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The Stability of Mental Toughness Across Situations: Taking a Social-Cognitive Approach

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The present study adopted a social-cognitive perspective to explore the stability of mental toughness. Specifically, the purpose of this study was two-fold: (a) to explore possible fluctuations in mental toughness across situations; and (b) to identify the cognitions, affect, and behaviors associated with perceived mental toughness and mental weakness. Participants were tennis players (n=12) based full time in an elite performance academy and were aged between 14 and 20 years (M\_age = 16.5; SD = 2.66). Players were interviewed and transcribed interviews were analyzed using a thematic analysis (Braun & Clarke, 2006). Three researchers searched for themes across the interview data and reached consensus on the coding of raw data and subsequent categorization of data into themes. Players identified a variety of competition (e.g., opponents, pressure) and training (e.g., consistency, intensity) related situations requiring mental toughness. Findings indicated that players could be mentally tough in some situations but mentally weak in other situations suggesting that mental toughness can fluctuate. In addition, players identified different cognitions, affect, and behaviors when they perceived mental toughness and mental weakness. Regarding coping strategies, findings confirm the important role of confidence in mental toughness and should remain central to interventions designed to build mental toughness. To conclude, it is anticipated that findings generated can be used as a platform to develop context-rich mental toughness training interventions.

Key Words: Mental toughness, mental weakness, stability, coping
The Stability of Mental Toughness Across Situations: Taking a Social-Cognitive Approach

Coaches and others involved in developing talent have come to realize that to be successful (especially at the highest levels of competition) one needs both physical and mental skills. The importance of mental skills is highlighted in an article over 25 years ago (Gould, Hodge, Petersen, & Petlichkoff, 1987), which found that 82% of coaches rated mental toughness the most important psychological attribute in determining wrestling success. However, only 9% felt that they were successful in developing mental toughness in their athletes. The key role of mental toughness has been seen in the applied work of Loehr (1995) who attempted to train athletes to become more mentally tough. Loehr’s applied work and the empirical finding noted earlier and others like it, eventually led to the empirical study of the construct of mental toughness (Jones, Hanton, & Connaughton, 2002). In this initial seminal research, Jones et al. interviewed 10 elite athletes in either a focus group or semi-structured interviews looking for attributes that were associated with mental toughness. Of the 12 attributes reported as being associated with mental toughness, the notion of coping appeared to be central to the conceptualization of mental toughness, and as such included, “coping better than your opponents when faced with demands that sport places on performers” (cf. Jones et al., 2002, p. 209). In a follow up study with super-elite athletes (e.g., Olympic medalists), Jones and colleagues (2007) reported 30 attributes and generated a framework that provided a temporal foundation of how these mental toughness attributes could be utilized (i.e., attitude, training, competition, post-competition).

Subsequent to these seminal studies on mental toughness, numerous studies have been conducted investigating the definition of mental toughness (e.g., Coulter,
Mallett, & Gucciardi, 2010; Guccaridi, Gordon, & Dimmick (2008; 2009a; Thelwell, Weston, & Greelees, 2005), development of mental toughness across time (e.g., Bull, Shamrock, James, & Brooks, 2005; Connaughton, Hanton, Jones, & Wadey 2008; Connaughton, Thelwell, & Hanton, 2011), building mental toughness (Butt, Weinberg, & Culp, 2010; Gucciardi & Mallet, 2010; Weinberg & Butt, 2011; Weinberg, Butt, & Culp, 2011), and theoretical explanations for mental toughness (Gucciardi, Gordon, & Dimmock, 2008; Harmison, 2011). In addition, this research exploring mental toughness has been conducted with a range of samples including super-elite, elite, collegiate, and youth. Collectively, this range of participants indicates that mental toughness is required across many achieving sport performers, not just elite athletes. From a conceptual perspective, one area that continues to be debated is whether mental toughness is more of a personality disposition (trait-like) and thus consistent across situations, or more variable across situations and thus more state-like. While some researchers have viewed mental toughness as an important dimension of personality and a necessary trait or quality for successful performance, other researchers (Bull et al., 2005; Thelwell et al., 2005) and the experience of practitioners (e.g., Goldberg, 1998; Loehr, 1995) have suggested that mental toughness can be taught and learned, and thus change across situations. Along these lines, advances in knowledge have been made with exploring sport specific situations requiring mental toughness. As one example, Gucciardi and colleagues (2008) explored under what conditions mental toughness attributes are necessary (i.e., situations requiring mental toughness), and also identified key behaviors used. Findings identified that both positively and negatively perceived situations required mental toughness. To capture these further developments in mental toughness,
Gucciardi et al. (2009a) provided a new definition of mental toughness that has since been refined by Coulter and colleagues (2010; p.715):

Mental toughness is the presence of some or the entire collection of experientially developed and inherent values, attitudes, emotions, cognitions, and behaviors that influence the way in which an individual approaches, responds to, and appraises both negatively and positively construed pressures, challenges, and adversities to consistently achieve his or her goals.

