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# **A Framework of Mental Toughness in the World's Best Performers**

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The authors conducted an investigation of mental toughness in a sample population of athletes who have achieved ultimate sporting success. Eight Olympic or world champions, 3 coaches, and 4 sport psychologists agreed to participate. Qualitative methods addressed 3 fundamental issues: the definition of mental toughness, the identification of its essential attributes, and the development of a framework of mental toughness. Results verified the authors' earlier definition of mental toughness and identified 30 attributes that were essential to being mentally tough. These attributes clustered under 4 separate dimensions (attitude/mindset, training, competition, postcompetition) within an overall framework of mental toughness. Practical implications and future avenues of research involving the development of mental toughness and measurement issues are discussed.

Top-level sport is characterized by a demand to excel at optimal levels while performing under conditions that are considered extremely demanding. Psychological attributes such as self-confidence and the ability to cope with and interpret anxiety-related symptoms as positive are now commonly accepted as being major contributors to sporting success (cf. Hardy, Jones, & Gould, 1996; Mellalieu, Hanton, & Fletcher, 2006). Researchers attempting to account for sporting performance via anxiety- and self-confidence-theory explanations (e.g., Bandura, 1977; Martens, Vealey, Burton, Bump, & Smith, 1990; Vealey, 1986), however, have revealed unexpectedly low amounts of performance variance (see Swain & Jones, 1996). Perhaps these theoretical explanations might not be as influential as investigators initially thought. A more holistic approach into positive psychological attributes might help researchers find more pivotal variables in explaining successful performance. One factor that might be core to the understanding and advancement of knowledge in this area is mental toughness.

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*Mental toughness* has been described as one of the most used but least understood terms in applied sport psychology (Jones et al., 2002). Numerous articles investigating successful sport performers have cited mental toughness as a vital component. Definitions and characteristics of mental toughness have been proposed by many authors, leading to a diverse range of positive psychological characteristics being associated with mental toughness. Unfortunately, most of the explanations have emanated from anecdotal evidence and personal accounts. This was highlighted by Jones et al., who concluded that the knowledge base regarding mental toughness lacked scientific rigor and was replete with contradiction, ambiguity, and conceptual confusion.

Jones et al. (2002) addressed some of the conceptual weaknesses by investigating mental toughness in elite performers. These authors sought to define mental toughness and identify the attributes required to be a mentally tough performer using personal-construct theory as a guiding framework (cf. Kelly, 1955). The resulting definition emphasized a natural or developed construct that enabled mentally tough performers to cope with the demands of training and competing better than their opponents. Specifically, these athletes were more consistent and superior at remaining determined, focused, confident, and in control under pressure. Jones et al. further identified 12 attributes that were considered crucial and fundamental to the makeup of mental toughness. These related to self-belief, desire and motivation, performance focus and lifestyle-related factors, dealing with pressure, anxiety, and pain/hardship associated with top-level performance. Furthermore, the attributes highlighted how specific characteristics contributed to a performer's state of mental toughness. It is interesting that two recent studies have adopted procedures and recommendations proposed by Jones et al. in the sports of cricket (Bull, Shambrook, James, & Brooks, 2005) and soccer (Thelwell, Weston, & Greenless, 2005). Both studies confirmed Jones et al.'s definition of mental toughness and proposed attributes that were comparable, even though specific to the sports involved. Overall, this suggests that although mental toughness might possess slight variants in specific sports a general template or framework can be developed irrespective of sport.

Although these researchers have contributed to the overall understanding of mental toughness, the area is still at a very exploratory stage of investigation. Recommendations were proposed to expand the mental-toughness knowledge base. First, given that the definition of mental toughness contains a dimension that relates to successful outcomes, mental toughness should be investigated in a sample of athletes who have achieved ultimate success in their respective sports (i.e., Olympic or world champions; Jones et al., 2002). Second, sport psychologists and coaches who have worked with such world-best performers can contribute to a clearer overall understanding of mental toughness (Jones et al.; Thelwell et al., 2005).

The purpose of this study was to address the recommendations highlighted by Jones et al. (2002). Because there is no validated measure of mental toughness, we employed qualitative methods to define mental toughness and develop a framework of mental toughness by identifying the key underpinning attributes in a broad range of sports. The sample consisted of performers who were considered superelite (i.e., officially recognized as the best in the world). Coaches and sport psychologists who worked with these high-achieving performers were also included to create a more complete understanding of mental toughness.

## Method

### Participants

Consistent with qualitative methodologies (e.g., Lincoln & Guba, 1985; Patton, 2002) and following procedures adopted by Jones et al. (2002), we used purposive sampling to select study participants. The samples were selected by canvassing various sport-governing bodies and individuals throughout the sporting world. Eight performers, 3 coaches, and 4 sport psychologists were chosen in order to gain a diverse representation. In particular, emphasis was placed on selecting participants from sports with varying task demands (i.e., team/individual, open/closed skilled, self-/externally paced, subjective/objective, contact/noncontact) who, once contacted, volunteered their consent. Following recommendations for data-rich individuals (Bull et al., 2005; Jones et al.; Thelwell et al., 2005), we required that performers had won at least one gold medal at an Olympic Games or world championship and that coaches and sport psychologists had coached or consulted with Olympic or world champions on a long-term basis. Participants who met this criterion were classified by the authors as super elite and are referred to as such throughout this article.

The superelite performers, 5 men and 3 women, were between the ages of 25 and 48 years, claimed 7 Olympic gold medals and 11 world-championship titles, and had an average of 6 years of experience at the superelite level. Four of the performers were retired from competing; the other 4 were still competing at the time of the interviews. The coaches (3 men, age 38–60 years) and the sport psychologists (4 men, age 35–45 years) were all working with superelite performers at the time of the interviews. The sports represented were boxing, swimming, athletics, judo, triathlon, rowing, pentathlon, squash, cricket, and rugby union. In addition, participants represented a number of nations and cultures including Australia, England, Canada, and Wales.

