the event via attentional processes, interprets that it is the referee's decision (A; activating event), that has caused the parent's rage and aggression towards the referee (C; emotional and behavioural consequences). The parent's display of behaviour and subsequent interpretation of events by the child represents the A-C model where it is the referee's decision (A; activating event) that has caused rage and aggression (C; consequences). Given the quick succession of the consequences (C) to the activating event (A) coupled with the child's limited metacognitive skills, they do not question the A-C model or consider the belief (B) that drives the consequences (C). Indeed, it is the frustration tolerance belief (B), "I want people to treat my child fairly and therefore they must and when they don't, it is intolerable", that has caused the consequences (C).

Retention processes lead to the encoding of an unfair decision (A; activating event) with the modelled response of rage and aggression (C; consequences). Once the modelled behaviour has been learned and encoded, it can then be performed (Bandura, 1977). Provided that the child has the motoric capabilities to express the modelled behaviour and given that the modelled behaviour was positively reinforced by other parents, the child is likely to reproduce the modelled aggressive response. This represents motoric reproduction processes and reinforcement and motivational processes. Overtime, children may observe similar dysfunctional responses to perceived unfairness giving rise to the development of frustration tolerance beliefs in children and reinforcing the A-C model that unfair decisions cause rage and aggression. The A-C model is problematic as it renders the child powerless as they cannot control the activating event and therefore cannot influence their response (Turner & Bennet, 2018). The child is unaware of how it is their irrational beliefs related to perceived unfairness that causes the dysfunctional response. Specifically, low frustration tolerance beliefs, such as "I want people to treat me fairly and therefore they must and when they don't, it is intolerable" drives the dysfunctional response. To summarise, children observe their parent's acting out A-C thinking and via behavioural modelling, assimilate that it is the undesirable activating event that causes the maladaptive response. The repeated exposure of similar modelled behaviour gives rise to the development of irrational beliefs in children which closely resemble the parent's irrational beliefs.

Irrational beliefs harboured by parents not only shape the irrational beliefs in children, they can also influence other outcomes, such as parental behaviours, attachment style and mental health in children (Barlow et al., 2003). Some parents measure their self-worth upon the athletic success of their child (Trussell & Shaw, 2012). As a result, when their child performs successfully in sport and wins, parents

praise and express affection towards the child resulting in the child feeling worthwhile. By way of contrast, when the child does not perform successfully and loses, irrational beliefs, such as "I am a complete failure if my child is not a successful athlete" may be triggered. The activation of a parent's self-depreciation belief gives rise to unhealthy emotions, such as severe anxiety and depression, as well as avoidance behaviours, such as the withdrawal of social support and affection towards the child. To our knowledge, no research has demonstrated the association between parental irrationality and the withdrawal of support. One study has explored irrationality and supportive behaviours in UK-based soccer coaches. In Dixon et al. (2017), it was found that higher irrational beliefs in coaches was associated with greater threat appraisals which in turn, was associated with more negative coaching behaviours, such as distancing themselves from the athlete and not providing positive feedback. On this basis, parents with high irrational beliefs may react to the stressor of poor child sport performance with a threat appraisal. Therefore, they will have reduced capacity to offer support and affection to the child given that they believe that they do not have the capacity to deal with the situational demands. This insensitive and rejecting parental response reflects an insecure-avoidant child-parent attachment as the parent ignores the child in times of distress which can result in child adjustment problems and poor mental health (Benoit, 2004). In summary, parental irrational beliefs trigger unhealthy emotions and maladaptive responses in parents which will impact the effectiveness of the parenting and mental health of the child.

The behaviour of parents, specifically behaviours related to praise and affection, shape a child's self-worth. The contingency of parental affection upon the child's athletic pursuits reinforces to the child that their self-worth is entirely dependent upon their athletic pursuits. The expression of affection to reinforce when a child has met the parent's standards and the withdrawal of affection when a child fails to meet such standards is termed parent conditional regard (Assor & Tal, 2012; Curran, 2018). In an achievement context, such as sport, the adoption of parent conditional regard may result in the child learning the A-C connection that performing well and winning (A; activating event) results in affection (C; consequences) which could give rise to the development of irrational beliefs via reinforcement and motivational processes (Bandura, 1977). To avoid the psychological pain of the withdrawal of affection, children may begin to develop demandingness beliefs, such as "I want to win and make my parents proud therefore, I must." The withdrawal of parental affection in response to the child not performing successfully in their chosen sport may result in self-depreciation beliefs, such as, "If I do not win (which I must), I am a complete failure and worthless". In response to their parent's affection, the child views their standard of worth as their sport performance and applies the evaluation of their sport performance to their entire being (David et al., 2010). As parental affection is conditional upon the child's competence in sport, parents encourage children to demand perfection from themselves (Ellis, 1976). In doing so, athletes become a victim of success and failure (Turner, 2019). Through reinforcement and motivational processes (Bandura, 1977), children develop demandingness beliefs to win, and self-depreciation beliefs based on their sport competence.

Depending on the composition of the family, another source of influence on the child's development is siblings. As sibling relationships are often the longest-lived

bond, there are multiple opportunities for siblings to influence an individual's development (Whiteman et al., 2007). The following section will focus on how an older sibling can act as a socialising agent on a younger sibling's irrational beliefs within a sport context given that many athletes partake in sport with their sibling (Davison, 2004). Inter-sibling rivalry within sport is common, particularly closely spaced siblings as they both aspire to achieve superior athletic status (Davis & Meyer, 2008). This rivalry often motivates the athletic pursuits of younger siblings who look up to their older siblings with increased admiration and seek their approval (Côté, 1999; Lundy et al., 2019). Same sex siblings who participated in the same sport have disclosed that they can be highly critical of one another which can result in negative inter-sibling rivalry (Nelson & Strachan, 2017). This criticism may stem from an older sibling's other-depreciation beliefs related to their younger sibling's athletic performance, such as "when my sibling fails in sport, they are a failure". When the younger sibling fails to meet imposed sport performance standards, the older sibling may experience unhealthy anger, interpret their younger siblings' sport performance as malicious and engage in abusive behaviour, such as name calling which has been documented in the literature (Davis & Meyer, 2008). Due to birth order and sport success, the older sibling is regarded as having high status and power thus the younger sibling is likely to emulate their modelled behaviour (Bandura, 1977; Davis & Meyer, 2008). As a result, the younger sibling may internalise and develop demandingness and depreciation beliefs, such as "I want to beat my older sibling and prove myself therefore I must. I need external validation from my sibling and only then, can I accept myself". The younger sibling may become depressed, ashamed, isolate themselves from others and engage in harmful behaviours, such as overtraining. Research has shown that competing against a sibling can prompt an increase in sport-related physical and mental training (Davis & Meyer, 2008). Older siblings are perfectly positioned to shape younger sibling's irrational beliefs given that they are held in high esteem and viewed by the child as the gatekeeper of approval and acceptance. Through modelling across a range of contexts (e.g., sport and academic), younger siblings may internalise demandingness and depreciation beliefs from their siblings. In conclusion, parents and siblings have multiple opportunities to influence a child's irrational beliefs through behavioural modelling, verbal modelling and the acting out of A-C thinking. The contingency of affection and acceptance upon the child's sport performance reinforces to the child that their self-worth is wholly dependent on their sport performance giving rise to irrationality in the child.