Complementing this definition, Coulter and colleagues conducted an investigation with athletes, coaches and parents in Australian soccer to explore mental toughness situations, cognitions and behaviors. Findings suggested that mentally tough athletes are able to deal with performance difficulties as well as thrive within challenging competitive situations. More recently, Slack, Butt, Maynard, and Olusoga (2014) examined mental toughness attributes in English Premier League football officials and considered the specific mental toughness cognitions and behaviors deployed in situations demanding mental toughness. Collectively, research findings to date highlight some overlapping situations requiring mental toughness as well as some of the key cognitions (e.g., tactical awareness) and behaviors (e.g., strong body language) associated with being mentally tough. While information on mentally tough cognitions and behaviors has generated some strategies for building mental toughness and designing interventions (e.g., Slack, Maynard, Butt, & Olusoga, 2015), research has yet to consider whether cognitions and behaviors are different when athletes are not mentally tough. Indeed, questions remain as to whether an athlete’s mental toughness is changeable (i.e., fluctuates) depending on situations, and thus, further research has been encouraged to consider aspects of both mental toughness as well as mental weakness (Harmison, 2011).
To further understand mental toughness in this area, it has been advocated that the application of social-cognitive models in sport has the potential for advancing, theoretical, empirical, and practical knowledge of constructs such as mental toughness (Harmison, 2011; Smith, 2007). Specifically, Smith suggested that a comprehensive social-cognitive model of personality (e.g., Mischel & Shoda, 1995) can serve as a valuable framework to better understand mental skills in sport such as mental toughness. Regarding the background and understanding of social-cognition and personality, for many years the prevailing view among psychologists regarding personality was that behavior was consistent across situations and that personality, not the situational constraints, was the major determinant and predictor of behavior. However, a major shift occurred when Mischel (1968) conducted a thorough review of the empirical literature and found more inconsistency than consistency across situations. This review and controversial findings helped start the person by situation debate that was central to the study of personality for years to come. Emanating from this debate came Mischel’s (1973) social-cognitive personality theory where he argued that the goal of personality psychology should focus on the interaction of people and their environments, instead of trying to answer the unsolvable question of whether the person or environment is more important in predicting an individual’s future behavior. This initial conceptualization eventually led to the development of the Cognitive-Affective Processing System (CAPS: Mischel & Shoda, 1995). Basically, this model attempts to capture the complex interaction between individuals’ whose behavior is relatively stable and the different situations in which they are placed where there tends to be variability in behavior. In essence, the CAPS approach identifies a set of individual variables, referred to as cognitive-affective processing units, and elaborates on how these individual variables interact with the person’s
environment to produce the desired behaviors (for a more neurological and information-processing interpretation of the CAPS approach see Read & Miller, 1998).

**Mental Toughness and CAPS**

In applying the CAPS model to understand mental toughness one has to understand that mental toughness is comprised of a dynamic personality system, which includes certain cognitive-affective components of personality and how these interact with environmental constraints. In essence, it is athletes’ affects and cognitions that comprise their mental toughness personality and how these are interconnected to generate athletes’ mentally tough behaviors. In pursuing this line of inquiry, Harmison (2011) demonstrated how our knowledge of mental toughness could be further enhanced through the application of the CAPS model. Specifically, profiles were generated that captured an athlete’s perceptions of particular situations (e.g., threat vs. challenge) together with the range of subsequent cognitions, affect, behaviors, and coping responses. These profiles were constructed to illustrate perceived mental toughness and mental weakness, and thus, indicates that the same athlete can perceive situations differently and that mental toughness can shift accordingly (i.e., an athlete might not always be mentally tough and can sometimes be mentally weak). Although the CAPS model discusses five different components, the present study will focus on the ABCs (affect, behavior and cognitions) of mental toughness. Focusing on these three units is also in keeping with the most recent definition of mental toughness (cf. Coulter et al., 2010). The ABCs of human functioning was advocated by Vealey and Chase (2008), who saw them as interactive and reciprocally determined, to emphasize their continuous interactional reciprocity. This interactional approach is
consistent with the CAPS approach and will be used as the framework to guide the present study. Some of the mentally tough cognitions, affects, and behaviors that have been ascribed to athletes (by athletes themselves as well as their coaches) is briefly discussed below.

**Cognitions.** This component focuses on the different thoughts that athletes have in different competitive situations and have an important influence on their behaviors. These thoughts can be internal to the athlete and thus are not be heard by anyone else or these thoughts (or self-talk) can be heard by others. In either case, behaviors and performance often follow athletes’ cognitions. Some of the cognitions that have been attributed to mentally tough athletes are having a belief in one’s self, focusing on the task at hand, focusing on performance rather than outcome, positive self-talk, robust confidence, and positive expectations (e.g., Coulter et al., 2010).

**Affects.** This component focuses on the feelings and emotions the athletes experience in response to different competitive situations. Failure to handle emotions effectively on the playing field can lead to undesirable consequences and poor performance. These affects can be both psychological (e.g., doubt, worry) and physiological (e.g., increased muscle tension, galvanic skin response) in nature. Coaches and athletes as well as sport psychologists have frequently noted that emotion is central to sports performance (Hanin, 2000). In essence, emotional intensity (or lack of it) has often been cited as being critical to performance outcomes. More specifically, coping effectively with emotions (especially anxiety) has been said to be one of the defining aspects of being mentally tough (Coulter et al., 2010; Jones et al., 2002). The reverse also appears true, in that when athletes
who consistently falter under pressure are considered mentally weak or in the vernacular, a “choker.”