### Procedure

Following the procedures adopted by Jones et al. (2002), this study was divided into three distinct but iterative stages. In Stage 1 we used a focus group, and in Stage 2 we conducted individual interviews. Stage 3 was composed of two parts: In Part 1 individuals rated the definition, and in Part 2 participants confirmed the proposed framework and ranked the mental-toughness attributes in each dimension. To help establish the parameters of the study, an interview guide was sent to all participants before interviewing with instructions concerning the rationale for the study, the use of data, issues regarding confidentiality and the participants' rights, and the reasons for audiotaping.

### Stage 1

The focus group involved 3 sport performers engaging with each another and verbally formulating their ideas of mental toughness (Kitzinger, 1994). Participants were asked to define mental toughness in their own words and then provide a list of the fundamental prerequisite qualities and attributes that the ideal mentally tough performer possessed until saturation occurred (cf. Glaser & Strauss, 1967). Each

attribute was then examined and probed in detail using sporting examples before proceeding to the next attribute (cf. Patton, 2002). The purpose of the focus group was to generate data-rich information and provide a base that could be expanded on in the individual interviews (Amis, 2005).

## Stage 2

Individual interviews, either face to face or via telephone (see Gould, Finch, & Jackson, 1993), were conducted with the remainder of the sample using the information generated from the focus group in Stage 1. In line with personal-construct theory (Kelly, 1955), we examined in detail the interviewees' sentiments regarding all previous definitions and attributes generated by the focus group and discussed sporting examples. After this, each participant was probed for possible additional attributes that had not been identified. By repeating this process for every individual, a complete profile of the ideal mentally tough performer was developed.

During the final section of the interview we asked for the participants' appraisal of the session and asked if any issues might have been overlooked. After each interview, the transcript was sent to the participant and then solicited comments regarding its accuracy via a follow-up phone call. Each participant confirmed that the information accurately reflected his or her experiences of and thoughts about mental toughness. The focus group lasted three and a half hours and was audiotaped in its entirety and transcribed verbatim, yielding over 100 pages of text. Subsequent interviews lasted between 75 and 95 minutes and were again audiotaped and transcribed verbatim, resulting in over 700 typed pages. After each interview the transcripts were discussed by the research team before proceeding to the next participant. All three researchers agreed that saturation had been reached after the interview with the 15th participant. On close inspection of the definition generated by the participants, the research team discussed and concluded that there was no discernable difference from Jones et al.'s (2002) definition. Consequently, the definition proposed by Jones et al. was presented to participants for verification, comment, and rating.

## Stage 3

Stage 3 involved two parts and was conducted via a follow-up interview. Part 1 asked the participants to rate the extent to which they agreed with Jones et al.'s (2002) definition on a scale from 1 (*not at all*) to 10 (*totally agree*). All participants responded and rated the definition. Part 2 involved presenting the mental-toughness attributes in each dimension of the framework to the participants, who were asked to (a) confirm whether the proposed framework of mental toughness was a true reflection of their understanding of mental toughness, (b) confirm whether each attribute fit in the proposed dimension, and (c) rank the attributes in each dimension in terms of their importance to mental toughness (1= *most important*). All participants confirmed that the proposed framework of mental toughness was a true reflection of their understanding of mental toughness and that the attributes fit correctly in the dimensions. At this point, 1 participant requested not to take part in the ranking of attributes.

## Analysis

The data-analysis procedures adopted in this study incorporated six steps: (a) Transcripts were independently studied in detail by the researchers to ensure content familiarity, and regular meetings were held to ensure a complete understanding of the textual material. (b) The researchers independently reviewed the 30 proposed attributes and deductively categorized them into four dimensions. Through discussion and consensus, the research team collectively labeled the four dimensions. (c) Any disagreement of attribute classification resulted in all three researchers rereading the transcripts until consensus was reached. (d) Two external researchers, knowledgeable in qualitative-research analysis and familiar with the subject matter, confirmed that the attributes were classified under the most appropriate dimensions and subcomponents. (e) Participant feedback verified the construction of the framework. It was agreed, in line with Sparkes (1998) and following Jones et al. (2002), that the data should be displayed in a way that was easy to interpret and meaningful to the reader. Therefore, the attributes in the framework were presented in a straightforward manner from the transcripts using direct textual quotations. Finally, (f) trustworthiness characteristics, as recommended by Hardy et al. (1996) and Sparkes, were met throughout via thick description, recording and transcribing all interviews, peer debriefing, and member checking.

## Results

The Results section presents the definition and subsequent framework of mental toughness. The framework contains the 30 attributes that are reported and ranked in each of the four dimensions (i.e., attitude/mindset, training, competition, post-competition).

### Mental-Toughness Definition and Framework

The participants revealed that the definition of mental toughness that was proposed by Jones et al. (2002) and verified in Stage 1 of the procedure was accurately worded and closest to their personal understanding of mental toughness. The process of asking each participant to rate the extent to which they agreed with the definition, postdata collection, resulted in a mean of 9.33 ( $SD = 1.05$ ; 10 participants rated it 10 out of 10). Therefore, in accordance with Jones et al. (2002), mental toughness was defined as follows: having the natural or developed psychological edge that enables you to, generally, cope better than your opponents with the many demands (competition, training, lifestyle) that sport places on a performer and, specifically, be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure.

Probing participants' responses also indicated that not only was mental toughness developed throughout their careers but it could also fluctuate during the time athletes spend in their respective sports.

Participants identified 30 distinct attributes that they believed to be key in developing a framework of mental toughness. The attributes were phrased in the

participants' own words and were discovered, through triangulation, to cluster into four separate dimensions. Attributes in each dimension were further categorized into subcomponents, which can be seen in Figure 1.

The attitude/mindset dimension is best described as containing attributes that characterize a general attitude that the ideal mentally tough performer possesses, whereas the three other dimensions (training, competition, postcompetition) related to characteristics of mental toughness at specified time phases. The attributes were ranked in terms of importance to mental toughness in each dimension. Representative quotes, including self-referenced and observed examples, are presented throughout to illustrate the specific meanings of the attributes.

