

Running Head: STRENGTHS-BASED COACHING OF MENTAL TOUGHNESS

## **A Case Study of Strengths-Based Coaching of Mental Toughness in Cricket**

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### **Abstract**

The purpose of this case study was to explore the effectiveness of an individualized, strengths-based coaching approach with an elite cricketer, when compared to two control participants. The coaching consisted of four meetings that occurred over a one month period at the start of the cricket season. Multisource ratings (i.e., self, coaches, teammates) of mental toughness were obtained at baseline, intervention, and post- season. Visual analysis of data revealed general improvements in raw scores of multisource ratings of mental toughness for the experimental participant, with relatively stable levels of mental toughness indicated for the two control participants. Reliable changes in attentional control and self-belief facets were evidenced according to our statistical criterion. This case study has provided initial evidence for the effectiveness of an individualized, strengths-based coaching approach to develop facets of mental toughness, and supports the need for further evaluative research on positive psychology interventions in sport contexts.

**Keywords:** case study; appreciative inquiry; evaluation; positive psychology.

## **A Case Study of Strengths-Based Coaching of Mental Toughness in Cricket**

Mental toughness is a label often applied to sportspeople who achieve and maintain high levels of performance. Defined as “a personal capacity to deliver high performance on a regular basis despite varying degrees of situational demands” (Gucciardi & Hanton, 2016, p. 442), mental toughness is a concept that is necessary for athletes to cope with the diverse range of personal, competition, and organisational stressors experienced within elite sport contexts (Arnold & Fletcher, 2012; Hanton, Fletcher, & Coughlan, 2005; Mellalieu, Neil, Hanton, & Fletcher, 2009). Within the context of cricket – the focus of this paper – former Australian international cricketer, Justin Langer, stated that mental toughness is important for success at the top level of the game: “Being successful as an international cricketer transcends the ability to play an elegant cover drive, brutal pull shot, or belligerent forward defense. The best players are not only physically fit and technically sound, they are also extremely mentally strong” (Langer, 2010). John Buchanan, former Australian coach, echoed Langer’s belief, adding it can be “what separates winning from losing” (Buchanan, 2015). Amidst the widely accepted importance of mental toughness for performance excellence in sport a key question remains: how does one go about developing or enhancing this desirable attribute in athletes? Although some have suggested that sport psychologists can promote the development of mental toughness through formal programs (e.g., Connaughton, Hanton, & Jones, 2010; Connaughton, Wadey, Hanton, & Jones, 2008; Weinberg, Freysinger, Mellano, & Brookhouse, 2016), there is little empirical evidence to support such claims. The general purpose of this study was to address this gap in the literature.

### **Conceptualizing Mental Toughness in Cricket**

The increased scholarly attention to mental toughness in sport has coincided with the rise of positive psychology (cf. Seligman & Csikszentmihalyi, 2000) that has shifted the focus of both research and practice from human malfunctioning towards that which also considers human strengths and optimal functioning (for a review, see Kashdan, Sheldon, & Steger, 2011). As a construct considered important for both overcoming adversity as well as maintaining high levels of performance

or functioning (e.g., Gucciardi, Gordon, & Dimmock, 2009a; Jones, Hanton, & Connaughton, 2007), mental toughness represents a contemporary application of the science of positive psychology in sport contexts (Rusk & Waters, 2013). Most mental toughness researchers have approached this topic with the goal of understanding those personal assets that facilitate optimal human performance (e.g., Bull, Shambrook, James, & Brooks, 2005; Jones, Hanton, & Connaughton, 2002, 2007), with related efforts directed towards ascertaining its role in promoting positive youth development (e.g., Gould, Griffes, & Carson, 2011; Jones & Parker, 2013). However, although most scholars agree that mental toughness is important for enabling individuals to effectively negotiate both positively and negatively construed challenges and adversities, debate still exists as to a common conceptualization both in terms of definitional and dimensional properties<sup>1</sup>.

Since the first empirical publication of mental toughness in sport (Fourie & Potgieter, 2001), a variety of theoretical models and associated measurement instruments have emerged (e.g., Clough, Earle, & Sewell, 2002; Golby, Sheard, & Van Wersch, 2007; Hardy, Bell, & Beattie, 2014; Madrigal, Hamill, & Gill, 2013; Sheard, Golby, & Van Wersch, 2009). Broadly speaking, researchers have taken one or two broad methodological approaches to clarifying and elaborating the most fundamental and common aspects of mental toughness. Some researchers have taken the approach of grounding our understanding of mental toughness in the perspectives of key stakeholders from a variety of different sports (e.g., Clough et al., 2002; Jones et al., 2007); others have adopted the view that mental toughness is somewhat contextually bound and therefore requires grounding in the perspectives of key stakeholders from within individual team sports such as cricket (Bull et al., 2005) and swimming (Driska, Kamphoff, & Armentrout, 2012). Conceptual, empirical, and practical considerations led us to approach this study using Gucciardi and Gordon's (2009) conceptualization of mental toughness in

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<sup>1</sup> A detailed discussion of the conceptual and rhetoric debates concerning what mental toughness is and what it is made up of are beyond the scope of the current paper. Interested readers are encouraged to consult narrative reviews (e.g., Gucciardi & Gordon, 2011; Gucciardi & Hanton, 2016) where these conceptual and measurement issues are discussed in detail.

cricket. First, at the time of data collection, SG was contracted as a psychologist for an elite cricket team and was interested in gathering evidence about the effectiveness (Seligman, 1995) of his application of the strengths-based coaching approach that is the focus of the current study. Second, owing to the sport-specific nature of the research context for this study, it was considered important to theoretically ground the applied work in evidence that was developed with cricketers and for use in cricket. Finally, the conceptual model of mental toughness in cricket has received empirical support with both adult (Gucciardi & Gordon, 2009) and adolescent cricketers aged 10 to 18 years of age (Gucciardi, 2011; Gucciardi & Jones, 2012).