**Behaviors.** Although not studied as extensively as cognitions and affects, it appears that mentally tough athletes exhibit certain types of behaviors. For example, with input from coaches, Hardy, Bell, and Beattie (2013), identified a number of specific behaviors typical of mentally tough athletes. In particular, a variety of adverse situations were identified in which athletes were able to show consistent/high-level performance. In addition, other behaviors noted in different studies included persisting in the face of failure, performing well/playing despite injury, and displaying consistently high levels of energy.

In summary, according to the CAPS and ABC approaches to behavior, mental toughness depends on how individuals perceive situations, which will determine their cognitions, affects, and behaviors. While some research has documented a wide range of situations requiring mental toughness and associated cognitions and behaviors, little knowledge is available on whether athletes are mentally tough all of the time. The present study therefore adopted a social-cognitive perspective to explore the stability of mental toughness. Specifically, the purpose of this study was two-fold: (a) to explore possible fluctuations in mental toughness across situations; and (b) to identify the cognitions, affect, and behaviors associated with perceived mental toughness and mental weakness.

**Method**

This study was designed to understand mental toughness through participant’s own lived experiences and was therefore theoretically underpinned by key principles of a phenomenological approach (i.e., the study of subjective experiences in relation to the phenomenon being explored) (Langdridge, 2007). Accordingly, this study
adopted a qualitative design and individual interviews were considered the most appropriate method of data collection.

**Participants and Sampling**

The participants were 12 high-end developing tennis players (i.e., State or National ranking) based full time in an elite performance academy in the USA. Players were aged between 14 and 20 years ($M_{age} = 16.5$; $SD = 2.66$). Participants were purposefully selected to participate in the study (Patton, 2002). Specifically, players were required to have been participating in competitive tennis (i.e., ranking system) for at least 3 years and continuing to progress within or towards the National ranking system. A development-level sample was identified because previous research on mental toughness has predominantly focused on elite athletes at the pinnacle of their careers and often involved a retrospective recall design. To date, relatively little mental toughness information is available on developmental athletes competing in their sport, despite existing literature indicating that athletes develop mental toughness across all stages of their careers and consider the construct to be one of the most important psychological attributes to possess (e.g., Butt et al., 2010; Connaughton et al., 2008).

**Procedures**

Following institutional ethics approval, the Lead Sport Psychology Consultant (SPC) at the tennis Academy was contacted to discuss the study and obtain information on the Academy’s procedures for gaining permission to conduct the research. Following permission from the Academy Director the research team worked with the Lead SPC who facilitated the process to obtain parental consent and then to arrange meetings with the players and opportunities to discuss the study in detail and obtain volunteers to participate. Pilot interviews were conducted and then discussed
by members of the research team. It was particularly important that questions were phrased in an understandable manner because of the younger ages of some of the players. As one example, questions asking players how they perceived a particular situation was followed up with a rephrased version such as “what were your initial views and thoughts about being in this situation?” to help understanding. The guide also included probe questions that elicited open discussion (Patton, 2002). After each pilot, the interview protocol was refined accordingly, and this feedback also served to facilitate the preparations of the interviewer. Player interviews were conducted following written consent and were conducted face to face and at the player's daily coaching venue which was considered the most appropriate and comfortable environment. At the time of data collection, all participants were currently competing, and striving towards achieving higher-rankings.

**Interview Guide**

A semi-structured interview guide comprising open ended questions was developed and was broadly informed by social-cognitive models in sport (e.g., the Cognitive-Affective Processing System model (CAPS; Mischel & Shoda, 1995). Specifically, the interview guide was designed to include some consistent categories to be explored but also prompted open discussion and encouraged conversation that was not restricted by the interview guide. At the start of the interviews, players were asked to describe their understanding of mental toughness (i.e., what it is, what players they thought were mentally tough and why). Following this initial discussion the interviewer reiterated and added further information to facilitate understanding, which was in line with the definition of mental toughness generated by Coulter and colleagues (2010), albeit a user-friendly version while still capturing the key aspects of it.
The interview guide addressed the following main content areas: (a) players’ tennis background and playing experiences (e.g., can you tell me about your tennis experiences since coming to the Academy?); (b) players’ views on mental toughness and their mental toughness situations in tennis (e.g., could you tell me about situations in tennis where you show mental toughness?); (c) players’ experiences of being mentally tough in tennis (e.g., could you explain how you perceived this situation? can you describe the thoughts you were having?); (d) players’ experiences of not being mentally tough in tennis (tell me about situations in tennis when you didn’t feel you were showing mental toughness, could you explain how not being mentally tough shows up in your tennis game?); and (e) strategies used to help players be mentally tough (e.g., can you tell me about any strategies you use to help you to be mentally tough and when you use these strategies). Interviews ranged from 40 to 70 minutes in length and were audio recorded and then transcribed.