Influences Outside of the Home

Teachers

As children grow older, the scope of influence on their irrational beliefs broadens to include other sources who exist outside of the home, such as teachers, peers and the media (Maccoby, 2000; Stevens & Prinstein, 2005). Firstly, we will explore the influence of teachers on child irrationality as it has been proposed that they encourage

absolutistic thinking (Ellis, 1976). Teachers contribute to the development of a child's self-concept and shape their expectations regarding school and academic performance (Entwisle et al., 1987). Several studies have demonstrated that teachers harbour irrational beliefs (e.g., Caruso et al., 2018; Forman & Forman, 1980) which is further evidenced via measures of teacher specific irrational beliefs (e.g., Teacher Irrational Belief Scale; Bernard, 2016). When children fail an exam or perform badly on an assignment, teachers punish them for their perceived bad behaviour. Teachers respond to student failure with disappointment, anger and criticism which leads children to infer that their teacher had high expectations of them (Meyer, 1992). Teachers may deliver person criticism which attributes the outcome (i.e., failure) to stable person-related traits, such as intelligence (e.g., 'you are terrible at maths'; Dweck, 1999). Responding to failure in this manner is reflective of demandingness beliefs related to academic performance and low frustration tolerance as the teacher cannot stand failure. As a result, this may evoke feelings of shame and depression in the child and they may exhibit a helpless response. Research has shown that person feedback has been associated with a helpless response characterised by condemning the self and a loss of belief in future success (Dweck, 1999). The consistent embodiment of low frustration tolerance by teachers to student failure could lead to the rise of demandingness, depreciation and low frustration tolerance beliefs in children, such as "I want to make my teacher proud therefore I must fulfil their expectations of me. I won't be able to stand failure as it will show I am a complete failure and have no ability to succeed".

One notable teacher worth highlighting is a child's physical education (PE) teacher who influences a child's motivation, attitude, and participation in sport both inside and outside of the school environment (Barkoukis et al., 2010; Hagger et al., 2003). One systematic review explored children's perceptions of the motivational climate within a sport and physical activity/education environment, many of which were the perceptions of the climate created by the teacher (Harwood et al., 2015). It was reported that a perceived ego/performance climate which emphasises competition and being better than others, is associated with negative affect, negative thoughts and worries in children. PE teachers may develop a climate whereby winning is all that matters by comparing race times between students and only praising and paying attention to those who demonstrate successful sport performance. Children may start to internalise the behaviours modelled by their teachers as irrational beliefs, such as "I want to be the best and receive attention from my teacher therefore I absolutely must be better than my peers in PE". PE teachers who stress the primacy of winning, may strengthen the goal to win in children. In turn, this creates a situation in which losing is highly adverse given that it is incongruent with the goal to win. When losing becomes a possibility and a reality for the child, irrational beliefs are triggered, such as "I want to win therefore I must win as it will be truly awful to fail". As a result, the child could become anxious, tense, and overthink their performance which could negatively impact their sport performance goal. In summary, teachers contribute to the formation of low frustration tolerance beliefs via modelling and may serve to increase the activation of irrational beliefs by creating incongruences between the child's goal and activating event.

Peers

As children mature into adolescence, they increasingly spend time in environments outside of the home with their peers (e.g., school, extracurricular activities, neighbourhood) and thus friendships play an increasingly significant role (Rubin et al., 2006). Peer acceptance becomes an important goal which is defined as the extent to which one is liked and socially accepted by their peers (Bishop & Inderbitzen, 1995). Ellis postulated that we are prone to many dependencies and ego-related irrationalities, such as the need for approval and love from others and the tendency to desperately seek for status (Ellis, 1976). These irrationalities may have developed because of natural selection given that they have or previously had some adaptive value as they align with our chief goal of survival (David et al., 2010; Ellis, 2007). Indeed, peer rejected individuals are subjected to greater aggression and victimisation (Babarro et al., 2017). As a result of these peer acceptance-related irrationalities, individuals are prone to succumb to the influence of peer pressure and often conform to negative behaviours, such as substance use and delinquency (McCoy et al., 2019). Peer pressure functions in part as a conditional acceptance mechanism as one believes they can only accept themselves if they receive external validation and approval from their peers. Irrational beliefs related to this notion sound like, "I must be accepted, approved of, and my status and worth is conditional on my complying with my peer group. I am rewarded for my irrationality with popularity and acceptance". This is supported by the literature as in adolescents, peer acceptance has been associated with global self-esteem (Birkeland et al., 2014). Given that we are inclined to seek the approval of our peers, we are liable to the influence of peer pressure which serves as a conditional acceptance mechanism.

Perceptions of athletic ability is associated with peer acceptance (Vannatta et al., 2009) and therefore, during middle adolescence (i.e., 14–16 years), athletes may encounter peer pressure to meet a specific body type (Brown et al., 2017). As a result of pressure from their peers, athletes may take performance-enhancing drugs, such as steroids to achieve the desired body type and ultimately, secure peer acceptance. An athlete's dependency and ego-related irrationalities of seeking status and being accepted by their peers leaves them susceptible to peer pressure to such negative behaviours. Peer pressure is a common justification for doping in athletes which reflects displaced responsibility, a form of moral disengagement, as athletes blame the pressure from others for their behaviour (Engleberg et al., 2015). Peer pressure coupled with dependency and ego-related irrationalities serve to lower an athlete's inhibitions which overrides their ethical and moral compass. As such, athletes may choose to engage in doping to display solidarity with their peers (Petróczi & Aidman, 2008) as they believe that being ostracised by their peers would be the "end of the world" thereby reflecting awfulizing beliefs. In reward for carrying out the pressurised behaviour, the athlete receives status, approval, and acceptance from their peers. To summarise, we are motivated to seek approval and acceptance from our peers thus peer pressure functions in part as a conditional acceptance mechanism. Peer pressure when coupled with dependency and ego-related irrationalities related to our peers could lead individuals to engage in unhelpful behaviours to achieve their goal of peer acceptance.

Sport Environment

For the purposes of the commentary, the sport environment within an athlete's micro-environment includes teammates, coaches, and support staff (e.g., sport scientists, performance analysts and physiotherapists). It has been proposed that sport propagates irrationality and A-C thinking (Turner, 2019). According to General Semantics Theory (Korzybski, 1933), if we think imprecisely, the language we use will reflect these imprecisions and contain semantic errors. These errors do not accurately mirror the reality of the world which in turn, results in further imprecise thinking. On closer examination of the language used by those directly involved in the sport environment, irrational language, such as "must-win games" and "terrible performances" is commonplace and could be indicative of demandingness and awfulizing beliefs (Turner, 2016). As athletes communicate daily with those within their sport environment, the exchange of irrational language (even if it is not reflective of core irrational beliefs) is unhelpful given that it is inconsistent with reality and therefore flawed. Imprecise language (i.e., language that reflects rigid, extreme and illogical concepts) modelled by others within the sport environment is an occupational hazard (Turner, 2019). The imprecise language communicated may be interpreted by athletes as structurally sound and therefore internalised by athletes which leads to subsequent imprecise thinking (Korzybski, 1933).

Coaches are one of the key socialising agents within an athlete's sport environment and thus, are fundamental to the fostering of irrational beliefs in athletes (Turner, 2019). Research has demonstrated the presence of irrational beliefs in UK-based professional soccer academy coaches (Dixon et al., 2017). The irrational beliefs of coaches may be reflected verbally in their daily communications with athletes. One study explored the effects of a rational or irrational half-time team talk delivered by coaches on cognitive appraisal and goal achievement in soccer players (Evans et al., 2018). The irrational team talk included phrases such as, "you absolutely must play well in the second-half" and "failure to win the second-half would be completely intolerable" (Evans et al., 2018, p. 433). Those who received an irrational half-time team talk reported higher threat and avoidance goal orientation regarding their second-half performance. This suggests that the footballers may have internalised the coaches' irrationalities perhaps because of the athlete attributing them with high status and power which increases the likelihood of encoding their modelled behaviour (Bandura, 1977). Consequently, they viewed the upcoming second-half performance as a threat and approached the task with an avoidance orientation. While performance was not measured in this study, research has demonstrated underperformance in sport for threat states and avoidance goal orientations (Hase et al., 2019; Lochbaum & Gottardy, 2015). Thus, it seems plausible to assume that an irrational team talk, that lends itself to threat state and an avoidance goal orientation, would also sabotage an athlete's goal of successful performance. The irrational language used by coaches at critical moments may be internalised by athletes given the high status attributed to the coach which influences an athlete's approach to competition and may be detrimental to sport performance. On a broader level, the internalisation of imprecise language used by key personnel within an athlete's sport environment serves to increase imprecise (i.e., irrational) thinking in athletes which

will guide their future responding in ways which will impede their goal achievement (Ellis, 2007; Turner, 2016).