The conceptual model of mental toughness as outlined by Gucciardi and Gordon (2009) comprises six key facets: self-belief (i.e., a belief in one's ability to achieve success or perform well), affective intelligence (i.e., the ability to regulate emotionally relevant information to achieve success or perform well), desire to achieve (i.e., a desire to continually improve or produce relatively higher standards of performance), resilience (i.e., the ability to bounce back from setbacks and persevere through adversity)<sup>2</sup>, attentional control (i.e., the ability to regulate one's attentional focus and concentration to achieve success or perform well), and cricket smarts (i.e., an awareness and understanding of the cricket context, and how to apply this knowledge to achieve success). The multidimensionality of mental toughness as encapsulated in this model is consistent with other frameworks developed in sport contexts (e.g., Jones et al., 2002, 2007)<sup>3</sup>.

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<sup>2</sup> Resilience is often used interchangeably with mental toughness; however, there are important differences between these concepts. Resilience refers to "the capacity of a dynamic system to adapt successfully to disturbances that threaten its function, viability, or development" (Masten, 2014, p. 10]. First, defined in this way, resilience can apply to a range of systems such as individuals, groups, organisations, economy, and ecosystem; however, mental toughness is restricted to people. Second, resilience is determined by a range of personal, social, and community resources or protective factors and is therefore broader in scope than mental toughness, which reflects a personal resource. As such, mental toughness can be considered a protective factor pertinent to resilience but should not be equated with this concept.

<sup>3</sup> It is important to acknowledge that recent work in which mental toughness has been extended to other achievements such as education and the workplace suggests that a unidimensional perspective may best represent this construct (Gucciardi, Hanton, Gordon, Mallett, & Temby, 2015). This study was conducted in 2009 and therefore this updated conceptualization of mental toughness was unavailable.

At its most basic level, the mental toughness model has provided cricket researchers and practitioners with a basis for understanding those personal resources or internal assets that are considered central to enabling cricketers to effectively overcome adversity as well as maintain high levels of performance or functioning. Additionally, the key components of mental toughness are considered iterative whereby the six facets interact to shape the manifestation of the construct. For example, in having an in-depth understanding of the performance environment and how to apply this information (cricket smarts), cricketers' knowledge of the game can contribute to a better belief in their ability to achieve success (self-belief). In the context of this conceptual model, therefore, mental toughness is operationalized as the possession of six key internal assets and their effective application to consistently (but not always) produce high levels of performance or goal attainment.

### **Mental Toughness Development**

With an increased understanding of mental toughness and its key components, and findings supporting the contention that mental toughness can be acquired or developed (e.g., Bull et al., 2005; Jones et al., 2007), researchers instigated a complementary line of inquiry that aims to elucidate information on the sources and mechanisms by which this important construct develops. Efforts to understand the development of mental toughness have typically involved atheoretical descriptions of key stakeholder's retrospective perspectives on the issue. For example, researchers have sought the views of elite athletes (e.g., Connaughton et al., 2008; Thelwell, Such, & Greenlees, 2010), coaches (e.g., Driska et al., 2012; Weinberg, Butt, & Culp, 2011), sport psychologists (Weinberg et al., 2016), referees (Slack, Butt, Maynard, & Olusoga, 2014), or a combination of athletes, coaches, and sport psychologists (Connaughton et al., 2010). Nevertheless, although mental toughness development represents a complex issue, these initial inquiries have provided some important insights into the sources and mechanisms by which this important construct develops.

Several key conclusions regarding mental toughness development can be drawn from the existing qualitative research (for a review, see Anthony, Gucciardi & Gordon, 2016). First, mental

toughness development is considered a long-term process that appears to occur well before the sport context and continues throughout one's sporting career (Gucciardi, Gordon, Dimmock, & Mallett, 2009) requiring maintenance of previously developed levels (Connaughton et al., 2008, 2010). In other words, individuals have some level of mental toughness that they acquired during their childhood that they bring with them to the sport context, which can be further developed, refined, or maintained through their sport experiences. Second, although a number of mechanisms said to facilitate the development of mental toughness have been reported, there is some evidence to suggest the presence of other processes or experiences might actually thwart its growth (e.g., Gucciardi et al., 2009). For example, a coach that establishes an environment where athletes are not being challenged during training, or not being held accountable for their actions, fails to provide exposure to those important experiences necessary for the development of mental toughness, subsequently thwarting the development process (Bell, Hardy, & Beattie, 2013; Mahoney, Ntoumanis, Gucciardi, Mallett, & Stebbings, 2016). These preliminary findings offer one explanation as to why some individuals may develop higher levels or more refined types of mental toughness than others. Finally, mental toughness appears to be both *caught* indirectly through experience and *taught* directly via coaching, education, or psychological skills training (e.g., Bull et al., 2005; Gucciardi et al., 2009). In other words, mental skills training alone should not be considered 'mental toughness development.' In particular, these underlying mechanisms, such as providing exposure to diverse experiences to challenge an athlete's learning (e.g., a motivational climate that is challenging; Connaughton et al., 2008), understanding (e.g., reflective practice following critical incidents; Connaughton et al., 2010), and ability (e.g., a tough physical practice environment; Weinberg et al., 2011), are said to operate in a combined, rather than an independent manner, to facilitate the development of mental toughness (Connaughton et al., 2008).

Parents, coaches, and athletes have been reported as the primary sources of influence for mental toughness development (for a review, see Connaughton, Thelwell, & Hanton, 2011). Parents are said to

play an important role in fostering childhood experiences in which a “generalized form” of mental toughness can be developed and transformed into a “sport-specific form” of mental toughness through the sport context (Gucciardi et al., 2009; Weinberg et al., 2011). Offering social support, providing reinforcement and encouragement, having realistic beliefs in their child’s abilities, serving as a positive role model, and making sacrifices for the benefit of their child are among the commonly cited ways in which parents exert their influence on the mental toughness development process (Connaughton et al., 2011; Mahoney, Gucciardi, Mallett, & Ntoumanis, 2014). As architects of the sport context, coaches play an important role in creating sport environments that expose athletes to important mental toughness developmental experiences (e.g., Connaughton et al., 2008, 2010; Driska et al., 2012). The mechanisms by which coaches have been reported to create quality experiences typically encompass aspects of the coach-athlete relationship (e.g., communication, social support), coaching philosophy (e.g., focus on strengths and weaknesses, player development over coaching success), training environment (e.g., motivational climate, simulating pressure and challenge), and the use of specific strategies (e.g., 1-1 discussions, reflective practice). Finally, as a key component of the sport environment and experience, peers and teammates can also influence the development of mental toughness through mechanisms such as learning and mentoring, competitive rivalry, vicarious experiences (e.g., modeling), and social support (Butt, Weinberg, & Culp, 2010; Connaughton et al., 2011).