## Attitude/Mindset

Table 1 presents seven attributes that were classified under the attitude/mindset dimension of mental toughness. A closer examination of these seven qualities revealed a further division that resulted in two subcomponents—belief and focus.

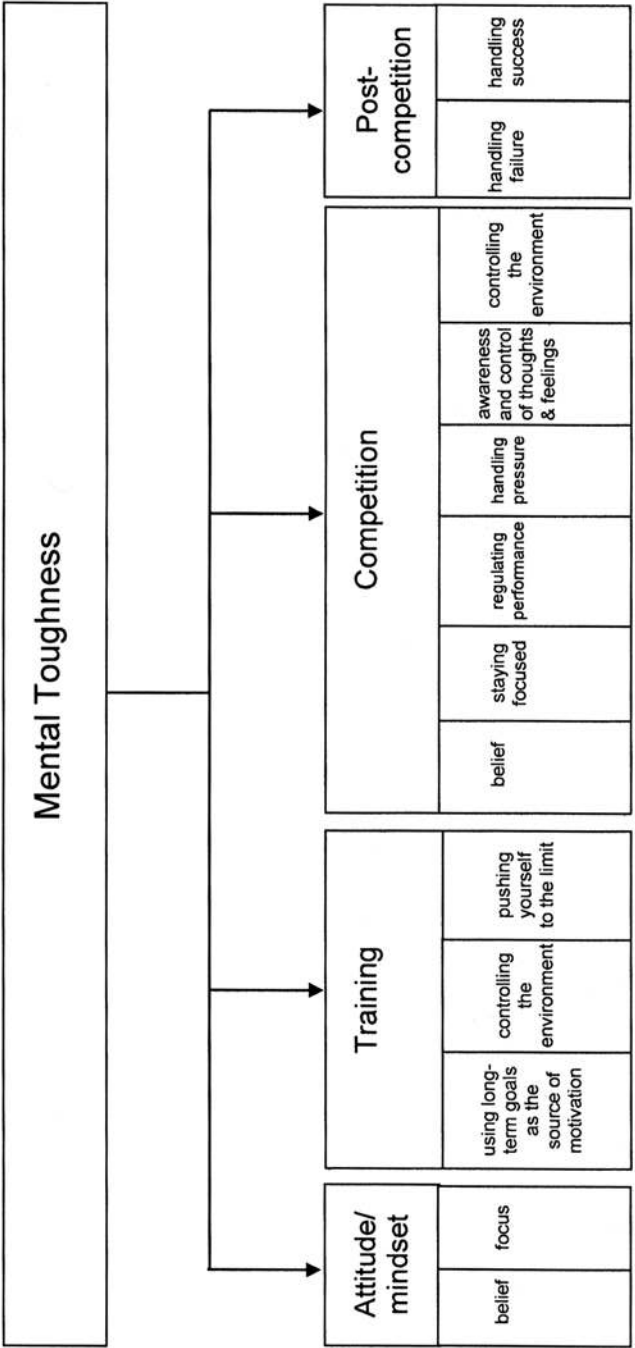
**Belief.** Belief is composed of four attributes that contribute to the ideal mentally tough performer's belief, which is required to ensure that the performer remains on course, regardless of obstacles or circumstances, in achieving his or her ultimate goal. The attributes in this subcomponent relate to factors that contribute to performers' unshakable belief through their awareness and inner arrogance and how this belief results in performers' reaching their true potential, despite obstacles and barriers that people or organizations put in their path. Examples and explanations will now be provided.

The first attribute describes how a mentally tough performer acquires the unshakable self-belief that results from a total awareness of how the performer got to that level (Rank 1). One participant explained that "it takes a long time for a real belief in yourself to build." The more they demonstrate their abilities to overcome specific challenges and reach certain targets, the more it raises their self-belief and confidence. A common statement was "I know I can achieve it [aims and goals]. . . . This belief is built on a very solid foundation, it's not about hoping and wishing, it's about knowing as a result of what I have done."

The second attribute relates to an inner arrogance that contributes to the belief that success is achievable, and they can achieve anything they set their mind to (Rank 2). Participants felt that this inner arrogance "makes them stand out. . . . They are able to look at their talents and abilities and know that they can do it to the very highest level." Participants described it as knowing that they can take on and beat the best in the world:

It's that inner arrogance, that bit of an attitude towards things that I set my mind to. It is never ever giving up and knowing that if I just persevere I know that I am going to be able to do it. . . . I believe I will be able to do it.

The third attribute explains how belief allows mentally tough performers to achieve success by punching through any obstacle people put in their way (Rank 3). It does not matter what it is; the mentally tough performer invariably overcomes such problems.



**Figure 1** — Mental-toughness framework.



**Table 1 Mental-Toughness Framework**

<b>Dimension</b>	<b>Subcategory</b>	<b>Rank and Description</b>
1. Attitude/mindset	Belief	<ol style="list-style-type: none"> <li>1. Having an unshakable self-belief as a result of total awareness of how you got to where you are now</li> <li>2. Having an inner arrogance that makes you believe that you can achieve anything you set your mind to</li> <li>3. Having the belief that you can punch through any obstacle people put in your way</li> <li>4. Believing that your desire or hunger will ultimately result in your fulfilling your potential</li> </ol>
	Focus	<ol style="list-style-type: none"> <li>5. Refusing to be swayed by short-term gains (financial, performance) that will jeopardize the achievement of long-term goals</li> <li>6. Ensuring that achievement of your sport's goal is the number-one priority in your life</li> <li>7. Recognizing the importance of knowing when to switch on and off from your sport</li> </ol>
2. Training	Using long-term goals as the source of motivation	<ol style="list-style-type: none"> <li>1. When training gets tough (physically and mentally) because things are not going your way, keeping yourself going by reminding yourself of your goals and aspirations and why you're putting yourself through it</li> <li>2. Having the patience, discipline, and self-control with the required training for each specific developmental stage to allow you to reach your full potential</li> </ol>
	Controlling the environment	<ol style="list-style-type: none"> <li>3. Remaining in control and not controlled</li> <li>4. Using all aspects of a very difficult training environment to your advantage</li> </ol>
	Pushing yourself to the limit	<ol style="list-style-type: none"> <li>4. Loving the bits of training that hurt</li> <li>6. Thriving on opportunities to beat other people in training</li> </ol>