Other forms of imprecise language within the sport environment is 'A-C' language where (A) is the activating event which causes the consequences (C). Phrases such as "big matches make me anxious" and "that referee makes me so angry" imply that it is the external event (i.e., losing and referee decisions) that "makes" emotional responses (i.e., hurt and frustration) as opposed to a belief related with poor sport performance (Turner & Bennet, 2018). This unhelpful model of thinking reflected in verbal expressions insinuates that the individual is powerless over external events as they reside outside of an individual's control. The A-C model of thinking blocks people from realising that they are responsible for their dysfunctional thinking, language, feelings and behaviours and therefore, they have the power to change them (Ellis, 2007). This has been supported by research which has demonstrated that those with higher beliefs that one's emotions are cognitively meditated (C-M; changes in cognition about situational events lead to emotion change) and lower beliefs that one's emotions occur via stimulus–response (S-R; emotions are caused by situational events), had a greater ability to regulate emotions and control thoughts as well as more positive mental health and lower emotion reactivity (Turner et al., 2021). As previous, athletes may internalise the modelled A-C language and adopt this style of thinking which will render them powerless to change their dysfunctional ways of working and result in an inability to manage their emotions which will impede goal achievement.

Within sport, staff members are often ordered into an organisational chart which document reporting lines and alludes to the allocation of power and resources. For example, soccer academies within the UK are usually headed by a chairperson, followed by a board of directors, management team, coaching staff, and various support staff (e.g., psychologists, nutritionists and physiotherapists). Anecdotal evidence has suggested the transmission of irrational beliefs stems from a top-down organisational structure (i.e., from a position of high power to those with lower power) whereby the values and vision of the organisation are irrational from the outset (Turner, 2019). While there is a dearth of research confirming the presence of irrational beliefs in sport-related staff, research has demonstrated the presence of irrational beliefs in coaches (Dixon et al., 2017). Thus, it seems logical to presume that irrational beliefs also exist in wider sport staff given that they too are performers operating in a high-performance environment (Arnold et al., 2019). Given the day-to-day intimate interactions of a physiotherapist with an athlete undergoing rehabilitation (Arvinen-Barrow et al., 2007), it seems prudent to explore how a physiotherapist could shapes an athlete's irrational beliefs regarding their injury. An athlete who has experienced an injury may harbour irrational beliefs, such as "I really want my athletic career to continue and therefore it absolutely must as I am worthless and nothing without my sport". As a result, they may experience depression, helplessness and engage in avoidance coping which are common responses to injury documented in the literature (Carson & Polman, 2008). Support staff, including physiotherapists, have articulated that their performance within their role is to deliver medals, thus, their performance is measured by the athlete's performance (Arnold et al., 2019). As a result, they may develop irrational beliefs such as, "I want to keep

my job and be able to provide for my family so therefore I must. I will only be able to keep my job if the athlete recovers from their injury so they absolutely must get better and perform". Physiotherapists may model these irrational beliefs by rushing the injury rehabilitation process despite the athlete not showing signs of physical or psychological readiness to return to sport. They may communicate the absolutistic demand that rehabilitative milestones must be met by unrealistic deadlines and how it will be truly awful if these milestones are not met. The behavioural and verbal modelling of irrationalities may serve to reinforce pre-existing athlete irrationalities related to their injury augmenting depression and the adoption of unhelpful coping strategies, such as substance misuse. In summary, the outcome focused environment of sport results in an escalation of preferences to demands which is modelled by key personnel within the sport environment through their behaviour and language (Botterill, 2005). While this may be inadvertent, the modelling of irrationalities may be internalised and emulated by athletes leading to the development and/or reinforcement of irrational beliefs in athletes (Turner, 2019).

Social Media and Fans

Social media is an interactive technology enabling expression and communication with virtual communities via the internet. Professional athletes frequently engage with social media and many communicate with their fans via this tool thereby reformulating the fan-athlete relationship (Kassing & Sanderson, 2010). While this enhanced, direct and 24/7 access can bring about positive outcomes (e.g., building fan-athlete relationships), it can also have its drawbacks (Kassing & Sanderson, 2010). Fans are at liberty to instantly comment on an athlete's performance and may use irrational language to do so. To illustrate, Liu Shiwen and Xu Xin, China's mixed doubles table tennis team, issued a tearful apology for winning a silver medal at the Tokyo 2020 Olympics claiming that they've "failed the team" and that the team "cannot accept this result" (Tokyo Olympics, 2021). Several social media users posted aggressive comments on Weibo, a Chinese microblogging platform, such as how they had "failed the nation" and "shame on you" (Lee, 2021). This form of fan-athlete engagement reflects an irrationality for superhuman gods and heroes (Ellis, 1976) as fans demand superhuman strength, speed, skill and stamina from athletes. Social media has made it easier for fans to engage with the athlete directly and communicate their irrationalities in real-time. If fans post irrational comments following an unsuccessful competitive performance, it may serve as a catalyst for the development or reinforcer of athlete irrationalities, particularly depreciation beliefs.

As social media is often viewed as an extension of the self, users may view their self-worth in terms of social media engagement metrics (Sabik et al., 2020). Likes (i.e., an expression that the user likes the content), shares (i.e., user shares another user's content) and followers (i.e., user has subscribed to an account to view their content) can be likened to societal markers of our evolved needs of acceptance, inclusion and popularity which act as a currency for self-worth. For athletes, these metrics also help increase sponsorship deals given their greater reach and potential influence on fan consumers (Su et al., 2020) which may serve as an additional driver

to pursue these metrics. Athletes may develop irrationalities related to their social media engagement in order to receive external validation, such as "I want to be liked and respected and therefore I must. If I do not receive any engagement from my post, it shows nobody loves me and therefore I cannot love myself". Research has shown that female social media users whose self-worth is contingent on social media feedback reported lower levels of resilience and self-kindness as well as higher levels of stress and depressive symptoms (Sabik et al., 2020). Athletes may also develop irrational beliefs related to their use of social media and how it is performing, such as "I want to maintain my social media status by sharing useful and exciting insights to my sport and personal life and therefore I absolutely must". Indeed, athletes have expressed a level of anxiousness over what they post and find it difficult to balance social media use which could be indicative of such beliefs (Hayes et al., 2019). Social media may contribute to an athlete validating their self-worth based on social media metrics which as an external measure, resides outside of their control. When social media metrics displease the athlete, depreciation beliefs may be triggered resulting in negative mental health outcomes.

In conclusion, significant others within an athlete's micro-environment model irrational beliefs through their behaviour and language. Given their proximity, daily involvement with the athlete and at times, high-status attribution by the athlete, the irrational beliefs modelled may be internalised resulting in the development, reinforcement and maintenance of irrational beliefs in athletes. The adoption of irrational beliefs may also occur because of athletic self-worth contingency which is reinforced by key personnel. Only when the athlete gains the acceptance and approval of others by fulfilling the athletic contingencies set, can the athlete truly accept themselves with unconditional self-acceptance.

