



# Mental toughness and burnout in junior athletes: A longitudinal investigation



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## ABSTRACT

**Objectives:** Mental toughness correlated negatively with burnout in several cross-sectional studies. It is unclear, however, whether mental toughness predicts changes in athlete burnout over time.

**Design:** Two-wave longitudinal design.

**Method:** We examined mental toughness and burnout in 93 junior athletes (mean age 17.7 years) across a three-month period of active training.

**Results:** Regression analyses revealed that mental toughness predicted residual decreases in total burnout, reduced sense of accomplishment, physical and emotional exhaustion, and devaluation over time.

**Conclusion:** As such, mental toughness may offer athletes protection from the experience of burnout symptoms in sport.

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## 1. Introduction

Athlete burnout is a multifaceted syndrome comprising three symptoms: a reduced sense of accomplishment, physical and emotional exhaustion (consecutively referred to as exhaustion), and sports devaluation (Raedeke & Smith, 2001). The intense training required for optimal performance and competitive sport itself can leave athletes susceptible to the negative outcomes of burnout. These include reduced well-being, performance, and ultimately sport dropout (Goodger, Gorely, Lavallee, & Harwood, 2007). Consequently, sport scientists attempted to determine personal factors that may provide protection from these negative consequences. One personal factor found to protect athletes from the negative consequences of burnout is mental toughness (Gucciardi & Gordon, 2009).

### 1.1. Mental toughness and athlete burnout

Gucciardi, Hanton, Gordon, Mallett, and Temby (2015) recently conceptualized mental toughness as a unidimensional personal characteristic, which represents the psychological capacity to

deliver high performance on a regular basis despite varying situational demands. As such, mental toughness acts as an organizing framework for personal resources, which are central to coping with internal and external stressors (Gucciardi et al., 2015). These authors suggested that mental toughness is important for performance, goal progress, and thriving under stressful conditions.

Burnout is theorized to be the product of chronic stress (Smith, 1986), so personal factors associated with stress are thought to be important in the development of burnout. For example, there is evidence that certain characteristics will make athletes more susceptible to the experience of stress in sport (e.g., trait anxiety, neuroticism, trait negative affect; DeFreese & Smith, 2014; Goodger et al., 2007). Mental toughness however is the antithesis of these constructs – making athletes less susceptible to stress in sport – and, therefore, may be a protective factor. Mental toughness may interact with the stress process in two ways. Firstly, it could influence primary appraisals. That is, mentally tough athletes would be more likely to appraise stressful situations as a challenge rather than a threat, in comparison with their less mentally tough counterparts (Levy, Nicholls, & Polman, 2012). Secondly, mental toughness may also impact upon secondary appraisal (i.e., the process in which a person decides which coping strategy to deploy and how effective it would be). Indeed, Kaiseler, Polman, and Nicholls (2009) reported that the most mentally tough athletes deployed the most effective coping strategies, inferring a more

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efficient secondary appraisal process. As such, mental toughness may offer protection from the chronic accrual of stress, which is theorized to be the key factor in the development of burnout.

There is empirical evidence to support the protective effect of mental toughness in the burnout process. For example, Gucciardi and Gordon (2009) found that mental toughness exhibited a negative cross-sectional association with burnout among a sample of cricketers. However, cross-sectional data reveals little about the temporal and possible causal associations between mental toughness and burnout. As such, longitudinal studies are required. Only one study, however, has investigated this relationship over time, and this was not in a sporting context. Gerber et al. (2015) found the expected cross-sectional associations between mental toughness and burnout. They also found a small-to-moderate effect of mental toughness predicting residual decreases in burnout ( $\beta = -0.23, p = 0.07$ ). This was nonsignificant at conventional levels of significance. Moreover, it is not clear how Gerber's et al.'s (2015) findings, which contained students, would relate to athletic populations. This is because athletes have to contend with a variety of different life (e.g., dietary, health, and sleep) and sport stressors (e.g., need for additional rest, unexplained aches, and performance concerns) during training and competition (e.g., Nicholls, Jones, Polman, & Borkoles, 2009). In addition, the distinction between the sport and school domains is important because burnout is conceptualized differently (e.g., Raedeke & Smith, 2001; Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009). Therefore, research that longitudinally explores the relationship between mental toughness and burnout is warranted.