3. Competition	Handling pressure	<ol style="list-style-type: none"> <li>1. Loving the pressure of competition</li> <li>3. Adapting to and coping with any change/distraction/threat under pressure</li> <li>5. Making the correct decisions and choosing the right options that secure optimal performance under conditions of extreme pressure and ambiguity</li> <li>8. Coping with and channeling anxiety in pressure situations</li> </ol>
	Belief	<ol style="list-style-type: none"> <li>2. Total commitment to your performance goal until every possible opportunity of success has passed</li> <li>4. Not being fazed by making mistakes and then coming back from them</li> </ol>
	Regulating performance	<ol style="list-style-type: none"> <li>6. Having a killer instinct to capitalize on the moment when you know you can win</li> <li>7. Raising your performance “up a gear” when it matters most</li> </ol>
	Staying focused	<ol style="list-style-type: none"> <li>9. Totally focusing on the job at hand in the face of distraction</li> <li>11. Remaining committed to a self-absorbed focus despite external distractions</li> <li>12. In certain performances, remaining focused on processes and not solely outcomes</li> </ol>
	Awareness and control of thoughts and feelings	<ol style="list-style-type: none"> <li>10. Being acutely aware of any inappropriate thoughts and feelings and changing them to help perform optimally</li> </ol>
	Controlling the environment	<ol style="list-style-type: none"> <li>12. Using all aspects of a very difficult competition environment to your advantage</li> </ol>
4. Postcompetition	Handling failure	<ol style="list-style-type: none"> <li>1. Recognizing and rationalizing failure and picking out the learning points to take forward</li> </ol>
	Handling success	<ol style="list-style-type: none"> <li>2. Using failure to drive yourself to further success</li> <li>3. Knowing when to celebrate success and then stop and focus on the next challenge</li> <li>4. Knowing how to rationally handle success</li> </ol>

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*Note.* The numbers = rank order for attributes in each dimension.

Mentally tough performers can overcome any obstacle or barrier that is put in their way. . . . It allows them to bash through any obstacle that stands in their way. . . . It's not necessarily just punching through it, it's knowing how you are going to punch through it and then learning from that . . . you gain something from that, as well.

The fourth attribute describes how belief in their desire or hunger ultimately results in mentally tough performers' fulfilling their potential (Rank 4). The participants viewed this attribute as having the belief that "you can actually be that good, that you can actually achieve that goal," and this belief enabled them to "truly know what they can realistically achieve."

**Focus.** This subcategory contains three attributes that contribute to the ideal mentally tough performer's focus in the attitude/mindset dimension. Participants explained how this focus was used to attain their ultimate goal by prioritizing the long-term goal over any short-term gains, in addition to considering every component of their lifestyle in the achievement of this goal (i.e., Olympic gold).

The first attribute in this subcategory involves prioritizing the achievement of long-term goals (Rank 5). Participants felt that the ultimate goal of a mentally tough performer, and how to achieve it, was always foremost in their thoughts and plans. As one participant explained, long-term-goal achievement was structured and planned, "it didn't just happen due to luck or ability, every detail and step in how to achieve this goal is planned and monitored," and this meant that sometimes short-term gains (financial or performance) had to be sacrificed. One coach stated,

The mentally tough performer will not be swayed by short-term goals, such as money or minor successes, in their desire to achieve their ultimate goal. You can think of many athletes who turn down vast amounts of money that are offered by promoters or sponsors to run in marathons . . . or compete or play in competitions . . . or go on tours, so that they can focus on their long-term goal . . . you know . . . the Olympics or Worlds.

Achieving one's sporting goal was described as "the number one priority in your life" (Rank 6). The second attribute in this subcategory explains that a mentally tough performer is "prepared to prioritize their sport and to forego other things that would have a detrimental effect on goal achievement." Participants felt that to excel at the highest level "you have to rate your sport as the most important thing in your life," and they prioritized this within the framework of their lives. Ideal mentally tough performers create an environment around them to facilitate this by keeping out factors that are detrimental to sporting success. One performer commented that "if there were decisions to be made, I would consider what the repercussions would be on my sport before accepting or rejecting it."

The final attribute in this subcategory highlights the importance of knowing when to switch on and off from your sport (Rank 7). Participants stated that "life must have a balance in order to function optimally." They were able to appreciate when "life was out of balance" for them and, as a result, switch their sport focus on or off as required so optimal functioning would occur. All participants spoke about their interpretation of achieving "the correct balance in life" between sport, family

and friends, and social life. They all felt that “the mentally tough performer knows what that balance entails and how that balance contributes to their success.”

## Training

The training dimension contains six attributes that comprise three subcomponents (using long-term goals as the source of motivation, controlling the environment, and pushing oneself to the limit). Two attributes clustered under each subcomponent that highlights the important qualities required to be a mentally tough performer in a training environment.

***Using Long-Term Goals as the Source of Motivation.*** The attributes in this subcomponent relate to how mentally tough performers keep motivation levels high despite the prospect of years of hard work ahead and things being difficult or not going as planned. The first attribute deals with when training gets tough (Rank 1) and unplanned situations occur during a sporting career. “Life gets difficult, training gets difficult, but the mentally tough athletes know exactly why they are doing it. . . . They know what their goals and aspirations are and why they are putting themselves through the hard work.” Participants believed that this is what keeps mentally tough performers going. When performers feel low, tired, or that training was too hard, mentally tough performers remind themselves, “I am doing this because I want to win gold. . . . Mentally tough performers acknowledge that they are tired but realize and remind themselves that if they are to achieve their goal they have to get back in the gym and work.”