Macro-environment

Key Sport Stakeholder Organisations

For the purposes of our commentary, key sport stakeholder organisations include national governing bodies, international federations, National Olympic and Paralympic Committees as well as government agencies responsible for investing in sport. Globally, the strategy of prioritisation is adopted within elite sport whereby national funding is targeted for a limited number of sports with a high chance of medal success (De Bosscher et al., 2019). Within the sport, elite performance places are also allocated in this manner. Performance-related funding creates an outcome driven climate with a single-minded pursuit of medals (Phelps et al., 2017). In this environment, athletes will learn that performing well and winning (A; activating event) results in funding (C; consequences) which could result in the athlete viewing their self-worth as contingent on this outcome. In this instance, the athlete requires external validation in the form of securing funding and can only accept themselves once this has been achieved (David et al., 2010). Performance-related funding may strengthen the pre-existing goal of an athlete to win to secure their funding (G; goal). In turn, this creates a situation in which losing is highly adverse (A; activating

event) given that it is incongruent with the goal to win. The possibility of losing will trigger irrational beliefs (B; beliefs), such as "I want to win therefore I must win as it will be truly awful and catastrophic if I don't secure funding as sport is my only purpose in life". As a result, the athlete could become anxious, tense and overthink their performance (C; consequences) which will negatively impact their sport performance goal. They may also engage in dysfunctional behaviours with the intention of improving their performance, such as disordered eating and compulsive training. Ultimately, this could lead to the emergence of a destructive culture which violates societal norms and standards of conduct in the pursuit of medals (Feddersen et al., 2020; Phelps et al., 2017). In summary, key sport stakeholder organisations contribute to the outcome-driven climate athletes are immersed in. The sole focus on medals and performance could result in the athlete developing contingent self-worth based on their performance outcomes. In addition, the outcome-driven climate could lead to the increased activation of irrational beliefs by creating incongruences between the athlete's goal (i.e., to win) and activating event (i.e., not performing well).

Sponsors

As a result of inadequate financial support, athletes report having to rely on sponsorship, contract renewal and negotiation to facilitate their sporting endeavours (Arnold & Fletcher, 2012). An athlete sponsorship agreement is a legal contract between the sponsor and individual athlete whereby the sponsor provides financial or other forms of support to fund the athlete's sport endeavours in exchange for an association with the athlete. Typically, the fee an athlete is entitled to by the sponsor is dependent upon past, present and potential success. Sponsorship agreements often contain clauses stating that if an athlete fails to achieve performance-based targets, they will receive penalties and payment will be reduced. Performance-based payment by sponsors may contribute to the formation of irrational beliefs in athletes as athletes may tie their self-worth to the monetary sum they are given by their sponsor. In this instance, an athlete's self-worth is contingent on the amount of sponsorship they receive which in turn, is contingent on their athletic performance. If athletes receive financial penalties, they are dropped by their sponsor or their sponsorship fee is considerably less the following year. Self-depreciation beliefs may be triggered, such as "I have been dropped by my sponsor which shows I am worthless and a failure. I will never amount to anything in life". One such example is Nike who came under scrutiny for performance-based payment reductions for female athletes who were pregnant. Several athletes spoke out including USA runner Alysia Montano who revealed that her sponsorship payment was frozen when she became pregnant (Watson, 2019). As a result of financial penalties for pregnant female athletes, they may develop irrational beliefs, such as "I am nothing without my athletic career". This could result in guilt, depression and partaking in harmful exercise practices. Montano claimed that she was forced to train with a brace around her stomach to support broken abdominal muscles (Sky, 2019). While Nike have since changed their pregnancy policy to wave the reduction for one-year, they still retain performance-based targets (Watson, 2019). To summarise, the desire to compete coupled

with inadequate financial support has led to the increase of athlete sponsorship deals which often involve performance-related pay. Athletes who have secured such deals may be liable to tie their self-worth to the sponsorship deal they receive which in turn, is contingent on their athletic performance. When athletes do not receive the amount of sponsorship they believe they are worth, depreciation beliefs may be triggered and reinforced.

Media

The media, a communication tool which includes radio, television, magazines, and the internet also influences irrational beliefs (Stevens & Prinstein, 2005). As sport has become one of the greatest passions of the twenty-first century (Boyle & Haynes, 2009), the media are keen to cover an athlete's sporting pursuit as a national hero as well as their personal life as a sport celebrity adding a layer of exposure and scrutiny (Dumitriu, 2018). Ahead of a major sport event, the media highlight athletes who are in contention for a medal. For the Tokyo 2020 Olympic Games, the media vehemently reported on how Simone Biles, a four-time Olympic gold USA gymnast, could win up to six medals (Olympics, 2021) and "become the most decorated American gymnast in Olympic history" (Azzi, 2021). Intense media coverage ahead of an athlete's performance may serve to reinforce an athlete's pre-existing demandingness and depreciation beliefs adding a further layer of expectation as athletes feel they must also live up to expectations of the nation. Returning to Biles, she offered a glimpse that this is indeed a reality in an Instagram post during the Tokyo 2020 Olympic Games, "I truly do feel like I have the weight of the world on my shoulders at times" (Biles, 2021a). Resultant irrational beliefs may sound like, "I want to make my nation proud and therefore I must not let my nation down. They are all watching me and if I fail, it will make me a complete failure". When triggered, the athlete may experience severe pre-competitive anxiety, increased heart rate and overthink their performance which impedes their goal of successful sport performance. Indeed, research has demonstrated that athletic performance in high-pressure scenarios decreases with increasing irrational beliefs in athletes (Mesagno et al., 2020). The media serve as a lens on an athlete's sporting and personal life which may reinforce pre-existing irrationalities as athletes are increasingly aware of the nation's gaze and expectation which can negatively impact their sport performance.

The media often adopt an editorial technique called sensationalism where they present news stories in an exaggerated and emotionally loaded manner to increase readership, ratings and revenue at the expense of accuracy. Let us revisit Simone Biles at the Tokyo 2020 Olympic Games and compare the media's reporting of an event with the account she shared on her social media account and during an interview with the National Broadcasting Company. Biles chose to not compete in the Olympic individual all-around gymnastic final to prioritize her mental health. One broadcaster reported that not having the "greatest gymnast of all time" to be part of this "very important team competition" was the USA's "worst nightmare coming to pass" (Brennan, 2021). The clickbait heading for the video report was, "'Worst nightmare': Simone Biles withdraws from team final" (Brennan, 2021). The media report exaggerated the consequences of Simone Biles not competing thereby

reflecting the irrational belief of awfulizing. By way of contrast, Biles' version of events reflected rationality, specifically her unconditional self-acceptance despite how her performance was "not how I wanted it to go" (Camenker, 2021). She stated that "at the end of the day, we're not just athletes or entertainment. We're human too and we have emotions and feelings and things that we're working through behind the scenes" (Camenker, 2021). Biles also noted how "I'm more than my accomplishments and gymnastics" (Biles 2021b). Collectively, this demonstrates Biles' unconditional self-acceptance as despite her perceived gymnastic failings on the day, she did not dam her entire totality as a person on the basis of this singular perceived failure. In sum, the media sensualise and mislead the readership by insinuating that athlete's harbour irrational beliefs despite athletes demonstrating a rational philosophy. The media therefore perpetuate irrationality insinuating that success is an absolute must and failure is catastrophic (Turner, 2019). This is consumed by the readership which may include young, impressionable athletes and therefore the irrational verbal expressions may be internalised by these athletes. Thus, the socialisation of irrational beliefs continues. In conclusion, stakeholders within an athlete's macro-environment serve to develop, strengthen and maintain irrational beliefs in athletes predominately via the mechanism of contingent self-worth. The media enhances exposure and access to the athletes which also perpetuates athlete irrationality.