Data Analysis

Interview transcripts were analyzed using a thematic analysis and followed principles advocated by Braun and Clarke (2006). Thematic analysis was selected because of it’s flexible nature which can include deductive and inductive aspects of data analysis (Tracy, 2010). At the outset, an initial sweep of the data was conducted to identify the main categories consistent with the social-cognitive models in sport (i.e., cognitions, affect, behaviors). Following this process, an inductive analysis continued which involved identifying individual meaning units (i.e., raw data themes characterizing players’ mental toughness situations and experiences), which were then assessed for similarities and grouped accordingly. This process led to the development of lower-order themes and eventually higher-order themes. In addition, with regard to players' mental toughness situations and experiences, raw data themes
STABILITY OF MENTAL TOUGHNESS

(i.e., quotes from transcripts) were extracted to capture mental toughness and mental weakness responses. During the theme development and grouping stages of analysis it was important for the research team to discuss the meaning of the raw data units to establish understanding of the content rather than descriptive labeling alone (Tracy, 2010). To ensure trustworthiness of data analysis and the subsequent conclusions drawn, the methods of analyst triangulation and member checking (Patton, 2002) were selected. Specifically to triangulate the data, the researchers met over a 4-week period to discuss the data and reach agreement on the final themes. Finally, participant member checks (Lincoln & Guba, 2000) were conducted whereby participants viewed their transcripts and were asked to write in any additional information to ensure data credibility. Participants made no further changes to transcripts.

Results

The purposes of the present study were to explore possible fluctuations in mental toughness across situations, and to identify the cognitions, affect, and behaviors associated with perceived mental toughness and mental weakness. High-end performance tennis players were interviewed about their perceptions of mental toughness and specifically situations they frequently face that require them to be mentally tough. From an initial sweep of the data, it was clear that all players perceived mental toughness to be important for performance and this view was characterized by phrases such as “I need mental toughness to keep on fighting”, “I definitely get to more balls when I’m mentally tough” and “mental toughness is important to win, it’s a sign I fully believe in myself”. In reiterating the importance of belief, another player discussed “if you are mentally tough and you believe you are mentally tough then you go into a match thinking you have a good chance to win, and
that helps me in my performance.” Similarly, another player explained that mental
toughness has a positive influence on performance because it helps produce
consistency, as they stated:

If mental toughness is going up and down then that doesn’t help performance,
you need to stay mentally tough cause if it's up and down then consistency
will be up and down, in tennis you have to be pretty consistent… you can’t be
good one week and not the next.

**Situations Eliciting Mental Toughness or Weakness**

During the interviews, when players discussed various situations that they
perceived as requiring mental toughness it was clear that players could be mentally
tough in some situations but mentally weak during other situations, and thus,
indicating that mental toughness can fluctuate. The majority of situations identified
were specific to the competition environment (23 raw data themes) although players
also discussed some situations that occurred in training (13 raw data themes). The
higher-and-lower order themes are presented in Figure 1. This next section provides
examples of how mental toughness can change in varying situations (i.e., from game
to game and sometimes during the same game). When referring to fluctuations in
mental toughness, one player described his mental toughness to be a “roller coaster”,
It can be a roller coaster, because it's literally up and down. I’ll have one game
where I’m focused and then I’m playing one point at a time …you can see it
[mental toughness] in my eyes. But then the next game, I’ve sailed four shots
in a row to the fence … When I get mentally weak it doesn’t even cross my
mind to hopefully try and bring it back.

Similarly, another player talked about a critical moment in tennis in the form of losing
a lead and attributed this event to not being mentally tough enough to “close out the
game” and “getting too excited about winning.” In knowing the importance of being mentally tough in critical moments, this same player further explained, “I keep working on it [mental toughness]. Mental toughness gives me that belief that I can finish it out … and sometimes I have stayed focused and calm, taking each point one at a time.”

When discussing specific game situations, some players described how their mental toughness could change during the same match. One player explained that while he can start a match mentally tough he can often become mentally weak during it, “It was so important to start mentally tough, getting everything back, I won the first set like that, but then I stopped playing … I started thinking why he’s playing so good now. I couldn’t get it back.” In contrast, another player described feeling mentally weak early on in the game but was able to gain mental toughness when she needed it most, as this player discussed,

I wasn’t feeling it at the start … I was playing semi finals and I lost the first set and I was down 4-1 in the second, I had to fight … I got confident from one point, got over it, I kept going … I came back and I won the match in the third set.

Similarly, another player discussed,

I was playing a third set tie-breaker, I know I have to win that point. To win that match I had to be mentally tough … stay positive when I got behind … I was behind and like everything was against me, the opponent was playing well, I had bad luck, the weather … but I had to dig deep, found my way back into the match, to win it.

Interestingly, analysis of the transcripts showed that it was players’ perceptions of their opponents (e.g., ranking) and pressure (e.g., concerns over the outcome) that
often generated mental toughness or mental weakness during competition. In providing an example of these perceptions, one player was able to be mentally tough during a match against an opponent of similar or close ranking, and explained, “I was mentally tough because it was close and I was playing someone about equal to me … it can come down to who’s going to step up, who’s gonna have the mental edge that day.” Similarly, when discussing opponents and the pressure associated with “getting results”, some players attributed their mental weakness to playing an opponent they were “expected to beat”, as one player stated, “if I lose to someone who’s worse than me, people will start talking … the outside pressure can get to me and make me mentally weak if I am playing against someone I should beat.” Similarly, another player reiterated, It’s when there is pressure, from others, those watching … I never want to lose to someone I know I should beat, it’s like I don’t know how to win, or like what to do to win … it’s a mental thing. It’s easier to be mentally tough when they’re much better than me, I have nothing to lose, just fight and can take one point at a time.