The second attribute describes the patience, discipline, and self-control required for an athlete to reach his or her full potential (Rank 2). “Mentally tough performers know what is and is not achievable within a given time frame. They do not dream about the impossible or set unrealistic targets that cannot be achieved in the time available to them.” Participants reported that mentally tough performers know exactly how much and where they can improve their performance to win. They are realistic about how much they can make up the improvement in a specified time period and how this leads to the next stage in their performance or goal achievement. “They have the patience and discipline to control their efforts to achieve each goal or step along the ladder. They don’t spend their time wishing for the impossible or the unrealistic.”

***Controlling the Environment.*** The two attributes in this subcomponent relate to how a mentally tough performer gains as much control over training preparation as possible. Explanations of these attributes include decisions about their approaches to training and the training environment. The ideal mentally tough performer must be in control and not controlled—retaining as much control as the performer believes is necessary (Rank 3). Mentally tough performers “must exert control in pressure situations. . . . They are in control of their destiny, they can grab the situation and shape it according to what they want to happen as opposed to being externally controlled.” There was a strong sense of independence in training—not relying on the coach or other people to do what participants described as “their work.” They felt that even though the coach motivated and helped them, they were the ones in charge, producing the quality, and “at the end of the day, those last few steps are

taken alone.” One performer said “well this gig is all about me. . . . I want to make sure that it’s exactly the way I want it to be . . . you are working with them but you are the one doing it and driving it, not him [the coach].”

The second attribute in this subcategory focuses on using every aspect of the training environment to one’s advantage, even if it is a very difficult environment (Rank 4). Mentally tough performers are not swayed by extraneous factors in training that they cannot control. They view these factors as challenges to overcome and use these challenges to enhance their performance.

At training camps you don’t always get things your way. . . . You’ve got to be able to train with other people in the training environment there. It may not be ideal for you but you’ve got to deal with that and use it to your advantage. The mentally tough performer can handle any environment he is put in and use it to his advantage.

***Pushing Yourself to the Limit.*** The attributes in this subcomponent explain how mentally tough performers push and challenge themselves to reach their physical boundaries. This is achieved by “taking pleasure in and welcoming the parts of a training regime that most other performers avoided or disliked.” The nature of the first attribute here is best described as loving the bits of training that hurt (Rank 4). Mentally tough performers accept, embrace, and even welcome the elements of the training regimen that are considered painful. According to participants, most performers disliked this part of training, and although some performers coped or even tolerated the pain, mentally tough performers derived pleasure from being able to give absolutely everything.

To know that you’ve done as much as you can . . . yeah, it’s the part that I love about being an athlete, pushing yourself as hard as you possibly can and challenging yourself mentally through that. I would like the fact that it would hurt and I wouldn’t want to dream of stopping . . . to sort of stretch my back or something like that. . . . For me there is something in that . . . that it hurts . . . that was a really good example of why I was better than all the rest of them.

The final attribute in this subcategory involves beating other people in training (Rank 6). Participants believed that mentally tough performers, at every opportunity, practice being better than everyone else. “They are supremely competitive with themselves, as well as with others. They love to compete and would try to establish a competitive environment in training.” This maximizes opportunities to learn and enhance the need to win.

Their identity is caught up with . . . “I am very good, I am going to prove it, I am going to take you out of this and beat you.” . . . They thrive on opportunities of beating other people and are not afraid to put themselves on the line.

## Competition

The 13 attributes that clustered under the competition dimension were considered essential to mental toughness in a competitive situation and are ranked in order of

importance in Table 1. These attributes could be further divided into six subcomponents: belief, staying focused, regulating performance, handling pressure, awareness and control of thoughts and feelings, and, finally, controlling the environment.

**Handling Pressure.** Handling pressure contains four attributes purported to explain how ideal mentally tough performers' attitudes toward competition pressure affect how they deal with this pressure and what results from handling it in this unique manner. The first attribute describes how mentally tough performers love the pressure of competition (Rank 1). According to participants, many performers train hard for a competition such as the Olympics, and when they actually get to the Games, "they do not really want to be there . . . they want to get it over with . . . there is only the pressure of performing and no enjoyment until it is over; mentally tough performers enjoy every minute of this pressure."

The mentally tough performer is eager to be there and enjoys everything about the competition . . . the build up . . . the prelims, the waiting, the final, the race. . . . He looks forward to all these, this is the only place he wants to be . . . "this is what I'm here for." . . . This is what separates the athletes.

The next attribute was described as an adapting and coping characteristic that results in optimal performance regardless of distractions or changes (Rank 3). Participants indicated that if athletes can only perform under perfect conditions and not under difficult circumstances, then "you are not going to get to the top." The ideal mentally tough performer was perceived as being able to adapt to or cope with any unplanned adverse situation and perform optimally no matter "what was thrown at him." One participant described this attribute well:

When suddenly thrown or faced with an unpredictable situation, something that was not planned for, the mentally tough performer actually turns it around. Competition is an ever-changing physical state, which you have to adapt to mentally, and the mentally tough performer can adapt whatever. You can just flow with it even though you are dead serious about what you are doing.

The next attribute in this subcategory involves making the correct decisions when circumstances are ambiguous and pressurized (Rank 5). Participants believed that mentally tough performers are able to make the right decisions and choose the right options under conditions of extreme pressure, even when the situation contains ambiguity. Participants felt that when decisions had to be made, the mentally tough performer "identifies what needs to be done and does it. . . . This could be acting out a strategy or waiting to stage-manage or influence the arrival of the right moment while performing under pressure." This strategy then results in a successful outcome.

Sometimes it is about curbing your initial instincts in a pressure situation, because the instinct says "go for it now," whereas, actually, the best option might be to wait 5 minutes before you go for it. Mentally tough performers are able to make the right decisions . . . and know when that is. . . . They will make the right decision when it is required.

The final attribute in this subcategory describes the ability to channel anxiety in pressure situations (Rank 8). Mentally tough athletes are perceived as being able to cope with high-pressure situations and to channel anxiety in order to enhance performance. A typical comment was “why would you not be nervous for something that you have prepared six years for?” Participants felt that competitions such as the Olympics create unique pressure situations, and mentally tough performers are able to cope with the pressure and expectation of winning. They can use and, indeed, channel the anxiety effectively so that the symptoms enhance their performance.