The Combined Influence of the Micro- and Macro-environment

Athletes assimilate information regarding how to develop their athletic career via communication and interactions with multiple key social agents within their micro- and macro-environment (Turner, 2019). It has been demonstrated that these influences harbour and model irrationality through their behaviour, language and processes. As a result of the biological tendency to develop irrational beliefs and socialisation with micro- and macro-environment influences, irrational beliefs may be developed, reinforced, maintained and triggered in athletes as demonstrated in Fig. 1 (Turner, 2019).

Guidance for a Rational Environment

Key social agents within an athlete's micro- and macro-environment may serve to develop, reinforce and maintain an athlete's irrational beliefs which have a deleterious effect on mental health (Turner, 2016). Given the duty of care and increasing importance of athlete mental health (Henriksen et al., 2020; Kavanagh et al., 2021; Stambulova et al., 2021), there is an urgent requirement to intervene on environments that perpetuate irrationality within sport. As previously highlighted, modifying the sport environment may bring about more long-lasting effects given the whole-environment socialisation of beliefs (Turner, 2016). We argue that we need to substantially modify the sport environment to a rational environment which promotes psychological wellbeing and sustained, long-term performance given the inextricable link between mental health and performance (Henriksen et al., 2020;

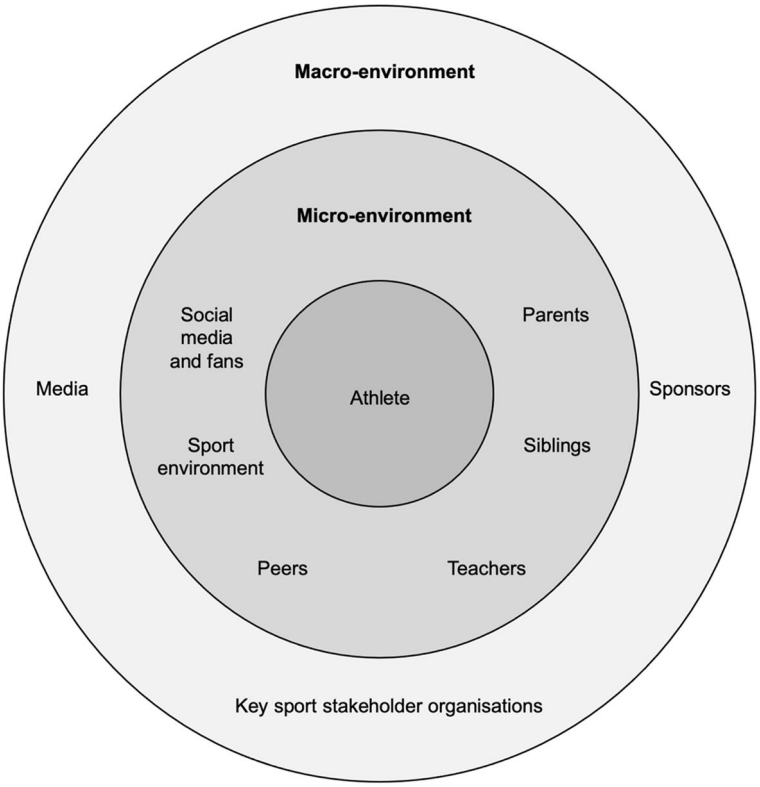

Fig. 1 The Athlete's micro- and macro-environmental influences. *Descriptive caption* Three circles contained within each other identifying the influences on the athlete. The inner circle represents the athlete, the middle circle represents the micro-environment and the outer circle represents the macro-environment

Stambulova et al., 2021). We call on the combined efforts of the aforementioned stakeholders, researchers and practitioners to implement the following initiatives which will contribute to a rational environment:

- Implement the systematic use of REBT across a range of contexts including educational, employment and community settings to actively dissuade irrational beliefs and encourage the formation of rational beliefs. Of particular importance is the implementation of REBT within the sport environment (micro-environment) to bring about organisational and environmental change so that subsequent communications and interactions with the athlete reflect rational principles (Turner, 2019). It is hoped that the global roll out of REBT will lead to the socialisation and propagation of rational beliefs as opposed to irrational beliefs with long-lasting and broader effects (Turner, 2019).
- Educate all stakeholders on the premise that it is our beliefs about an event which determines our response to increase agency for our emotional and behav-

ioural response. Fostering autonomy and responsibility for our emotional well-being and behaviours may serve to increase the likelihood of the adoption of rational beliefs, healthy emotions and functional consequences which facilitate goal achievement during adversity (Turner, 2019).

- Challenge the use of irrational language, such as the escalation of a preference to a demand and A-C thinking by asking those who use it what they mean and the accuracy of their expression. Challenging imprecise language will alter the performance narrative around the athlete and reduce subsequent imprecise thinking in others (Korzybski, 1933; Turner, 2019).
- When faced with adversity, model rational behaviour and language which is flexible, non-extreme and logical. For example, a rational response after losing a match would be to state, "yes this is really bad for us, and we are disappointed, but it is not end of the world" coupled with proportionately disappointed behaviour. Given that the behaviour of high-status models is more likely to be emulated, it is of particular importance that those in such positions adopt a rational philosophy. To illustrate, Mauricio Macri, a former President of Argentina (2015–2019), stated that "it is not true that if one does not become a champion, one is a failure; that is a madness that does not exist anywhere in the world" (In Sports, 2018).
- Introduce psychometric testing of performance-specific irrational beliefs when an athlete enters the sport system, such as the irrational Performance Beliefs Inventory (iPBI; Turner et al., 2016). Couple this with an ABC assessment and observation of the athlete to assist with targeted REBT and/or mental health interventions (Turner, 2019).
- Educate athletes on information discernment, defined as the social, psychological, behavioural and information source factors that influence one's judgement regarding information (Walton, 2017). Becoming effective information discerners will help athletes resist the effects of misinformation encountered in their daily lives enabling them to make a well-calibrated judgement (Walton et al., 2020).
- Shift the focus from performance-related pay, sponsorship and media attention which can contribute to an athlete developing contingent self-worth. Instead, promote, reward and champion an athlete's effort, values, ethics and their story. This aligns with the humanistic approach of REBT viewing the athlete as person first, athlete second (Turner, 2016). It is hoped that this approach will promote unconditional self-acceptance in athletes that they are worthwhile due to their existence as opposed to their extrinsic sporting achievements (Ellis, 2005). Unconditional self-acceptance is associated with lower levels of psychological distress (Oltean & David, 2018).

Declarations

Conflict of interest The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

Alloy, L. B., Abramson, L. Y., Tashman, N. A., Berrebbi, D. S., Hogan, M. E., Whitehouse, W. G., Crossfield, A. G., & Morocco, A. (2001). Developmental origins of cognitive vulnerability to depression: Parenting, cognitive, and inferential feedback styles of the parents of individuals at high and low cognitive risk for depression. *Cognitive Therapy and Research, 25*(4), 397–423. https://doi.org/10.1023/A:1005534503148

Arnold, R., Collington, S., Manley, H., Rees, S., Soanes, J., & Williams, M. (2019). "The team behind the team": Exploring the organizational stressor experiences of sport science and management staff in elite sport. *Journal of Applied Sport Psychology, 31*(1), 7–26. https://doi.org/10.1080/10413200.2017.1407836

Arnold, R., & Fletcher, D. (2012). A research synthesis and taxonomic classification of the organizational stressors encountered by sport performers. *Journal of Sport and Exercise Psychology, 34*(3), 397–429. https://doi.org/10.1123/jsep.34.3.397

Arvinen-Barrow, M., Hemmings, B., Weigand, D., Becker, C., & Booth, L. (2007). Views of chartered physiotherapists on the psychological content of their practice: A follow-up survey in the UK. *Journal of Sport Rehabilitation, 16*(2), 111–121. https://doi.org/10.1123/jsr.16.2.111

Assor, A., & Tal, K. (2012). When parents' affection depends on child's achievement: Parental conditional positive regard, self-aggrandizement, shame and coping in adolescents. *Journal of Adolescence, 35*(2), 249–260. https://doi.org/10.1016/j.adolescence.2011.10.004

Azzi, A. (2021). *Simone Biles on track to become most decorated U.S. gymnast in Olympic history (100 days, 100 ways).* https://onherturf.nbcsports.com/2021/07/13/simone-biles-on-track-to-become-most-decorated-u-s-gymnast-in-olympic-history-100-days-100-ways/.