Beyond family, coaches, and athletes themselves, sport psychologists have also been recognized as important sources of influence for mental toughness development. For example, athletes have highlighted that sport psychologists are a source of both social support and knowledge or advice on the psychology of performance (Connaughton et al., 2008, 2010; Thelwell et al., 2010). Aligned with these perspectives, practitioners can play an important role in educating key stakeholders (e.g., athletes, coaches, parents) about mental toughness and their role in its development (Gucciardi et al., 2009, Weinberg et al., 2016). Athletes have also cited the centrality of sport psychologists in helping them

develop basic and advanced psychological skills that have helped their competitive performances (e.g., Thelwell et al., 2010). Within the context of a ‘mental toughness developmental stages’ perspective, basic psychological skills learned during one’s formative years in sport can provide a foundation upon which to acquire advanced techniques later in one’s career to assist the maintenance of established levels (Connaughton et al., 2008, 2010). Some sport research has provided preliminary support for the efficacy (Seligman, 1995) of psychological skills training for enhancing mental toughness levels of adolescent Australian (i.e., ‘Aussie Rules’) footballers (Gucciardi, Gordon, & Dimmock, 2009b), and referees (Slack, Maynard, Butt, & Olusoga, 2015). For Bull and colleagues (2005), the environment (e.g., parental influence, childhood experiences, exposure to challenging situations in sport) was considered most important as it provides the foundation for mental toughness development. Despite these promising findings for the utility of upskilling an athlete’s mental skills, others (e.g., Bull et al., 2005) have urged sport psychologists to refrain from having isolated psychological skills training programs as the major tool in their ‘mental toughness development’ toolbox, but rather invest time and energy into the integration of these skills and qualities into the sport environment.

Strengths-based coaching (e.g., Biswas-Diener, 2010a; Biswas-Diener & Dean, 2007; Linley & Joseph, 2004), can be regarded as an approach to coaching whereby strengths are used more effectively in the attainment of goals and coaching is used to enable the realization and development of an individual client’s strengths (Linley & Joseph, 2004). As a result, it is one approach that may assist with the integration of psychological skills into the sport environment. We are unaware of any research that has empirically evaluated the application of this approach in sport contexts (see also, Wagstaff & Leach, 2015), despite an emerging body of evidence which supports the notion that working with personal strengths facilitates success in personal, educational, organizational, and therapeutic contexts (e.g., Biswas-Diener, 2009, 2010b; Linley, Nielsen, Wood, Gillett, & Biswas-Diener, 2010; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009; Seligman, Steen, Park, & Peterson, 2005). Thus, the incorporation of strengths-based coaching into the practice of psychology in sport contexts may hold a

number of potential benefits. Perhaps the greatest potential may lie in the shift from a ‘deficit-based’ model (e.g., focus on and learn from weaknesses, problem identification, remedial training, other-directed) to one which is *also* concerned with ‘spotting and exploiting’ strengths (e.g., focus on and learn from successes, strengths identification, proactive coaching, self-directed) (Gordon & Gucciardi, 2011). We expect that a balanced field of research and practice in which both strengths and weaknesses are considered will lead to better conceptualization, explanation, and prediction of phenomena and constructs such as mental toughness.

Aligned with growing calls from researchers in non-sport contexts for increased attention to strengths use and development (e.g., Aspinwall & Staudinger, 2003; Biswas-Diener, 2011; Biswas-Diener, Kashdan, & Minhas, 2011; Linley, 2006), our focus in the current study was on the application of a strengths-based coaching approach for mental toughness development with an emerging elite cricketer. Such an approach to mental toughness development is consistent with the recommendations of key stakeholders including athletes, coaches, and parents (Gucciardi et al., 2009a; Gucciardi, Gordon & Dimmock, 2009c). Research in other domains has also revealed preliminary evidence to support a link between strengths use and personal resources commonly associated with mental toughness. For example, a strong positive association between strengths use and self-efficacy has been found among university students (Proctor, Maltby, & Linley, 2011). Strengths use has also been associated with lower levels of perceived stress at both three and six month follow-up among members of the general public (Wood, Linley, Maltby, Kashdan, & Hurling, 2011). Finally, university students who used their strengths in striving to achieve their goals were far more likely to achieve those goals (Linley, Nielsen et al., 2010). Empirically, therefore, strengths use has demonstrated theoretically consistent relationships with antecedents (i.e., stress), key components (i.e., self-efficacy), and outcomes (i.e., goal achievement) of mental toughness in non-sport contexts.

### **Purpose of the Current Study**

Researchers and key stakeholders (e.g., athletes, coaches) have reported mental toughness as being a central feature of performance excellence in sport contexts (for a review, see Gucciardi & Gordon, 2011). Thus, efforts to generate evidence on those methods or interventions that can facilitate the development of mental toughness or its maintenance represent an exciting avenue of future research. The approach examined in this case study is distinguished from other approaches because of its emphasis on both spotting and exploiting strengths as well as working on improving weaknesses, using a strengths-based coaching approach for mental toughness development. Therefore, this case study extends on previous work (i.e., Gordon, 2012; Gordon & Gucciardi, 2011) by examining evidence for the effectiveness of strengths-based coaching in a sport context.

## **Methods**

### **Participants**

At the commencement of the data collection period for this study, John (pseudonym) was 18 years of age and in his second season with a State professional cricket team involved in the Australian domestic competition. Overall, he had played cricket for nine seasons and previously represented both his private school and community club sides. In addition to his state contract, John recently represented his country at an international one-day tournament for the world's best young players. John has developed from being a specialist top-order batsman and occasional part-time, medium-fast bowler to become an all-rounder (batsman and bowler). At his own request, he was recruited for this study following pre-season mental toughness profiling of the entire squad.