Players also discussed their mental toughness and weakness during training situations. Specifically, these situations focused on consistency (e.g., consistency to perform, no let up) and intensity (e.g., intense practice always, no off-season) (see Figure 1). In the theme of consistency one player discussed the need to be mentally tough “to maintain consistency every week” with regards to performance standards, as he stated, What you do in practice is what you’ll eventually do in matches and tournaments so I work on it [mental toughness] in practice … if you’re
mentally tough you’ll be ready … but if you are up and down, your consistency will be up and down.

Not all players were able to be mentally tough all of the time in training situations and maintaining intensity sometimes generated mental weakness responses, as one player explained,

Sometimes I just feel out of it, not going for every ball and I’m kind of looking around and then I know I don’t look like I’m mentally ready to be there … there is no off season, practice is a big part of competition and tournaments.

Another player discussed training and intensity as requiring mental toughness in the following way, “there is pressure, mostly coming from myself, in practice, you have to be focused the whole time and I can be like, have a variety of moods in practice … I'm not always mentally tough.”

Cognitions, Affect, and Behaviors

Following analysis of the data it was possible to further understand mental toughness and mental weakness through players’ perceived associated cognitions, affect, and behaviors. Specifically, players reported different cognitive, affective, and behavioral responses when they perceived themselves to be mentally tough and when they perceived themselves to be mentally weak (see Figure 1 for the data display of higher-and-lower order themes).

Cognitions

In this theme a variety of facilitative cognitions associated with mental toughness were discussed. It was clear that these thoughts were positive in nature, were task focused, and also related to one’s own performance rather than on opponents or the outcome of the game. These cognitions were characterized by
phrases such as, “thoughts about playing well”, “focusing on each point”, and “playing for me not focusing on the outcome”. In contrast, when players considered themselves to be mentally weak, defeatist thoughts relating to the outcome of the match (e.g., worries about losing, outcome thinking on points) were dominant and interpreted as having a debilitating influence on performance. One player explained, Pressure [for the outcome] can make me mentally weak, I’m thinking, if I lose this match people are going to say ‘how did she lose to her’, lose a couple of points in a row and it can crush my mind, what if I lose? When perceiving mental toughness, thoughts were high in belief and players emphasized positive expectations, as one player explained, “When I’m mentally tough I believe in myself and I think I can win.” Similarly, another player stated, “believing in yourself is so comfortable, trusting everything … being mentally tough you know how to handle those thoughts, how to talk to yourself.” In contrast, mental weakness was characterized by thoughts of self-doubt and a lack of confidence: One player explained, “when you are not feeling mentally tough and you start to think I am not hitting the ball great, that effects how much I believe in myself.” Similarly, another player mentioned, “I get critical of myself and I begin to question my shots.” Players also discussed distraction related thoughts such as thinking too much about certain shots or allowing factors that they could not control distract or interfere with thoughts when trying to focus on the task at hand.

Affect

In this theme of affect a variety of positive feelings associated with being mentally tough were discussed, such as, enjoyment (e.g., love the game), positive energy (e.g., energized, stay with it physically), and feeling relaxed. Interestingly, discussions with players indicated that feeling mentally tough did not prevent them
STABILITY OF MENTAL TOUGHNESS

from feeling nervous in tennis competition but it enabled them to use these nerves in a
positive way, as one player mentioned,

I’m able to take it as a good thing, I can tell myself it’s normal, everyone gets
nervous but when you’re mentally tough being nervous is good because you
want to win … if you’re not nervous that means you don’t really care about
your performance.

In addition, the impact that feeling positive energy had on tennis performance was
explained in the following way, “The feeling … when you’re mentally tough,
everything is … is just working … it’s like the least amount of power or effort you get
for most amount of power … it feels positive and pretty natural.”

In contrast, mental weakness in response to some tennis situations engendered
negative affect for players and were described as feelings of lethargy (e.g., low
aggression, lack of energy), feelings of frustration and/ or anger (i.e., psychological
responses) and physiological responses such as body tension and increased heart rate.

One player explained her feelings of lethargy in the following way, “its just like I
don’t want to be there, I don’t wanna do this, I feel I’m tired … sometimes you let
those feelings get the best of you.” In explaining how feelings of frustration could
debilitate performance, one player discussed, “It’s not being mentally tough, I get
frustrated and I just bang my racket down, getting mad at myself when I start losing
points.” Negative physiological responses were also deemed debilitating as one player
stated,

When I’m not mentally tough I can get tension in my arms … when I’m
nervous when I’m playing I don’t play the way I’m supposed to like I always
do. I’m normally an aggressive player and I don’t play that way, I don’t know
how to win that way … when I am not mentally tough.
Behaviors

Players discussed a range of effective behaviors associated with mental toughness but also ineffective behaviors associated with mental weakness (see Figure 1). Two ways that mental toughness was demonstrated was through behaviors such as moving faster on court (i.e., higher effort) and strong body language (i.e., confidence). Specifically, when players were displaying high effort they described it as “being intense”, and “on my toes ready to move fast”. One player discussed how he plays with high intensity in this way, “you’re never kind of going down, always keeping up my intensity, staying with it all the way whether you win or lose a point.” In addition, players displayed confidence by “standing tall”, “holding my racket up”, and “having a consistent game-face”. Some players also discussed how their confidence can show up in their shot selection, as one player stated, “you can see it, you play your game … I believe I can make this shot and I go for it.”