Babarro, J. M., Díaz-Aguado, M. J., Arias, R. M., & Steglich, C. (2017). Power structure in the peer group: The role of classroom cohesion and hierarchy in peer acceptance and rejection of victimized and aggressive students. *The Journal of Early Adolescence, 37*(9), 1197–1220. https://doi.org/10.1177/0272431616648451

Bandura, A. (1977). *Social learning theory*. Prentice Hall.

Barkoukis, V., Hagger, M. S., Lambropoulos, G., & Tsorbatzoudis, H. (2010). Extending the trans-contextual model in physical education and leisure-time contexts: Examining the role of basic psychological need satisfaction. *British Journal of Educational Psychology, 80*(4), 647–670. https://doi.org/10.1348/000709910x487023

Barlow, J., Coren, E., & Stewart-Brown, S. (2003). Parent-training programmes for improving maternal psychosocial health. *Cochrane Database of Systematic Reviews, 4*, 1–98. https://doi.org/10.1002/14651858.CD002020.pub2

Benoit, D. (2004). Infant-parent attachment: Definition, types, antecedents, measurement and outcome. *Paediatrics and Child Health, 9*(8), 541–545. https://doi.org/10.1093/pch/9.8.541

Berger, A. (1983). The role of irrational cognitions in the phenomenology of anger and guilt in parents of disturbed children. *Dissertation Abstracts International, 44*(1), 296–297.

Bernard, M. E. (2016). Teacher beliefs and stress. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 34*(3), 209–224. https://doi.org/10.1007/s10942-016-0238-y

Biles, S [@simonebiles]. (2021a). *Prelims. Now to prepare for finals. It wasn't an easy day or my best but I got through it* [Photograph]. Instagram. https://www.instagram.com/p/CRxsq_kBZrP/.

Biles, S [@simonebiles]. (2021b). *The outpouring love & support I've received has made me realize I'm more than my accomplishments and gymnastics which I* [Photograph]. Instagram. https://www.instagram.com/p/CR5oCyRhfS3/.

Birkeland, M. S., Breivik, K., & Wold, B. (2014). Peer acceptance protects global self-esteem from negative effects of low closeness to parents during adolescence and early adulthood. *Journal of Youth and Adolescence, 43*(1), 70–80. https://doi.org/10.1007/s10964-013-9929-1

Bishop, J. A., & Inderbitzen, H. M. (1995). Peer acceptance and friendship: An investigation of their relation to self-esteem. *The Journal of Early Adolescence, 15*(4), 476–489. https://doi.org/10.1177/0272431695015004005

Botterill, C. (2005). Competitive drive: Embracing positive rivalries. In S. Murphy (Ed.), *The sport psych handbook* (pp. 37–48). Human Kinetics.

Boyle, R., & Haynes, R. (2009). *Power play. Sport, the media and popular culture* (2nd ed.). Edinburgh University Press.

Brennan, C. (2021). *'Worst nightmare': Simone Biles withdraws from team finals* [Video]. CNN. https://edition.cnn.com/videos/sports/2021/07/27/tokyo-olympics-simone-biles-withdraws-from-team-finals.cnn.

Brown, K. A., Patel, D. R., & Darmawan, D. (2017). Participation in sports in relation to adolescent growth and development. *Translational Pediatrics, 6*(3), 150–159. https://doi.org/10.21037/tp.2017.04.03

Camenker, J. (2021). Simone Biles opens up about mental health: 'We're not just athletes or entertainment. We're human too'. *Sporting News.* https://www.sportingnews.com/us/athletics/news/simone-biles-mental-health-athletes/2wda61k16m84zzjgam0iz7ye.

Carson, F., & Polman, R. C. J. (2008). ACL injury rehabilitation: A psychological case study of a professional rugby union player. *Journal of Clinical Sport Psychology, 2*(1), 71–90. https://doi.org/10.1123/jcsp.2.1.71

Caruso, C., Angelone, L., Abbate, E., Ionni, V., Biondi, C., di Agostino, C., Mobili, A., Verità, R., Navarra, R., Ruggiero, G. M., & Mezzaluna, C. (2018). Effects of a REBT based training on children and teachers in primary school. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 36*(1), 1–14. https://doi.org/10.1007/s10942-017-0270-6

Côté, J. (1999). The influence of the family in the development of talent in sport. *The Sport Psychologist, 13*(4), 395–417. https://doi.org/10.1123/tsp.13.4.395

Curran, T. (2018). Parental conditional regard and the development of perfectionism in adolescent athletes: The mediating role of competence contingent self-worth. *Sport, Exercise, and Performance Psychology, 7*(3), 284–296. https://doi.org/10.1037/spy0000126

David, O. A. (2014). The rational positive parenting program for child externalizing behavior: Mechanisms of change analysis. *Journal of Evidence-Based Psychotherapies, 14*(1), 21–38.

David, D., & DiGiuseppe, R. (2010). Social and cultural aspects of rational and irrational beliefs: A brief reconceptualization. In D. David, S. J. Lynn, & A. Ellis (Eds.), *Rational and irrational beliefs: Research, theory, and clinical practice* (pp. 49–61). Oxford University Press.

David, D., Lynn, S., & Ellis, A. (2010). *Rational and irrational beliefs: Research, theory, and clinical practice*. Oxford University Press.

David, D., Szentagotai, A., Eva, K., & Macavei, B. (2005). A synopsis of rational-emotive behavior therapy (REBT); Fundamental and applied research. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 23*(3), 175–221. https://doi.org/10.1007/s10942-005-0011-0

Davis, N. W., & Meyer, B. B. (2008). When sibling becomes competitor: A qualitative investigation of same-sex sibling competition in elite sport. *Journal of Applied Sport Psychology, 20*(2), 220–235. https://doi.org/10.1080/10413200701864817

Davison, K. K. (2004). Activity-related support from parents, peers, and siblings and adolescents' physical activity: Are there gender differences? *Journal of Physical Activity and Health, 1*(4), 363–376. https://doi.org/10.1123/jpah.1.4.363

De Bosscher, V., Shibli, S., & Weber, A. C. (2019). Is prioritisation of funding in elite sport effective? An analysis of the investment strategies in 16 countries. *European Sport Management Quarterly, 19*(2), 221–243. https://doi.org/10.1080/16184742.2018.1505926

Dixon, M., Turner, M. J., & Gillman, J. (2017). Examining the relationships between challenge and threat cognitive appraisals and coaching behaviours in football coaches. *Journal of Sports Sciences, 35*(24), 2446–2452. https://doi.org/10.1080/02640414.2016.1273538

Dryden, W., & Branch, R. (2008). *The Fundamentals of Rational Emotive Behaviour Therapy* (2nd ed.). Wiley.

Dryden, W., & Neenan, M. (2015). *Rational emotive behaviour therapy: 100 key points and techniques*. Routledge.

Dumitriu, D. L. (2018). Media construction of sport celebrities as national heroes. *Romanian Journal of Communication and Public Relations, 20*(2), 21–33. https://doi.org/10.21018/rjcpr.2018.2.257

Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development*. Psychology Press.