In an attempt to minimize concerns associated with a training (Kazdin, 1982) or maturation effect (Barker, McCarthy, Jones & Moran, 2011), mental toughness data from two purposefully sampled (i.e., according to age or playing position/role) members of the squad who did not receive the strengths-based coaching are also reported. Dane (pseudonym) was 24 years of age and in his fourth season at this performance level at the commencement of the study period. Overall, he had played cricket for 18 years. Like John, Dane was an all-rounder who typically batted in the middle-order and

bowled medium-fast pacers. In contrast, Tristan (pseudonym) was of similar age and had comparable number of year's cricket experience to John. Specifically, Tristan was a top-order batsman, who had played cricket for 10 years overall, with one year at the state level. Tristan and Dane represent *active controls* in that they received the same single education session as the entire team at the start of the pre-season; a no treatment control approach would have been impractical and unethical in an elite sport environment to refuse them access to this educational information (see also, Bell et al., 2013).

### **Research Context**

SG served as the sport psychologist who delivered the coaching program, whereas DG acted as the researcher who managed data collection, analysis and interpretation. SG is an experienced Registered Sport Psychologist (30 years), Fellow member of the Australian Psychological Society (APS), and was the sport psychologist with the team from 1987-2009. He has also held appointments with the Cricket Boards and national teams of Australia, India, Sri Lanka and Zimbabwe.

### **Design and Materials**

Due to the practical dilemmas the practitioner faced in his role as a contracted sport psychologist (e.g., time constraints established by the length of the cricket season, removing a beneficial intervention), it was impossible to implement a rigorous experimental design. Thus, an adaptation of a single-subject (A-B) design was implemented in which a strengths-based coaching program was introduced after a brief baseline assessment period. For example, although a minimum of three baseline assessments are advocated (e.g., Barlow & Hersen, 1984), mental toughness baseline data were collected during pre-season on only two occasions (i.e., August and September). A brief (60 minutes) strengths-based education program was initially introduced to the entire squad at a pre-season camp (September). The case example, John, subsequently requested further training in the strengths-based approach. The strengths-based training consisted of four formalized sessions, ranging from 45 to 75 minutes in duration, with the psychologist (November). Thus, post-intervention data collection took place as soon as the coaching ceased in November and continued throughout the course of the season

(September – March). As detailed in the following section, we collected both quantitative (i.e., mental toughness) and qualitative (i.e., social validation interview) data. With regard to mental toughness, multisource raters from two coaches and two teammates with relevant expertise and familiarity with the participant were gathered to assess the degree of convergence within and between rater sources.

**Cricket mental toughness inventory (CMTI; Gucciardi & Gordon, 2009).** The CMTI consists of five 3-item subscales designed to assess the key mental toughness assets within the cricket context: affective intelligence (e.g., “have high emotional stress tolerance”), self-belief (e.g., “have an unshakeable self-belief in my cricket ability”), desire to achieve (e.g., “am willing to go the extra mile to succeed”), resilience (e.g., “have the ability to bounce back from setbacks”), and attentional control (e.g., “remain focused despite cricket-related distractions”). Respondents evaluate the extent to which each item is a true reflection of their current self as a cricketer on a Likert scale (1 = *false, 100% of the time* and 7 = *true, 100% of the time*). There is evidence to support the factorial and construct validity of the CMTI with adult (Gucciardi & Gordon, 2009) and adolescent cricketers aged 10 to 18 years of age (Gucciardi, 2011; Gucciardi & Jones, 2012). Coaches and teammates were asked to evaluate the extent to which each item is a true reflection of ‘John’ as a cricketer using the seven point Likert scale. For practical reasons (e.g., overburdening players and coaches with extra tasks), self-ratings of mental toughness were obtained every two months following pre-season assessment, whereas other-ratings were reported at three times during the study period (i.e., pre-season, start of the season, post-season). Average scores for each subscale were computed, with the two coach and two teammate datasets combined to produce a mean score for each rater.

**Social validation.** The participant was formally interviewed at the end of the study period to ascertain his perspectives on the coaching procedures implemented and associated outcomes (Kazdin, 1982). The psychologist also kept notes of sessions that occurred throughout the course of the study period.

### **Coaching Program Design**

The full squad (N=23 players) was first introduced to the CAPP Realise2 Model (Linley, 2008) during a pre-season camp (September). The model considers *strengths* as things that players do well and are passionate about doing. *Learned behaviors*, on the other hand, are things they also do well but drain them of energy, and *weaknesses* are things they do not do well and also drain them. Players responded to strengths-based questions about their batting, bowling and fielding. In regard to their weaknesses, they were asked to consider if they could *reshape their role* on the team or use their *strengths to compensate* for their weaknesses, find a *complementary partner*, someone who was strong in areas they were weak, *adopt strengths-based team work* off-field as well as during training and games, and *undertake specific training and development* sessions with the coaching staff including the sport psychologist. Multisource ratings (i.e., self, peer, coach) of the CMTI (Gucciardi & Gordon, 2009) were obtained when the players first came back from their break (August) and prior to the pre-season camp.

All players were invited to discuss the implications of their respective CMTI data and subsequently John was introduced to a strengths-based training program consisting of four private sessions over the month of November. The goals John identified for these sessions were to address improvements in his self-belief and attentional control. During individual consultations, an Appreciative Inquiry Coaching (AIC: Orem, Binkert, & Clancy, 2007) approach was used to focus first of all on his perceived weakness in self-belief. As described in greater detail elsewhere (Gordon, 2008), the first step in AIC is crucial and involves identifying and exploring what mental toughness terms (e.g., self-belief) mean to each coachee. This first step is necessary because coachees need to understand what mental toughness is and is not, when it is required and when it is not required, and how, in general, coachees personally construe their realities. This line of questioning is consistent with a personal construct psychology (PCP; Kelly, 1955/1991) framework and interview protocol previously employed to understand mental toughness (e.g., Gucciardi & Gordon, 2008).