Mental toughness may be relatively more important in the burnout process than other similar characteristics (e.g., grit or resilience). This is for a number of reasons. Firstly, grit is associated with a long-term focus on a singular objective, whereas mental toughness may be salient for multiple (and potentially conflicting) objectives. As such, mental toughness may provide greater protection from the varying situational demands (and stress) that occur in sport. Secondly, rather than being a personal factor, resilience relates to dynamic systems (e.g., organizations). Moreover, resilience represents the outcomes of efforts to enact or mobilize resources (i.e., coping) when confronted with stress (Compas, Connor-Smith, Saltzman, Harding Thomsen, & Wadsworth, 2001), whereas mental toughness is both reactive and proactive. Therefore, mental toughness may provide greater protection from stressors of varying intensity, duration, and frequency (see Gucciardi, 2017).

## 1.2. The present study

In order to address the aforementioned gaps in the mental toughness and burnout literature, we longitudinally examined the relationship between mental toughness and burnout among junior athletes over a three-month period of active training. In line with theory (e.g., Gucciardi et al., 2015) and previous research (e.g., Gucciardi & Gordon, 2009), we conducted this study with the following hypotheses:

**Hypothesis 1.** We expected a negative cross-sectional association between mental toughness and burnout.

**Hypothesis 2.** We expected mental toughness to predict residual decreases in athlete burnout over time.

## 2. Method

### 2.1. Participants

We recruited a sample of 102 athletes (74 male, 28 female) from

the south of England to participate in the present study. Participants' mean age was 17.7 years ( $SD = 0.7$ ; range = 16–20 years). Participants were involved in a range of sports (soccer  $n = 40$ , rugby  $n = 27$ , basketball  $n = 16$ , athletics  $n = 12$ , or other sports  $n = 7$ ) and trained on average 10.2 h per week ( $SD = 4.2$ ). All Participants competed at a similar sports academy level. Sports academies are part of the United Kingdom's further education system. They aim to recruit and develop promising junior athletes. As such, they provide a talent pathway for progression to the elite level.

### 2.2. Procedure

A university Ethics Committee approved this study. We obtained informed consent from all participants, in addition to obtaining parental consent from participants' parents when the athletes were aged 17 years and under. We distributed questionnaires during training in the presence of the first author. Participants received measures of mental toughness and burnout at Time 1 and then the measure of athlete burnout three months later (Time 2). The three-month interval between Time 1 and Time 2 was considered sufficient because previous research has shown that this time interval allows researchers to capture changes in athlete burnout during periods of active training (e.g., Cresswell & Eklund, 2005; Madigan, Stoeber, & Passfield, 2016).

### 2.3. Measures

#### 2.3.1. Mental toughness

The Mental Toughness Index (MTI; Gucciardi et al., 2015) measured mental toughness. The MTI is an 8-item scale and includes the following questions: "I believe in my ability to achieve my goals" and "I consistently overcome adversity." The MTI was contextualized to ensure participants responded to items regarding their sport. Participants were asked to indicate how true each statement was in their sport responding on a scale from 1 (*false, 100% of the time*) to 7 (*true, 100% of the time*). Gucciardi et al. (2015) and Mahoney, Ntoumanis, Gucciardi, Mallett, and Stebbings (2016) found that the MTI is a reliable and valid measure of mental toughness among athletes.

#### 2.3.2. Athlete burnout

The Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) measured burnout. The ABQ comprises three 5-item subscales capturing the key symptoms of athlete burnout: reduced sense of accomplishment (e.g., "I am not achieving much in my sport"), exhaustion ("I am exhausted by the mental and physical demands of my sport"), and devaluation ("I'm not into my sport like I used to be"). Moreover, the subscales were also combined to create a total score of athlete burnout (e.g., Madigan, Stoeber, & Passfield, 2015). The ABQ is the most widely-used measure of athlete burnout and has demonstrated reliability and validity in numerous studies (e.g. Cresswell & Eklund, 2005). Participants were asked how often they experienced the symptoms described in the statements responding on a scale from 1 (*almost never*) to 5 (*almost always*).

### 2.4. Data screening

Because only 15 item responses were missing, we replaced the missing responses with the mean of the item responses of the corresponding scale (ipsatized item replacement; Graham, Cumsille, & Elek-Fisk, 2003). Next, Cronbach's alphas were computed for the variables (see Table 1) which were all satisfactory (alphas > 0.70). Following recommendations by Tabachnick and Fidell (2007), data were screened for multivariate outliers. Two participants showed a Mahalanobis distance larger than the critical

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