Ellis, A. (1957). Rational psychotherapy and individual psychology. *Journal of Individual Psychology, 13*, 38–44.

Ellis, A. (1976). The biological basis of human irrationality. *Journal of Individual Psychology, 32*, 145–168.

Ellis, A. (1994). *Reason and emotion in psychotherapy*. Birch Lane Press.

Ellis, A. (2005). *The Myth of Self-Esteem How Rational Emotive Behavior Therapy Can Change Your Life Forever*. Prometheus.

Ellis, A. (2007). General semantics and rational-emotive therapy: 1991 Alfred Korzybski memorial lecture. *ETC A Review of General Semantics, 64*(4), 301–319.

Engelberg, T., Moston, S., & Skinner, J. (2015). The final frontier of anti-doping: A study of athletes who have committed doping violations. *Sport Management Review, 18*(2), 268–279. https://doi.org/10.1016/j.smr.2014.06.005

Entwisle, D. R., Alexander, K. L., Pallas, A. M., & Cadigan, D. (1987). The emergent academic self-image of first graders: Its response to social structure. *Child Development, 58*(5), 1190–1206. https://doi.org/10.2307/1130614

Epictetus, R. M. (1948). *The enchiridion*. Bobbs-Merrill.

Evans, A. L., Turner, M. J., Pickering, R., & Powditch, R. (2018). The effects of rational and irrational coach team talks on the cognitive appraisal and achievement goal orientation of varsity football athletes. *International Journal of Sports Science and Coaching, 13*(3), 431–438. https://doi.org/10.1177/1747954118771183

Forman, S. G., & Forman, B. D. (1980). Rational-emotive staff development. *Psychology in the Schools, 17*(1), 90–96.

Feddersen, N. B., Morris, R., Littlewood, M. A., & Richardson, D. J. (2020). The emergence and perpetuation of a destructive culture in an elite sport in the United Kingdom. *Sport in Society, 23*(6), 1004–1022. https://doi.org/10.1080/17430437.2019.1680639

Fredericks, J. A., & Eccles, J. S. (2004). Parental influences on youth involvement in sports. In M. R. Weiss (Ed.), *Developmental sport and exercise psychology: A lifespan perspective* (pp. 145–164). Fitness Information Technology.

Gavita, O. A., & Calin, A. (2013). Retman rational stories versus rational parenting program for the treatment of child psychopathology: Efficacy of two formats of rational-emotive behavior therapy. *Journal of Cognitive and Behavioral Psychotherapies, 13*(1), 33–56.

Gavita, O. A., David, D., DiGiuseppe, R., & DelVecchio, T. (2011). The development and validation of the parent rational and irrational beliefs scale. *Procedia Social and Behavioral Sciences, 30*, 2305–2311. https://doi.org/10.1016/j.sbspro.2011.10.449

Hagger, M. S., Chatzisarantis, N. L. D., Culverhouse, T., & Biddle, S. J. H. (2003). The processes by which perceived autonomy support in physical education promotes leisure-time physical activity intentions and behavior: A trans-contextual model. *Journal of Educational Psychology, 95*(4), 784–795. https://doi.org/10.1037/0022-0663.95.4.784

Harwood, C. G., Keegan, R. J., Smith, J. M., & Raine, A. S. (2015). A systematic review of the intrapersonal correlates of motivational climate perceptions in sport and physical activity. *Psychology of Sport and Exercise, 18*, 9–25. https://doi.org/10.1016/j.psychsport.2014.11.005

Hase, A., O'Brien, J., Moore, L. J., & Freeman, P. (2019). The relationship between challenge and threat states and performance: A systematic review. *Sport, Exercise, and Performance Psychology, 8*(2), 123–144. https://doi.org/10.1037/spy0000132

Hayes, M., Filo, K., Riot, C., & Geurin, A. (2019). Athlete perceptions of social media benefits and challenges during major sport events. *International Journal of Sport Communication, 12*(4), 449–481. https://doi.org/10.1123/ijsc.2019-0026

Henriksen, K., Stambulova, N., & Roessler, K. K. (2010). Holistic approach to athletic talent development environments: A successful sailing milieu. *Psychology of Sport and Exercise, 11*, 212–222. https://doi.org/10.1016/j.psychsport.2009.10.005

In Sports, a Must-Win Situation Usually Leads to a Loss (2018). Association for Psychological Science. https://www.psychologicalscience.org/news/in-sports-a-must-win-situation-usually-leads-to-a-loss.html.

IOC. (2021). *The olympic motto.* https://olympics.com/ioc/olympic-motto.

Jordana, A., Turner, M. J., Ramis, Y., & Torregrossa, M. (2020). A systematic mapping review on the use of rational emotive behavior therapy (REBT) with athletes. *International Review of Sport and Exercise Psychology*. https://doi.org/10.1080/1750984x.2020.1836673

Joyce, M. R. (1995). Emotional relief for parents: Is rational-emotive parent education effective? *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 13*(1), 55–75.

Kavanagh, E., Rhind, D., & Gordon-Thomson, G. (2021). Duties of care and welfare practices. In R. Arnold & D. Fletcher (Eds.), *Stress, well-being, and performance in sport* (pp. 313–331). Routledge.

Kassing, J. W., & Sanderson, J. (2010). Fan–athlete interaction and Twitter tweeting through the giro: A case study. *International Journal of Sport Communication, 3*(1), 113–128. https://doi.org/10.1123/ijsc.3.1.113

Knight, C. J., Harwood, C. G., & Sellars, P. A. (2018). Supporting adolescent athletes' dual careers: The role of an athlete's social support network. *Psychology of Sport and Exercise, 38*, 137–147. https://doi.org/10.1016/j.psychsport.2018.06.007

Korzybski, A. (1933). *Science and sanity*. International Non-Aristotelian Library.

Lee, T. (2021). *How nationalism is driving Chinese trolls to target athletes.* DW. https://www.dw.com/en/china-trolls-olympics/a-58808871.

Lochbaum, M., & Gottardy, J. (2015). A meta-analytic review of the approach-avoidance achievement goals and performance relationships in the sport psychology literature. *Journal of Sport and Health Science, 4*(2), 164–173. https://doi.org/10.1016/j.jshs.2013.12.004

Lundy, G., Allan, V., Cowburn, I., & Cote, J. (2019). Parental support, sibling influences and family dynamics across the development of Canadian interuniversity student-athletes. *Journal of Athlete Development and Experience, 1*(2), 87–97. https://doi.org/10.25035/jade.01.02.04

Maccoby, E. E. (2000). Parenting and its effects on children: On reading and misreading behavior genetics. *Annual Review of Psychology, 51*(1), 1–27. https://doi.org/10.1146/annurev.psych.51.1.1

McCoy, S. S., Dimler, L. M., Samuels, D. V., & Natsuaki, M. N. (2019). Adolescent susceptibility to deviant peer pressure: Does gender matter? *Adolescent Research Review, 4*(1), 59–71. https://doi.org/10.1007/s40894-017-0071-2

Mesagno, C., Tibbert, S. J., Buchanan, E., Harvey, J. T., & Turner, M. J. (2020). Irrational beliefs and choking under pressure: A preliminary investigation. *Journal of Applied Sport Psychology*. https://doi.org/10.1080/10413200.2020.1737273

Meyer, W. U. (1992). Paradoxical effects of praise and criticism on perceived ability. *European Review of Social Psychology, 3*(1), 259–283. https://doi.org/10.1080/14792779243000087

Nelson, K., & Strachan, L. (2017). Friend, foe, or both? A retrospective exploration of sibling relationships in elite youth sport. *International Journal of Sports Science & Coaching, 12*(2), 207–218. https://doi.org/10.1177/1747954117694923

Oltean, H. R., & David, D. O. (2018). A meta-analysis of the relationship between rational beliefs and psychological distress. *Journal of Clinical Psychology, 74*(6), 883–895. https://doi.org/10.1002/jclp.22562

Olympics. (2021). *Simone Biles is a contender for up to six medals at Tokyo 2020.* https://olympics.com/en/news/gymnastics-simone-biles-contender-possible-six-medals-tokyo-2020.