When you go into a competition such as the Olympics, there is a huge amount of pressure and anxiety, so coping with the anxiety is a question of controlling your anxiety and channeling it in the right way. It’s being able to cope with such a pressure situation and the expectations . . . parents, lovers, press, teammates, coach, all of it. The mentally tough performer can do that, can handle it all and even use it.

**Belief.** The attributes in this subcomponent relate to a mentally tough performer’s belief that goal achievement will occur. They highlight the performer’s commitment with regard to that belief and how errors do not diminish that belief. The first attribute in this subcategory describes the performer’s total commitment to goal achievement while there is a chance of success (Rank 2). A mentally tough performer remains committed to the belief of goal achievement until every possibility of success had passed.

It’s giving 100% even if you are say 8–1 down in the fifth. . . . Some players may say “that’s it, there’s no way I can win now” . . . where mentally tough performers always have the belief and are committed to it . . . you will always try until the very last point has been won. . . . It isn’t over until it is over.

The second attribute refers to a mentally tough performer not being fazed by making mistakes (Rank 4). “Performers cannot compete to win the Olympics with half-hearted efforts.” When mistakes do take place, mentally tough performers regain composure quickly and “hold it all together under pressure” so that the optimal performance occurs.

Mistakes would get some people down because they start worrying and thinking about failure. The ideal mentally tough performer can put a mistake to one side and carry on performing regardless. They have a resilience, a toughness, they are not fazed by mistakes. They stay mentally strong when things do go wrong, they are able to bounce back from mistakes or errors . . . and then produce it again.

**Regulating Performance.** The two attributes here involve performance regulation such as recognizing and seizing the opportunity to win and increasing effort when it is required. The first attribute in this subcomponent requires performers to have a “killer instinct” in competition, which enables mentally tough performers to realize that the opportunity to snatch victory is presenting itself (Rank 6). They immediately capitalize on that opportunity with a “cold-blooded killer instinct” in

order to win. These performers do not hold back when they know that victory is within their grasp. “They go straight for it, it enables you to go for the jugular and not feel guilty or bad about it.”

A lot of performers come away from a competition or game and say “well we had an opportunity there but by the time we realized it, it was gone.” . . . The mentally tough performer has the presence of mind to realize “this is the moment, do it now, take it.”

The second attribute in this subcomponent highlights how mentally tough performers can raise their performance level when required (Rank 7). Participants felt that mentally tough performers are able to react to and increase their effort or perform better if it is required to win. They could find that “little bit extra which had not been apparent until then. . . . When it was needed most . . . they can step up a gear.”

If somebody in a heat breaks the world record, you know you are going to have to do the same. In a final you might have to break the world record to win, you have to be prepared to break the world record to win, and the mentally tough performer can and, importantly, knows how to do that.

***Staying Focused.*** This subcomponent contains three attributes that relate to mentally tough performers’ staying focused in a competitive setting and how they focus on long-term-goal achievement. The first attribute in this subcategory describes how mentally tough performers remain completely focused on the job at hand, despite any distraction (Rank 9). Their focus is on why they are there and what they must do in order to achieve their goal, despite distractions attempting to divert their attention.

He is able to stay focused on what he has to do, regardless of the hype, pressure . . . what people are saying. . . . It’s about recognizing where you are . . . Olympics, Worlds, “I am here to do a job and not get carried away with the hype.” . . . You have a job to do regardless of what may or may not be happening on the day in question . . . it is all that matters.

The second attribute in this subcategory relates to how mentally tough performers remains committed to their self-absorbed focus, regardless of external distractions (Rank 11). Participants believed that at major competitions “everything around the performers is drawing you away . . . to an external focus.” Mentally tough performers were described as being able to create a state of mind in which they are able to think about other people, the opposition, and other events yet are able to stay committed to their internal focus.

They are in a cocoon almost, absorbed in themselves, committed to what they’re doing, what they need to do, how they’re going to react. Regardless of what happens, mentally tough performers remain committed to what they should be focused on, despite the efforts of other people and circumstances that try to draw them out of it.



The final attribute in this subcategory describes how during certain competitions or games a mentally tough performer can remain focused on processes and not solely on outcomes (Rank 12). In certain competitions performers need to focus on the processes, such as the start or certain aspects of technique, rather than just the outcome. Participants indicated that these processes have to be mastered in order to achieve the eventual outcome (e.g., Olympic gold) and that “winning may not be the most important thing in every competition . . . and the mentally tough performer knows how to achieve this eventual outcome.”

The mentally tough performer has an understanding of what aspects of his performance he must focus on in particular competitions so that you are fully prepared in every aspect for the Olympics. . . . He does not see it as winning or losing. . . . It is achieving the goal that they set for themselves. . . . Winning can be considered a bonus here.

***Awareness and Control of Thoughts and Feelings.*** This subcomponent contains one attribute that explains how awareness and control of thoughts and feelings help mentally tough performers achieve the correct preperformance state. The attribute describes how being acutely aware of inappropriate thoughts and feelings helps them perform optimally (Rank 10). The participants believed that being sensitive to any thoughts and feelings that were experienced in competition contributed to the recognition of inappropriate ones (e.g., negative thoughts). Mentally tough performers change the inappropriate thoughts and feelings into ones that help them win.

They have this recognition mechanism that kicks in, but the key difference between them and other athletes is that the mentally tough ones are able to change that thought or feeling so that they can perform at their best.

***Controlling the Environment.*** The final subcomponent in the competition dimension contains one attribute, which is closely linked to the training-dimension attribute, namely, using all aspects of a very difficult training environment to one’s advantage. This attribute explains how using the competitive environment to one’s advantage is a factor in being mentally tough (Rank 12). They must recognize that aspects of the competitive environment are not always ideal (e.g., weather, food, accommodation) and that specific situations will, on occasion, be out of the performer’s control. Mentally tough performers view this as a different environment and will “get on with the job.” They do not allow the conditions or other performers to have a negative effect on them.