In contrast, when players considered themselves to be mentally weak they discussed displaying behaviors that were perceived to have a negative influence on tennis performance. For example, decreased effort was discussed and described as “not running hard enough and so giving up on points” and “wasting effort by not getting into the right place”, as one player explained:

It’s when you are struggling, you need it [mental toughness] the most but you have to work that much harder to get to the ball, probably not really working that hard but you feel like you are because your body isn’t in the right place at the right time … you just give up trying to get some [balls] back, stop running.

Similarly, a theme categorized as decline in skill level also emerged associated with mental weakness behaviors such as “missing easy balls/points”, "not hitting the ball cleanly”, and “touch being off.” One player explained, "yeah, I couldn’t win a point
anymore, it was horrible and I missed every shot, easy shots.” Players were also aware of how their behavior influenced dictating play on the court as they discussed the pace of play and how this differed when being mentally tough or mentally weak.

For example, one player discussed being forced into fast play when she was mentally weak, “I lost my game plan. Everything was going way too fast and I never took time to walk back to the fence to slow it down then that game is done, I needed to have taken my time.”

In addition to changes regarding skill level and dictating the pace of play, some players were aware that they adopted a particular game strategy when they were mentally weak. Specifically players identified purposely playing not to lose by a large margin rather than trying to turn the game around, as one player explained, “It’s kind of giving it away, playing not to lose, let the opponent lead the point and just let them [opponent] control everything. Get the ball back and hope your opponent misses.”

In contrast, when players were mentally tough they discussed being assertive on court and were able to dictate the pace of play, as one player explained, When I’m mentally tough I’ll take my time on every ball, focus on every point. I won’t let myself be rushed because you lose games quickly. When I am tough I don’t think ahead, I play every point, …I’m in control.

Similarly, players described “playing every point” as an important aspect of displaying mental toughness and this was characterized by phrases such as “not giving up on points”, “fighting for every point”, and “play despite pressure”. One player explained, “when the going gets tough, if I’m mentally tough I can keep sticking to the task even if things are not going my way. When I’m mentally tough I can find a way to battle through.”

Coping Strategies
As reported earlier, players were aware that their mental toughness could fluctuate in response to a variety of situations (e.g., competition, training). During the interviews players identified coping strategies that they used to protect or regain mental toughness. It was anticipated that players would share a variety of coping strategies because all players at the Academy received some sport psychology support although this support was not specifically targeted at developing mental toughness.

The higher-order theme of coping comprised of five lower-order themes: Task focus (e.g., focus on the controllables, focus on process), avoid distraction (e.g., walk away to the towel, turn away from opponent), use of tactics (e.g., attack more, stick to the game plan), maintaining confidence (e.g., acting confident, positive self-talk), and relaxation (e.g., deep breathing, visualization of relaxing scenes). In the theme of task focus players discussed various strategies to help them focus on their own performance and playing each point rather than thinking about the outcome. One player highlighted the importance of “focusing on the controllable aspects of performance and using refocus routines”. Players also discussed strategies related to avoiding distraction. Specifically, this theme captured players’ views about not wanting to let an opponent cause distraction, as one player stated:

Going to the back of the court, looking at strings, so I’m turning away from my opponent so I can focus my mind, I can forget my opponent is there and then it’s time to focus on what you need to do.

Strategies to maintain confidence was also discussed by players and was frequently explained as having a positive relationship with mental toughness. For example, one player discussed “having more confidence enhanced my mental toughness and when I’m feeling tough I exude more confidence”. Similarly, another player discussed using her positive body language and attitude as a way to regain mental toughness, “body
language without a shadow of doubt is by far the most important … your mental frame for mental toughness … just not showing your opponent that you’re down or up.”

In the theme categorized as use of tactics, players engaged in strategies such as “slowing play down”, “sticking to their game plan” and “being aware of their strengths and then playing to their strengths”. One player stated, I know what my strengths are in my game, one thing I do is identify the thing that’s working, like if I felt my footwork was good, then I try to increase effort in that up by five per cent. I try to play to my strengths.

Finally, players also engaged in relaxation strategies to regain control such as deep breathing and visualizing relaxing scenes, as one player explained, “I feel it in my chest, so I’m taking deep breaths to release it [tension] … when you are mentally tough, the nerves are still there but it’s easier to use or rid them … breathing and routines provide that”.

**Discussion**

The purposes of the present study were to explore possible fluctuations in mental toughness across situations, and to identify the cognitions, affect, and behaviors associated with perceived mental toughness and mental weakness. One area of mental toughness that continues to be debated is whether an athlete’s mental toughness is changeable (i.e., fluctuates) depending on situations. As such, further research has been encouraged to consider aspects of both mental toughness as well as mental weakness (Harmison, 2011). In line with these thoughts of inquiry, it has been emphasized by some researchers that appropriate theories should be adopted to further understand mental toughness relative to the stability of mental toughness (e.g., Crust, 2008; Harmison, 2011). This study offers a novel perspective to view mental
toughness by adopting a social-cognitive framework, and therefore, considers the
interaction of athletes and their changeable environments.