## **Data Analysis**

The effects of the coaching program were analyzed for their visual and practical significance. With regard to visual significance, we plotted multi-source ratings (i.e., self, peer, coach) of mental toughness for pre- and post-intervention phases on a graph. Guidelines recommended by Hrycaiko and Martin (1996) were employed to visually assess the impact of the program<sup>4</sup>: (i) the presence of a stable baseline period, or a direction opposite to that expected by the program effects; (ii) few overlapping data points between adjacent baseline and program phases; (iii) an observed effect soon after the implementation of a program; and (iv) the bigger the size of an effect in contrast to baseline levels. The observation of similar trends in the visual data across rating sources provided additional confidence in the validity of the coaching program. As a supplement to the visual inspection of the data, we also performed a significance analysis to ascertain reliable change in multisource ratings of mental toughness (Jacobson & Truax, 1991). Specifically, a reliable change index (RCI) was calculated with freely available software (Deville, 2004) that uses the reliability of a measure to calculate a 95% confidence level of change. The means, standard deviations, and test-retest reliability coefficients required for calculation of the RCI were obtained from unpublished test-retest data of the entire cricket squad ( $N=23$ ). Finally, social validation data was analyzed to assess the practical significance of the coaching program.

## Results

### Control Participants

With regard to the two control participants, inspection of the visual data for Dane (see Figure 1) and Tristan (see Figure 2) revealed that mental toughness was relatively stable across the three time points of the study period. Nevertheless, some minor changes were observed between the August and March assessments for these two cricketers. Dane observed small increases in self-reported affective intelligence (.33), coach-reported resilience (.17), and peer-reported affective intelligence (.17),

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<sup>4</sup> As the coaching program was applied to one case in the current study, the criterion of replicating its effects across participants was not attainable.

resilience (.17), and attentional control (.17), while small decreases in his coach-reported affective intelligence (.17) and self-belief (.17) were observed. In contrast, Tristan observed small increases in self-reported affective intelligence (.33), attentional control (.33), and self-belief (.33), coach-reported self-belief (.17), and peer-reported attentional control (.17), while small decreases in his coach-reported resilience (.17) and attentional control (.50), and peer-reported desire to achieve (.33) were observed. None of these changes were of a significant magnitude according to the RCI.

### **Experimental Participant**

Inspection of the visual data for John (see Figure 3) revealed general improvements for the majority of the mental toughness facets across all three rating sources, with the exception of self-reported resilience which reduced slightly (.33). With regard to self-reported mental toughness, although there were overlapping data points (baseline – intervention – post season) for desire to achieve, affective intelligence, and resilience, there was an immediate treatment effect for self-belief and attentional control during the coaching phase and this effect was maintained through to post season assessment. The changes in both attentional control and self-belief were of a significant magnitude according to the RCI.

In contrast to self-reported mental toughness, both the coaches and peers reported slight increases in mental toughness immediately following the program. With the exception of peer reported desire to achieve, other ratings of mental toughness also suggested a slight increase from the program period (November) to post season assessment (March). In terms of the amount of change between baseline and post season assessments, coach-reported affective intelligence, attentional control, and self-belief, as well as peer-reported attentional control and self-belief were deemed significant when the RCI was calculated.

### **Social Validation Data**

Several discussions with John during the study period and a formal interview at the completion of the cricket season provided qualitative support for the utility of the strengths-based coaching program.

Early in the program (i.e., November), John highlighted an appreciation for the opportunity to identify and explore what mental toughness terms (e.g., self-belief) meant to him, and how an increased awareness of these ‘personal theories’ could help shape his future construal processes.

I now understand better what I mean when I say or think about ‘losing confidence’. This has helped me heaps in dealing with my poor scores recently. My outcomes are not me.

I haven’t lost my skills – simply my confidence in my skills. I also understand that my lack of confidence is temporary, not permanent – unless I make it permanent.

In these initial discussions, it was also apparent that John’s tendency to focus on his weaknesses contributed to his doubts in his abilities as a cricketer. Of particular note for John was the novelty of this strengths-based approach, and how he could integrate some of the concepts into his future performances.

This (strengths-based) approach is completely new to me. Now I realize how much I tend to naturally focus on my weaknesses and deficits, which seem almost to attract my attention. In future when I ‘fail’ at bat (score few runs) I will look for ‘exceptions’ – things I did well prior to getting out. I’ll also focus on the moment and being task-aware instead of self-aware.

John developed a repertoire of strategies and processes that enabled him to re-evaluate situations that in the past triggered thoughts of self-doubt. It became apparent from his discourse that these strategies and processes started to have a positive effect on how he dealt with instances of poor performance.

I feel my self-talk has improved markedly over the past few sessions and as a result I’m far more positive and decisive in how I play. Even when I play a rash shot I’m less likely to doubt myself. Previously I’d buy into all the negatives – now I’m much less likely to and as a result my confidence seems less fragile.

Around the time of the Christmas break, John reflected on his improved knowledge and self-belief one week prior to the start of an international one day tournament.

I'm almost there and with this new self-talk strategy – looking for what works – I feel really good going into the [tournament] next month. I'm pretty certain most players my age at that tournament won't have this strategy, knowledge or experience. So I feel I've got an edge over them, which is a good feeling.

At the completion of the coaching period, John reflected on his involvement with the strengths-based coaching approach. While he was appreciative of his improved ability to control his attention, and general belief in his cricket abilities, he was cognizant of the need to continuously implement these strategies and processes.

Now I'm focusing more on the task and what I need to do to play well, and reminding myself that I've done these things before and been successful, my attention control has improved as well as my confidence. However, I need to practice this more and more to make it really me.

### **Discussion**

Research aimed at conceptualizing mental toughness in sport has been accompanied by similar attention devoted to understanding its development (for a review, see Anthony et al., 2016). With the majority of this research involving the retrospective reports of elite athletes or support staff (e.g., coaches, sport psychologists) who have worked with these high performing individuals, the purpose of this study was to explore the usefulness of an individualized, strengths-based coaching program with an elite cricketer. Aligned with our expectations, the strengths-based approach was associated with general improvements in raw scores of multisource ratings of mental toughness for the experimental participant, with relatively stable levels of mental toughness evidenced for the two control participants. However, only the changes in attentional control and self-belief facets were of a significant magnitude according to our statistical criterion (Jacobson & Truax, 1991).