You need to be able to handle any situation that’s thrown at you. At the Olympics you cannot isolate yourself . . . it involves team-mates, coaches, doctors, management. You may not get on with all of them but you’ve got to hold it together, you have to be consistent. You may have to compete in conditions that you didn’t wish for . . . you have to be able to cope with that. . . . Mentally tough performers are able to handle all the environments, all the personal and impersonal relationships, and use them to his advantage.

## Postcompetition

Postcompetition contains four attributes that depict how mentally tough performers reflect on and deal with competition failures and successes. This dimension was further categorized into two subcomponents: handling failure and handling success.

**Handling Failure.** The two attributes in this subcomponent relate to how mentally tough performers rationalize and use failure to learn how to reach their ultimate goals. The first attribute explains how recognizing and rationalizing failure leads them to investigate “why they failed and the reasons that caused the unsuccessful outcome” (Rank 1). Participants believed that all performers experience failure at some stage, but a mentally tough performer learns from what happened and picks out the learning points to take forward for future performances. These failures add to their knowledge and understanding of themselves and what they need to do in order to be successful in the future.

He is able to analyze his performance and learn to adapt to whatever caused the errors so that he can reach his ultimate goal. The mentally tough performer is able to move on from that failure and it's not an issue or a mental block for him. He uses this knowledge for future performances.

The second attribute describes how mentally tough performers use failure to drive themselves to further success (Rank 2). The effect of having experienced a disappointment (e.g., losing an event) motivates mentally tough athletes to raise the level of their performance for the next race or game. The experience of failing was seen as making a mentally tough performer a stronger person, more determined to prove that failure would not occur again. Participants believed that mentally tough competitors who do not win the first time are driven to try harder and harder until they achieve what they want (i.e., the gold medal).

Failure or not achieving the expected is used as a stimulus to do better next time . . . it's like a heightened motivation, a springboard to the next step. . . . Failure added something to my mental body armor in that it made me a stronger athlete and it made me more protected from failure in the future, and so I was more successful because I was harder.

**Handling Success.** The two attributes in this subcomponent relate to how mentally tough performers deal with success and the extra pressures that come with it. The first attribute relates to an understanding or knowledge of when to celebrate success and when to focus on the next challenge (Rank 3). Mentally tough performers know or understand what to take away from success, how long they can live in the glory of that success, and when it is time to move on and get back to focusing on the next challenge (i.e., an important game or race).

The mentally tough performer has an acute awareness of his own ability, his levels of fitness, his strength, limitations, and what needs to be done in order to

achieve the level of performance required to win. . . . He also knows when to stop celebrating and how long it will take to reach that top-level performance again.

The second attribute explains how mentally tough performers know how to rationally handle success (Rank 4). According to participants, mentally tough athletes know how to handle the pressure of succeeding and the extra pressure that success adds to future performances, such as the next big game or competition. Participants indicated that a mentally tough performer was able to deal with the fame, rewards, and additional pressure that success brought “in a rational and level-headed manner” in order to repeat that success in the next Olympics or the next big game.

If you win an Olympic gold the pressure to repeat that increases . . . expectations are higher because people, competitors and even you, have put yourself at a higher level. . . . The mentally tough know how to handle that and still keep their feet on the ground.

## Discussion

The purpose of this study was to address the recommendations highlighted by Jones et al. (2002) from a sample of participants who are recognized as being the best in the world at one time or another. This entailed defining and developing a framework of mental toughness using the identified underpinning attributes.

### Mental-Toughness Definition

Participants verified that Jones et al.'s (2002) definition of mental toughness was an accurate description of their personal understanding of the construct. Although it was not the main purpose of this study to directly compare Jones et al.'s elite sample with the superelite participants, it is interesting to note that the superelite group agreed with the definition more than the elite group, with mean ratings of 9.33 ( $SD = 1.05$ ) and 8.7 ( $SD = 1.06$ ) out of a possible 10, respectively. According to the superelite participants' interpretation, mental toughness has general and specific elements. The first element permits the mentally tough performer to better cope with the general demands and associated pressures that occur at the highest level of sport than non-mentally tough performers do. In essence, this element relates to the successful coping and balancing of one's social and personal life with the very specific and unique demands of a modern-day sporting career. The second element highlights a specific outcome dimension (i.e., success, winning) that describes how mentally tough individuals produce more consistent high-level performances via the use of superior psychological strategies and mental skills. Not unusually, therefore, there are some parallels with previous mental-toughness definitions. This is a result of previous research that has linked the notion of enhanced mental skills, coping with pressure, and the desire to succeed in pressure environments with mental toughness (e.g., Bull, Albinson, & Shambrook, 1996; Goldberg, 1998; Gould, Hodge, Peterson, & Petlichkoff, 1987). It is unique, however, that this definition highlights

the use of specific mental skills in combination with a general attitude to assist the performer in demonstrating mental toughness. This explanation is in contrast to previous definitions that have solely defined mental toughness as a constellation of mental skills (e.g., Bull et al., 1996; Goldberg; Gould et al., 1987).

Within the definition, participants stated that athletes might possess a *natural* mental toughness that was then developed throughout their careers. Indeed, participants believed that mental toughness could also fluctuate during the time athletes spent in their respective sports. This suggests that mental toughness is a component that performers must continually attend to throughout their sporting career. This information poses several questions with regard to the future directions of mental-toughness research. For instance, by what means have mentally tough athletes developed their levels of mental toughness? This question has also been highlighted by Bull et al. (2005) and Thelwell et al. (2005) and is being examined by the current authors. In addition, how do performers successfully maintain a state of mental toughness throughout their sporting careers? Research should also concentrate on the reasons that, and under what conditions, mental toughness might indeed fluctuate. Findings also highlight an important role for sport psychologists and coaches with regard to the development and maintenance of mental toughness.