In the present study, players identified a range of situations pertaining to
competition (e.g., opponents, critical moments) and training (intensity, consistency)
that they perceived as requiring mental toughness. Previous research has begun to
provide some consistency in findings when considering the temporal nature of mental
toughness (e.g., Bull et al., 2005; Slack et al., 2014). Specifically, it has been reported
that high-end performers require mental toughness across a range of situations over
sustained periods of time (i.e., week in and week out for whole seasons) and also
across entire match-days themselves. In support of these findings, players in the
present study emphasised the need to be mentally tough for competition and also in
training for prolonged periods of time (i.e., season-long). Indeed, the themes of
intensity and consistency captures players’ perceptions that “there is no off-season”
and mental toughness is required to sustain consistency in performance over time.

Despite some support for the state-nature of mental toughness, it has been
argued by some that mental toughness is not a stable construct and influenced by
genetic factors, calling into question, therefore, whether mental toughness can be
developed over time (e.g., Horsburgh, Schermer, Veselka, & Vernon, 2009). Unique
to the findings of the present study, it was clear that players could be mentally tough
in some situations but mentally weak during other situations, and thus, offering
empirical support for mental toughness being more of a state-like construct (i.e., that
mental toughness can shift depending on the situation). In particular, players
discussed fluctuations in mental toughness occurring in different matches and also in
response to situations occurring in the same match, and attributed these fluctuations to
critical game moments (e.g., tie-breaker points) and situations needing composure
STABILITY OF MENTAL TOUGHNESS

(e.g., recovering from an error). Being able to identify specific situations where players could potentially be mentally weak during competition can be helpful to practitioners when designing sport-specific mental toughness training programs.

Along these lines, it was also an important finding to understand players’ perceptions of these mentally tough and weak situations. Specifically, players’ changing perceptions of their opponents (e.g., ranking, momentum) and pressure (e.g., concerns over the outcome) most often generated fluctuations in perceived mental toughness.

Dealing with pressure has long been considered an important attribute of mental toughness and has become an essential ingredient of mental toughness training interventions (cf. Slack, Maynard, Butt, & Olusoga, 2015). Regarding perceptions of pressure, much research exploring competitive anxiety responses has supported the notion that experiencing anxiety symptoms do not always have a negative influence on performance and can be interpreted in a facilitative way (cf. Jones & Swain, 1995).

Players in the present study reported that being mentally tough did not take away their nerves (i.e., feeling nerves) but enabled them to perceive and use them in a positive way, and thus, offer further support for facilitative anxiety. Collectively, findings of the present study further highlight the need to equip athletes with the skills to reinterpret their perceptions of pressure and one way that this can be achieved is to gradually expose players to pressure situations in training (Gould & Maynard, 2011).

Indeed, it has become a consistent finding in mental toughness research that exposing performers to harsh experiences (i.e., creating pressure) will be beneficial to increasing their mental toughness (e.g., Bell et al., 2013; Weinberg et al., 2011).

A second purpose of this study was to identify the cognitions, affect, and behaviors used by the tennis players when perceiving mental toughness and mental weakness. Researchers have recently advocated the application of social-cognitive
models for studying mental toughness (e.g., Harmison, 2011; Smith, 2007). In particular, Harmison demonstrated the use of Mischel and Shoda’s (1995) Cognitive-Affective Processing System (CAPS) as a framework to further our understanding of athletes’ mental toughness relative to various situations they encounter. The idiographic profiles generated demonstrated that two athletes (i.e., football players) could perceive situations (i.e., perceptions of an upcoming match) differently, and experience a range of cognitions, affect, behaviors, and coping responses, which could interact to determine mental toughness or mental weakness. To date, research has focused on the constituents of mental toughness and while there is some knowledge on the mental toughness cognitions and behaviors utilized by elite performers (e.g., Gucciardi et al., 2009a; Slack et al., 2014), it has been suggested that characterizing the opposite cognitions and behaviors (i.e., when not mentally tough) is also necessary.

In addressing both mental toughness and weakness, the present study extends current knowledge of mental toughness conceptually and from an applied perspective. In particular, findings indicated that players perceived to experience facilitative cognitions (e.g., control over thoughts, task focus, self-belief), positive affect (e.g., energized, relaxed) and facilitative behaviors (e.g., displaying confidence, assertive play) associated with mental toughness, and these were discussed relative to “playing well” and “producing winning performances.” In contrast, players perceived to experience debilitative cognitions (e.g., outcome thoughts, self-doubt), negative affect (e.g., lethargy), and behaviors (e.g., decreased effort, negative body language) associated with mental weakness. It is important for sport psychology consultants and coaches to have an understanding of these cognitions, affect, and behaviors to be able to help athletes develop awareness of their mental toughness (and mental weakness).
Further, while the aim of the present study was not to investigate mental toughness and its influence on performance, the findings do begin to offer some preliminary knowledge on the role of mental toughness and performance via an understanding of players’ cognitions, affect, and behaviors. However, the underlying mechanisms of mental toughness (i.e., how mental toughness influences performance) still need to be fully investigated.