Although based on a single participant, the findings of the current study have provided preliminary support for the contention that a focus on 'strengths' can contribute beneficially to the

development of mental toughness (e.g., Gordon & Gucciardi, 2011; Gucciardi et al., 2009, 2009a). These findings also concur with strengths-based research in non-sport contexts (e.g., Linley et al., 2010; Proctor et al., 2011; Wood et al., 2011). Unsurprisingly, with the attentional control and self-belief manifestations of mental toughness identified as primary goals for the individualization of the strengths-based coaching program, these two key facets evidenced the greatest improvement both in terms of the visual data and our significance testing. Nevertheless, the remaining three mental toughness manifestations (i.e., resilience, affective intelligence, desire to achieve) remained either relatively stable as reported by the participant or evidenced slight improvements as reflected in the coaches and peers ratings.

Our confidence in the program effects were enhanced by the inclusion of two control participants and multisource ratings of mental toughness. The comparison of multisource ratings of mental toughness between the experimental participant and two control participants helped minimize concerns associated with a training (Kazdin, 1982) or maturation effect (Barker et al., 2011). Additionally, given that self-ratings of highly desirable constructs such as mental toughness are subject to numerous enhancement biases, the inclusion of multisource ratings from coaches and peers helped alleviate concerns from such biases and also reduced the plausibility that our results are due to common method variance concerns (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Little research in sport contexts has considered methods such as multisource ratings as an alternative when practical dilemmas limit the number of potential ‘experimental’ participants available for an effectiveness study. More broadly, therefore, when considered with those of previous research (e.g., Gucciardi et al., 2009b) the current findings have highlighted the usefulness of multisource ratings as a means by which sport psychology researchers can increase their confidence in intervention effects.

Social-cognitive theory (Bandura, 1986, 1997) offers a theoretical lens by which to understand the potential influences of the strengths-based coaching program on the participant’s increased self-belief and attentional control. Encompassing one’s perceived competence to manage their own

functioning and maintain control over events that affect their lives (Bandura, 1997, 2001), self-efficacy has evidenced positive effects on a variety of self-regulatory processes. For example, individuals with high levels of this important attribute approach difficult tasks as challenges to be mastered rather than as threats to be avoided, set challenging goals for themselves, maintain a strong commitment to these goals, heighten and sustain their efforts in the face of failure, attribute failure to insufficient effort or deficient knowledge and skills, and approach threatening situations with assurance that they exercise control over such situations (e.g., Bandura, 1997). Within the context of social cognitive theory (Bandura, 1986), people are said to acquire information to assess their self-efficacy by interpreting information from past performances or behaviors, observations of others (modeled of vicarious experiences), forms of social persuasion, and physiological indexes. Of these four methods for development and adjustment of self-efficacy beliefs, the social validation data suggested that mastery experiences or interpretations of past and future performances played the greatest role. Specifically, in increasing his awareness of his own perceptions of the mental toughness facets, John was able to internally locate a greater level of control over his thoughts and beliefs, as well as recognize those things that he did well (i.e., 'exceptions') in situations where he underperformed rather than dwelling solely on his weaknesses. Indeed, outcomes interpreted as failure typically lower one's self-efficacy, whereas outcomes interpreted as success typically increase one's self-efficacy (Bandura, 1986). Additionally, having the opportunity to put these various processes and strategies into practice throughout the season, combined with some successful batting performances, likely contributed to his increased self-belief.

### **Strengths, Limitations, and Conclusions**

Our case study was strengthened by the inclusion of two control participants and the replication of similar trends and effects across different rating sources. However, these strengths should be evaluated in light of the limitations of our study already mentioned as well as additional caveats. First, as a case study with a single participant, caution must be taken when considering how well these

findings generalize to the cricketing population. Second, the inclusion of only two baseline assessments does not meet the minimum recommendation of three time points for single-subject designs and therefore it is important to interpret these findings with caution. This limitation reinforces the difficulties of conducting applied research in elite sport contexts. Third, the absence of a measure of strengths use (e.g., Govindji & Linley, 2007) inhibited us from drawing any conclusions on the effectiveness of the coaching program in increasing the participant's increased implementation of his strengths. Finally, as John spent four weeks overseas participating in an international tournament, this experience abroad may offer an alternative explanation for the increases in mental toughness scores (see also Bull et al., 2005).

Despite these methodological caveats, the data has supported the need for additional research on strengths-based programs and interventions as a means by which to enhance the mental toughness of sport performers. For example, researchers may look to increase our confidence in the utility of strengths-based interventions by conducting efficacy (Seligman, 1995) studies with a larger number of athletes (Hrycaiko & Martin, 1996). Additionally, it is important that effectiveness (Seligman, 1995) evaluations of intervention effects take into the account the quality of the practitioner-client relationship, as the quality of the therapist-client relationship within psychotherapy contexts is one of the strongest influences of psychological outcomes (e.g., Lambert & Ogles, 2004).

In conclusion, this case study investigation of an individualized strengths-based coaching approach with an elite cricketer has provided preliminary support for the effectiveness (Seligman, 1995) of this type of program, extending on earlier work reported by Gordon (2012). From a methodological standpoint, we have illustrated the usefulness of multisource ratings (e.g., self, coach, peer) as means by which to enhance researcher confidence in the effectiveness of an applied strengths-based coaching program. Although our focus was on mental toughness in the current study, these preliminary findings have broader implications for the field of sport psychology in which strengths-based coaching applications have received little attention.