## **Mental Toughness Attributes and Framework**

In relation to the identification of the key underpinning attributes of mental toughness, the findings revealed an interesting difference between the superelite participants in this investigation and the elite participants in Jones et al.'s (2002) study. Namely, both groups agreed on what mental toughness is (i.e., the definition); however, explanations of the precise makeup of mental toughness differed considerably. The superelite group identified 30 distinct attributes, compared with the 12 attributes identified by Jones et al. To our knowledge, no specific mental-toughness research has been conducted to compare Olympic and world champions with elite performers. Orlick and Partington (1988) compared highly successful performers (e.g., Olympic medalists) with performers who failed to achieve at the level expected of them. They found distinct differences with regard to attentional focus, commitment to pursuing excellence, engaging in competition simulation and imagery training, and an ongoing postcompetition evaluation plan. Although no direct comparison between elite and superelite performers is possible here, an interesting avenue of research would be to determine differences in mental-toughness levels. It is encouraging that all of the attributes identified by Jones et al. were contained in the superelite performers' understanding of mental toughness and collapsed into this investigation's framework. This suggests that although the superelite sample concurred with the findings of Jones et al., they appear to have a far more comprehensive insight into the makeup of mental toughness than does the elite group. Although the findings suggest that these superelite participants might have a greater understanding of how to become mentally tough, this is beyond the scope of the current study but is advised for future research.

The 30 attributes identified were found to cluster into four separate dimensions within the overall framework. In particular, the framework contained a general dimension (attitude/mindset) and three time-specific dimensions (training,

competition, and postcompetition), which provides further support for accuracy of the definition (i.e., mental toughness is made up of general and specific elements). A question that has emerged as a result of the construction of this framework is whether performers must acquire the correct mental-toughness attitude/mindset in order to become mentally tough in situations such as training, competition, and postcompetition, or do they need to develop mental toughness in any or all of the three time-specific dimensions before they can develop the mental-toughness attitude/mindset? Although complex, these questions need to be addressed in future research for a more complete understanding.

The attributes in each dimension were further categorized into subcomponents that highlight specific areas that must be achieved in order to reach a state of mental toughness in each dimension. Attributes within the attitude/mindset dimension described how the performer achieves and maintains the belief and focus necessary to possess the correct mental-toughness attitude/mindset. For example, the subcomponent of belief was enhanced by successful achievement in a manner similar to that of Bandura's (1977) efficacy source, performance accomplishments. The subcomponents in the three time-specific dimensions explain what mental skills and strategies performers must master in order to achieve and maintain mental-toughness levels. These specific mental skills and strategies are unique to the time-specific dimensions and describe how performers implement these attributes to optimize their motivation, confidence, and focus; how they handle the pressures, successes and failures associated with competing and preparation; and, finally, how their awareness and perceptions allow them to use the conditions and environment to achieve their potential and, ultimately, their goals.

There are a number of practical implications associated with the findings of this study. The development of the mental-toughness framework has allowed for this intriguing construct to be deconstructed and further understood. Indeed, the framework allows mental toughness to be divided into precise areas so sport psychologists, coaches, and performers can better understand what is required to achieve a state of mental toughness in each dimension. Furthermore, the subcategories in this investigation's framework allow the coach, sport psychologist, and performer the possibility, through profiling (cf. Butler & Hardy, 1992; Kelly, 1955), to identify and highlight perceived individual strengths or weaknesses that the performer might possess. Mental-skills training programs could then be implemented to counteract any identified weaknesses and to further enhance any strengths in the appropriate dimensions. Although this would be of great benefit, there is a need to develop a valid and reliable measure of mental toughness based on a sound knowledge base of dedicated empirical research. The findings from this study could form the basis for the development of such a measure, allowing for perceived levels of mental toughness to be assessed. Once developed, a measure would facilitate comparisons of groups of individuals, highlighting areas that require attention. Such study could identify talented but mentally weak performers to see what subcomponents or attributes require attention. Interventions could then be implemented to ensure that levels of mental toughness in each dimension could be developed and enhanced for consistently successful performance outcomes. Another interesting avenue for future research would be to investigate what mental toughness is not (i.e., certain positive psychological characteristics mislabeled as

mental toughness). The framework presented here might assist in this matter and address some of the current confusion.

The result of the ranking procedure in each dimension tentatively suggests that some attributes might be more important to mental toughness than others are. The limitation of a relatively small sample size and the simplistic nature of the hierarchical procedure, however, necessitate further investigation to determine this. In addition, the importance of attributes in the framework might also fluctuate with regard to variables such as gender or sport type (individual or team). Equally, there might be subtle differences in mental toughness between individual and team performers, which this investigation did not address. Minor variation was found with Jones et al.'s (2002) definition and attributes of mental toughness in comparison with specific team-sports investigations (i.e., Bull et al., 2005; Thelwell et al., 2005). It is clear that this requires attention in future research.

We also acknowledge that participants were not specifically selected for being mentally tough, because there is currently no valid measure of mental toughness to use for selecting participants. To overcome this issue, however, all of the questions we asked were related to world-best performers' experiences and perceptions of mental toughness. Finally, we recognize the omission of coaches and sport psychologists in the focus group as a possible limitation; however, multiple interviews of each participant allowed the opportunity to clarify, revise, and discuss information proposed by all interviewees.

The study does have a number of strengths, including the range and number of sports sampled and the level that the performers, coaches, and sport psychologists have achieved in their respective sports. Researchers have recognized the information-rich insight that these superelite performers possess in specific topics such as investigating psychological-talent development (Gould, Dieffenbach, & Moffett, 2002) and the development and maintenance of expert athletic performance (Durand-Bush & Salmela, 2002). Interviewing these superelite participants has enabled the development of a framework of mental toughness. The framework provides a clear description of what mental toughness is and in what settings these attributes and subcomponents are necessary and has the potential to help performers articulate how, in what order, and under what conditions these specific components of mental toughness can be developed. We believe that the framework offers a valuable tool for coaches and performers to disseminate this multifaceted construct. In addition, the richness of the data that have emerged from this study has furthered the understanding of mental toughness and its components, and the questions that have emerged from the findings warrant attention.

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