When viewing players’ mentally tough cognitions and coping strategies used to maintain or regain mental toughness, findings of this study indicate that having a strong self-belief is important for mental toughness. Specifically, belief, positive thinking, and focusing on one’s own performance were all reported as cognitions associated with being mentally tough while self-doubt was associated with mental weakness. In addition, maintaining confidence (i.e., strengths-focus, positive self-talk, acting confident) was identified as a coping strategy to sustain mental toughness or regain it during fluctuations. Similarly, previous research has reported high self-belief to be the most consistent attribute of mental toughness (e.g., Gucciardi et al., 2008; Jones et al., 2002; 2007). Collectively, findings confirm the important role of confidence when developing mental toughness.

**Limitations**

One limitation to consider in the present study is the domain specific (i.e., Academy tennis players) nature of the sample used. That is, because findings might not transfer to other sports, triangulating these results across other individual and team sports would provide further understanding of the stability of mental toughness (i.e., different situations) and the cognitions, affect and behaviors it elicits. Nonetheless, previous research has often favored adopting a sport-specific approach to studying mental toughness because it can offer context-rich knowledge gains theoretically, and
also for practitioners looking to build mental toughness and create an optimal environment to do so. As one example of sport-specific research, Gucciardi and colleagues (2008; 2009b; 2009c) conducted a line of research exploring mental toughness specific to Australian Football. Specifically, an initial study was conducted to obtain an understanding of what constitutes mental toughness in Australian football players, which was later followed up with the designing and testing of quantitative and qualitative mental toughness training interventions.

Regarding the sample used, another limitation to note is the level of the players included. In this study, although the players were considered to be participating at a high level (i.e., state and national ranking in full time training at a tennis Academy), they were still in the development phases of their athletic careers. As such, it is likely that they were still developing their mental attributes, including mental toughness. Along these lines, it is also important to note that no objective measures of mental toughness were obtained prior to conducting interviews. Thus, while the findings show that a player’s mental toughness can fluctuate across competition and training situations, they did not show exactly how mentally tough each player was with an objective score from a questionnaire.

Future Research and Applied Implications

Future research might consider longitudinal studies whereby the temporal nature of mental toughness can be further investigated (e.g., season long). Further, while there are some examples of empirical mental toughness training interventions in the literature (e.g., Gucciardi, Gordon, & Dimmock, 2009b; Slack et al., 2015), it remains an important avenue of research to develop such interventions and test their effectiveness over longer periods of time. In particular, gaining an understanding of sport-specific situations and how player’s perceive these situations, together with
STABILITY OF MENTAL TOUGHNESS

associated cognitions, affect, and behaviors, provides a starting point for which to
develop a mental toughness training intervention that can be tailored to the unique
needs of developing tennis players. In addition, having identified specific behaviors
perceived to be associated with mental toughness (and mental weakness), sport
psychology consultants and coaches can begin to observe these behaviors in training
and competition to help players become more aware of their mental toughness. Along
these lines, findings of this study highlight that athletes’ perceptions of pressure-
related situations can influence the stability of mental toughness (i.e., mental
toughness or mental weakness). Recently, research has begun to highlight the
potential benefits of pressure training in sporting environments (e.g., Driskell,
Sclafani, & Driskell, 2014) and also specific to developing mental toughness (e.g.,
Bell, Hardy, & Beattie, 2013). Gaining an understanding of match situations which
can potentially evoke mental weakness can be integrated into players’ training
environments to help prepare them better for performing in competition and critical
moments. Finally, findings of this study confirm the important role of confidence in
mental toughness and should remain central to interventions designed to build mental
toughness.

Conclusions

Findings of the present study offer some support for the state-nature of mental
toughness indicating that depending on the situation, and athletes’ perceptions of the
situation, mental toughness can fluctuate, and can sometimes be perceived as mental
weakness. It is important to continue to identify sport-specific situations and how
athletes perceive these situations so that appropriate interventions can be
implemented. Obtaining an understanding of players’ cognitions, affect, and
behaviors associated with mental toughness and mental weakness has provided an
insight into how fluctuations in mental toughness might influence tennis players’ performance. The identified cognitions, affect, and behaviors (for both mental toughness and weakness) can also serve as a platform for which to develop mental toughness training interventions tailored to high-end, developing tennis players.

References


Coulter, T., Mallett, C., & Gucciardi, D. (2010). Understanding mental toughness in
STABILITY OF MENTAL TOUGHNESS


STABILITY OF MENTAL TOUGHNESS


STABILITY OF MENTAL TOUGHNESS

Mental Toughness

Facilitative Cognitions
- Motivated to perform
- Belief
- Focus on own performance
- Focus on task
- Positive thinking
- Control over thoughts

Positive Affect
- Deal with negative affect positively
- Enjoyment
- Feeling energized
- Relaxed

Facilitating Behaviors
- High effort
- Play every point
- Assertive play
- Focused decision making
- Increased skill level
- Displaying confidence

Situations

Competition
- Opponent
- External pressure
- Critical moments
- Composure

Training
- Consistency
- Intensity

Coping Strategies
- Task Focus
- Avoiding distraction
- Use of tactics
- Maintaining confidence
- Relaxation

Debilitating Cognitions
- Outcome thoughts
- Doubting self thoughts
- Distraction thoughts

Negative Affect
- Lethargy
- Psychological responses
- Physiological responses

Debilitating Behaviors
- Strategy related
- Decline in skill
- Decreased effort
- Pace of play
- Negative body language
- Distracted

Figure one: Higher and lower order themes representing mental toughness and mental weakness and different game-related situations.