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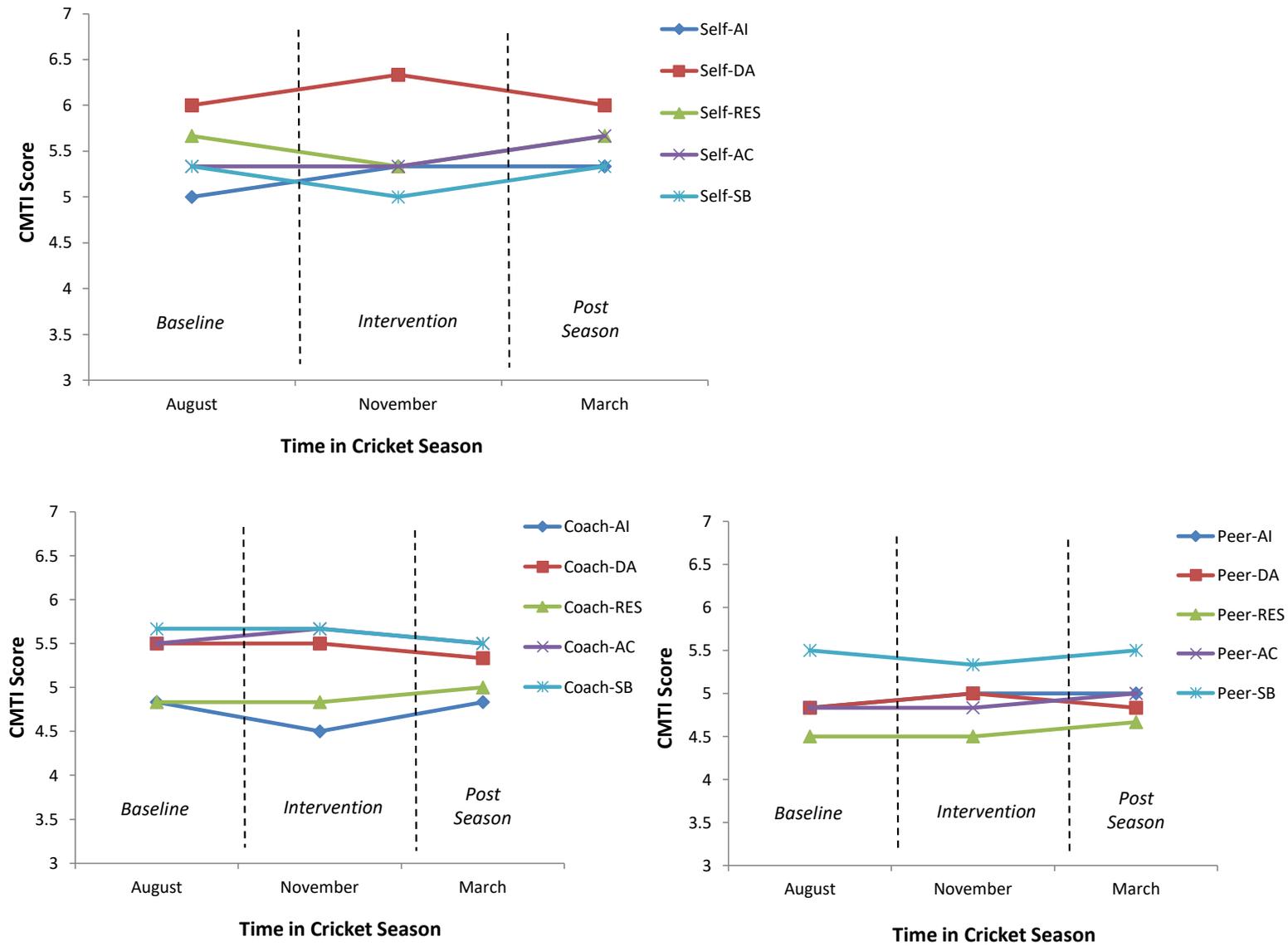


Figure 1. Multisource ratings of mental toughness at baseline, intervention, and post-intervention for Dane (Note: AI = affective intelligence; DA = desire to achieve; RES = resilience; AC = attentional control; SB = self-belief; scores for each factor range from 1 – 7).