Omli, J., & LaVoi, N. M. (2012). Emotional experiences of youth sport parents I: Anger. *Journal of Applied Sport Psychology, 24*(1), 10–25. https://doi.org/10.1080/10413200.2011.578102

Petróczi, A., & Aidman, E. (2008). Psychological drivers in doping: The life-cycle model of performance enhancement. *Substance Abuse Treatment, Prevention, and Policy*. https://doi.org/10.1186/1747-597X-3-7

Phelps, A., Kelly, J., Lancaster, S., Mehrzad, J., & Panter, A. (2017). Report of the independent review panel into the climate and culture of the world class programme in British cycling. UK Sport. http://www.sportsthinktank.com/uploads/cycling-independent-review.pdf.

Rubin, K. H., Bukowski, W. M., & Parker, J. G. (2006). Peer interactions, relationships, and groups. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (6th ed.). Wiley.

Sabik, N. J., Falat, J., & Magagnos, J. (2020). When self-worth depends on social media feedback: Associations with psychological well-being. *Sex Roles, 82*(7–8), 411–421. https://doi.org/10.1007/s11199-019-01062-8

Schinke, R. J., & Stambulova, N. (2017). Context-driven sport and exercise psychology practice: Widening our lens beyond the athlete. *Journal of Sport Psychology in Action, 8*(2), 71–75. https://doi.org/10.1080/21520704.2017.1299470

Sharf, R. S. (1996). *Theories of psychotherapy and counseling: Concepts and cases*. Brooks/Cole Publishing Company.

Sky. (2019). *Nike admits pregnant athletes faced performance-related pay cut.* https://news.sky.com/story/nike-admits-pregnant-athletes-faced-performance-related-pay-cut-11719580.

Stambulova, N. B., Ryba, T. V., & Henriksen, K. (2021). Career development and transitions of athletes: The international society of sport psychology position stand revisited. *International Journal of Sport and Exercise Psychology*, *19*(4), 524–550. https://doi.org/10.1080/1612197X.2020.1737836

Stevens, E. A., & Prinstein, M. J. (2005). Peer contagion of depressogenic attributional styles among adolescents: A longitudinal study. *Journal of Abnormal Child Psychology, 33*(1), 25–37. https://doi.org/10.1007/s10802-005-0931-2

Su, Y., Baker, B., Doyle, J., & Kunkel, T. (2020). The rise of an athlete brand: Factors influencing the social media following of athletes. *Sport Marketing Quarterly, 29*(1), 33–46. https://doi.org/10.32731/smq.291.302020.03

Szentagotai, A., & Jones, J. (2010). The behavioral consequences of irrational beliefs. In D. David, S. J. Lynn, & A. Ellis (Eds.), *Rational and irrational beliefs: Research, theory, and clinical practice* (pp. 75–97). Oxford: Oxford University Press.

Tokyo Olympics: Chinese nationalists turn on their athletes. (2021). BBC. https://www.bbc.co.uk/news/world-asia-china-58024068.

Trip, S., Dume, C., Bora, C. H., McMahon, J., & Baroll, B. (2019). The efficiency of rational-emotive behavioral education for parents. *Journal of Psychological and Educational Research, 27*(1), 61–84.

Trussell, D. E., & Shaw, S. M. (2012). Organized youth sport and parenting in public and private spaces. *Leisure Sciences, 34*(5), 377–394. https://doi.org/10.1080/01490400.2012.714699

Turner, M. J. (2016). Rational emotive behavior therapy (REBT), irrational and rational beliefs, and the mental health of athletes. *Frontiers in Psychology, 7*(9), 1–16. https://doi.org/10.3389/fpsyg.2016.01423

Turner, M. J. (2019). REBT in sport. In M. E. Bernard & W. Dryden (Eds.), *REBT: Advances in theory, research, prevention, promotion* (pp. 307–335). Springer Press.

Turner, M. J., & Allen, M. (2018). Confirmatory factor analysis of the irrational Performance Beliefs Inventory (iPBI) in a sample of amateur and semi-professional athletes. *Psychology of Sport and Exercise, 35*, 126–130. https://doi.org/10.1016/j.psychsport.2017.11.017

Turner, M. J., Allen, M., Slater, M. J., Barker, J. B., Woodcock, C., & Harwood, C. G. (2016). The development and initial validation of the irrational Performance Beliefs Inventory (iPBI). *European Journal of Psychological Assessment, 34*, 174–180. https://doi.org/10.1027/1015-5759/a000314

Turner, M. J., & Bennett, R. (Eds.). (2018). *Rational emotive behaviour therapy in sport and exercise*. Routledge.

Turner, M. J., Carrington, S., & Miller, A. (2019). Psychological distress across sport participation groups: The mediating effects of secondary irrational beliefs on the relationship between primary irrational beliefs and symptoms of anxiety, anger, and depression. *Journal of Clinical Sport Psychology, 13*(1), 17–40. https://doi.org/10.1123/jcsp.2017-0014

Turner, M. J., & Moore, M. (2016). Irrational beliefs predict increased emotional and physical exhaustion in Gaelic football athletes. *International Journal of Sport Psychology, 47*(2), 187–201. https://doi.org/10.7352/IJSP.2016.47.187

Turner, M. J., Wood, A. G., Boatwright, D., Chadha, N., Jones, J. K., & Bennett, R. (2021). Assessing beliefs about emotion generation and change: The conceptualisation, development, and

validation of the Cognitive Mediation Beliefs Questionnaire (CMBQ). *Psychotherapy Research, 31*(7), 932–949. https://doi.org/10.1080/10503307.2020.1871524

Vannatta, K., Gartstein, M. A., Zeller, M., & Noll, R. B. (2009). Peer acceptance and social behavior during childhood and adolescence: How important are appearance, athleticism, and academic competence? *International Journal of Behavioral Development, 33*(4), 303–311. https://doi.org/10.1177/0165025408101275

Vîslă, A., Flückiger, C., Grosse Holtforth, M., & David, D. (2016). Irrational beliefs and psychological distress: A meta-analysis. *Psychotherapy and Psychosomatics, 85*(1), 8–15. https://doi.org/10.1159/000441231

Walton, G. (2017). Information literacy is a subversive activity: developing a research-based theory of information discernment. *Journal of Information Literacy, 11*(1), 137. https://doi.org/10.11645/11.1.2188

Walton, G., Barker, J. B., Pointon, M., Turner, M. J., & Wilkinson, A. (2020). Information literacy and the societal imperative of information discernment. In S. Goldstein (Ed.), *Informed Societies: Why information literacy matters for citizenship, participation and democracy.* Facet Publishing.

Watson, I. (2019). Nike drops sponsorship penalties for pregnant sportswomen following backlash. *The Drum.* https://www.thedrum.com/news/2019/05/26/nike-drops-sponsorship-penalties-pregnant-sportswomen-following-backlash.

Whiteman, S. D., McHale, S. M., & Crouter, A. C. (2007). Explaining sibling similarities: Perceptions of sibling influences. *Journal of Youth and Adolescence, 36*(7), 963–972. https://doi.org/10.1007/s10964-006-9135-5

Wylleman, P., Reints, A., & De Knop, P. (2013). A developmental and holistic perspective on athletic career development. In P. Sotiaradou & V. De Bosscher (Eds.), *Managing high performance sport* (pp. 159–182). Routledge.