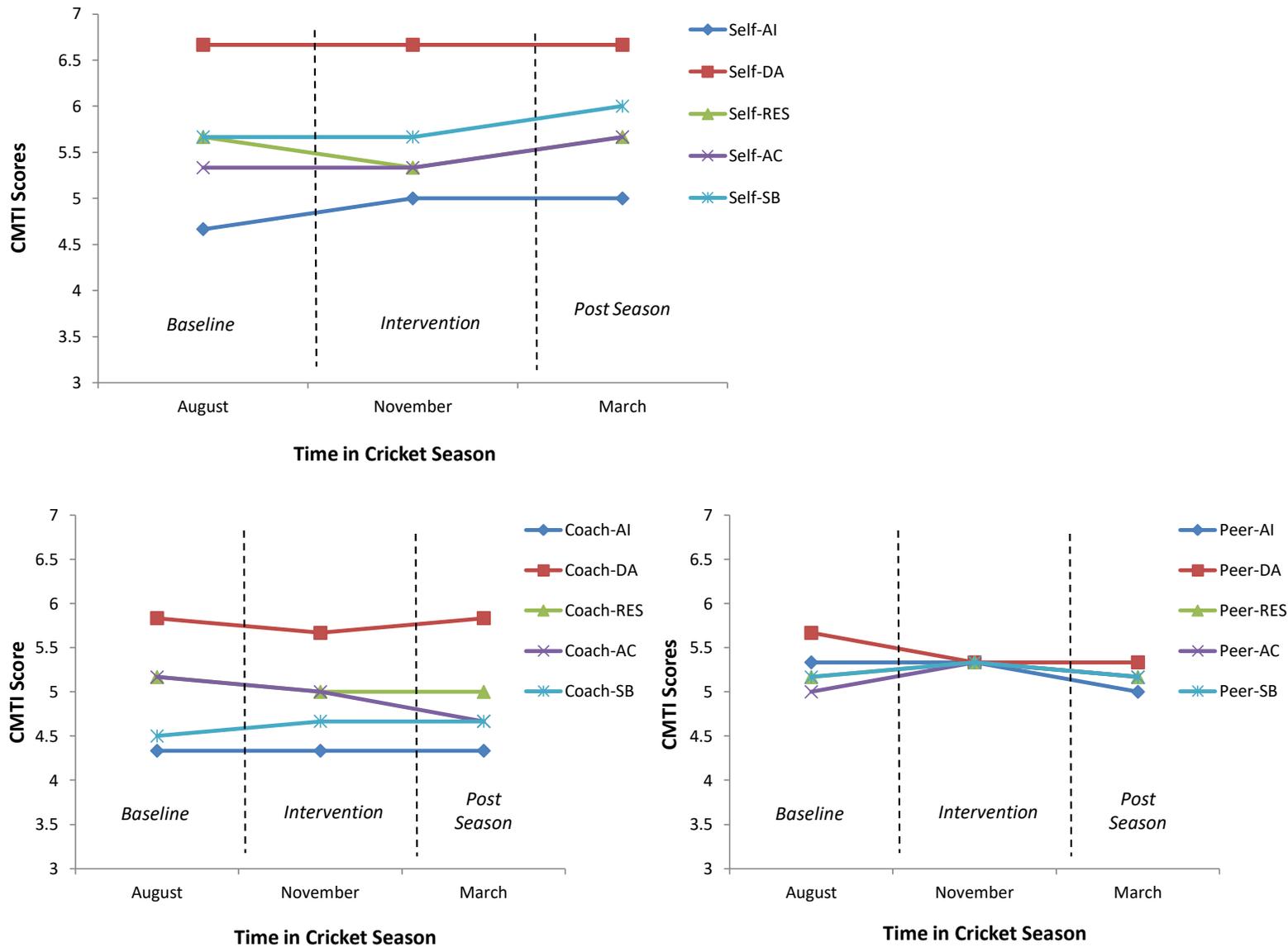


Figure 2. Multisource ratings of mental toughness at baseline, intervention, and post-intervention for Tristan (Note: AI = affective intelligence; DA = desire to achieve; RES = resilience; AC = attentional control; SB = self-belief; scores for each factor range from 1 – 7).

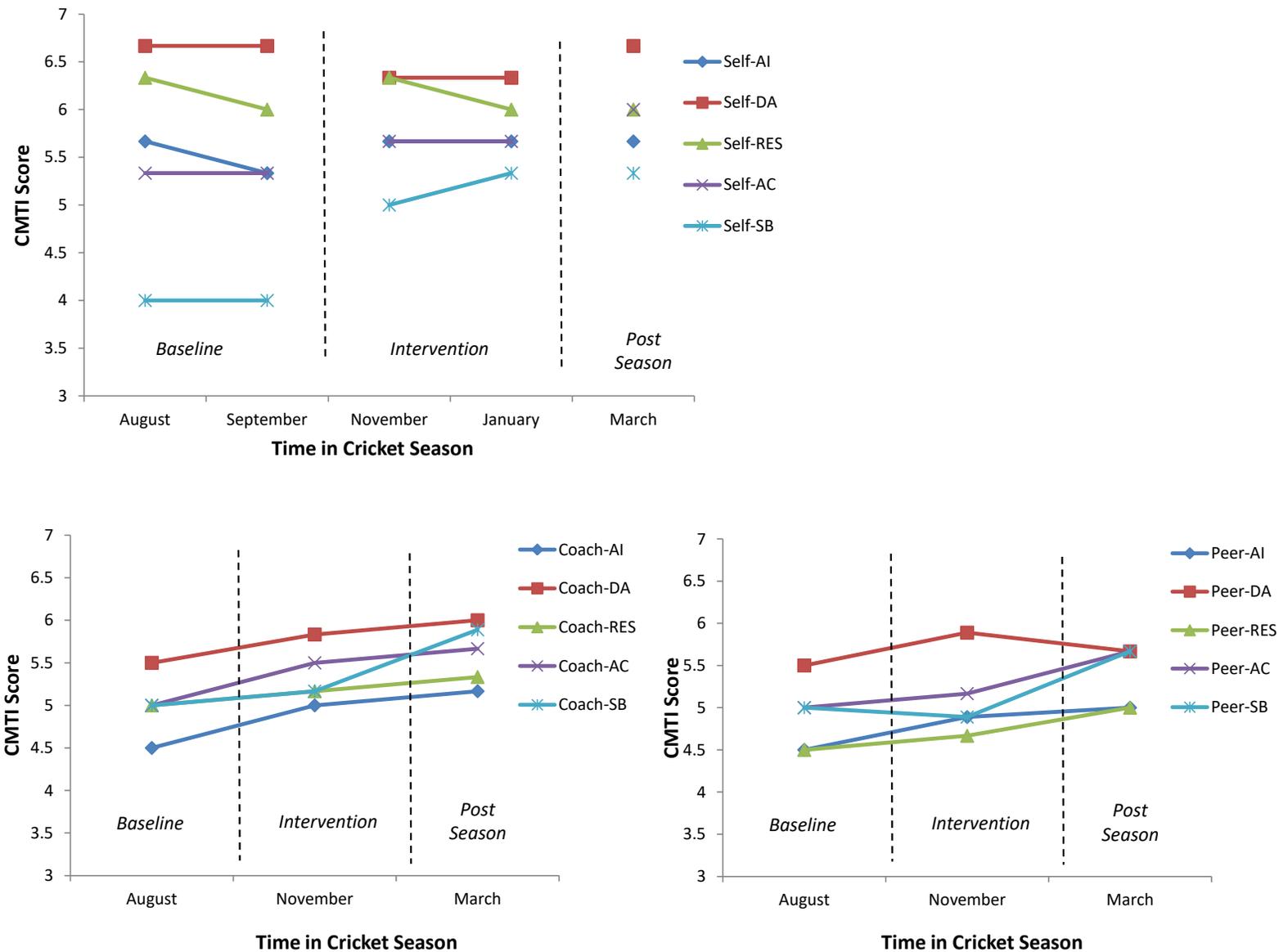


Figure 3. Multisource ratings of mental toughness at baseline, intervention, and post-intervention for John (Note: AI = affective intelligence; DA = desire to achieve; RES = resilience; AC = attentional control; SB = self-belief; scores for each factor range from 1 – 7).