

4 Stress management in applied sport psychology

Owen Thomas and Stephen D. Mellalieu and
Sheldon Hanton

Introduction

The areas of competitive stress and anxiety have received considerable attention within the sport psychology literature, and are often cited as one of the most prominent topics of the discipline (Biddle, 1997; Hanton *et al.*, 2008; Jones, 1995a; Mellalieu *et al.*, 2006a; Woodman and Hardy, 2001). This interest is undoubtedly associated with the stressful nature of elite sport, and the numerous demands placed upon performers as a consequence of the pressurised environment within which they operate (Hardy *et al.*, 1996; Jones, 1995a, b; Woodman and Hardy, 2001). Indeed, several reviews have been published addressing: the measurement and design developments within competitive anxiety research (Burton, 1998; Jones, 1995a); the re-conceptualisation of trait anxiety in sport (Smith *et al.*, 1998); the cognitive aspects of the anxiety–performance relationship (Woodman and Hardy, 2001); an integrated overview of the measurement of arousal, activation, anxiety and performance (Gould *et al.*, 2002); the mechanisms by which competitive anxiety responses may positively impact on performance (Mellalieu *et al.*, 2006a); and how the study of directional interpretations has advanced understanding of the competitive anxiety response (Hanton *et al.*, 2008).

Although these reviews provide an informative overview of the study of competitive stress and anxiety, the prominent thread of debate has focused on theoretical, conceptual and measurement issues. While it remains commonplace for reviews to conclude with a section on implications for practitioners, no single body of work has focused entirely on this theme. Therefore, in this chapter we consider the literature surrounding the study and application of stress management in sport. We explore the two major treatment philosophies upon which stress management interventions in sport have been based; namely, the *reduction* and *restructuring* approaches. To the best of our knowledge, this is the first review to focus specifically on this topic and provide a ‘theory-to-practice’ overview of the area.

This chapter contains six main sections. The first defines key terms used within competitive stress and anxiety research. The second section then considers the importance of making certain distinctions for researchers and practitioners

interested in studying and applying stress management interventions. In the third section, we highlight the salient conceptual and theoretical developments within the competitive stress and anxiety literature. The fourth section then focuses on how these developments have informed the content and application of stress management interventions in sport. Here we discuss the traditional *reduction* approach to stress management interventions and the contemporary *restructuring* approach to the treatment of anxiety symptoms. Specifically, we consider the evidence underpinning the content of each approach, the relevant psychological skills and strategies associated with the treatment, and the studies that have examined the efficacy of these stress management interventions in sport. Throughout this section we also consider one of the major issues that has guided stress management interventions: the study of the temporal patterning of the competitive stress response in the time-to-event. The fifth and penultimate section of this chapter then outlines implications for practitioners grounded in the relevant stress management literature. Finally, we conclude by highlighting areas that we consider pertinent for future investigation into stress management in sport.

Definition of terms

Inconsistency in the use of key terms within the areas of competitive stress and anxiety has often been cited as one of the primary factors limiting theoretical understanding and advancement of knowledge (see Burton, 1998; Fletcher *et al.*, 2006; Hanton *et al.*, 2008; Hardy *et al.*, 1996; Jones, 1995a; Jones and Hardy, 1990; Mellalieu *et al.*, 2006a; Woodman and Hardy, 2001). Indeed, the lack of clarity has frequently influenced the recommendations provided for the use of stress management interventions. It is not the intention of this section to provide an in-depth discussion of these issues (the reader is directed to reviews by Fletcher *et al.*, 2006, and Mellalieu *et al.*, 2006a, for a full synopsis). However, given the direct relationship between theory and practice in sport psychology, we feel it is important to identify and define the key terms and concepts that influence the design and application of stress management interventions. These include the operationalisation of the terms 'competitive stress', 'stressors', 'strain', 'anxiety' and 'activation'. The definitions presented here draw closely on recent reviews by Fletcher *et al.* and Mellalieu *et al.*, which, in turn, derive from the works of Lazarus (1981, 1982, 1999, 2000).

The contemporary conceptualisation of stress within psychology suggests it is not a factor that resides solely within the individual, or one that resides solely within the environment (Lazarus, 1999); rather it is a process that explains the relationship between the two. Specifically, stress has been defined as: 'An on going process that involves individuals transacting with their environments, making appraisals of the situations they find themselves in, and endeavoring to cope with any issues that may arise' (Fletcher *et al.*, 2006: 329).

Based upon this conceptualisation of stress, the following definitions are offered (cf. Fletcher *et al.*, 2006; Mellalieu *et al.*, 2006a) which are pertinent to the stress management context of this chapter:

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- *Competitive stress*: an ongoing transaction between an individual and the environmental demands associated primarily and directly with competitive performance.
- *Competitive stressors*: the environmental demands (i.e. stimuli) associated primarily and directly with competitive performance.
- *Competitive strain*: an individual's negative psychological, physical and behavioural responses to competitive stressors.
- *Competitive anxiety*: a specific negative emotional response to competitive stressors.
- *Activation*: specific cognitive and physiological activity geared towards preparing a planned response applicable to the task demands facing the performer (cf. Hardy *et al.*, 1996; Pribram and McGuinness, 1975; Woodman and Hardy, 2001).

While the provision of a definition of activation goes beyond the concepts outlined by Fletcher *et al.* (2006) and Mellalieu *et al.* (2006a), the justification for its inclusion here rests with the direct relevance of activation to stress management interventions. We expand upon this reasoning in the next section that clarifies the importance of these conceptual distinctions within the stress management literature.

Contextualisation of concepts within stress management settings

Having defined the key conceptual terms relevant to the study of stress management interventions, we now consider how several of these concepts underpin much of the forthcoming detail and discussion in the chapter regarding the development and study of treatment frameworks. This section outlines the transactional perspective of stress, including the notion of stress as a process, the role of appraisal in this process and the importance of considering the activation state of the performer within applied settings.

One of the key features of the transactional perspective of stress relevant to this chapter is the premise that stress is an *ongoing process* (Lazarus, 1981, 1982, 1999, 2000). Here, we can consider a particular sequence or 'snap shot' of this process by examining the stressor, appraisal, response and behaviour that accounts for specific competitive stress situations (e.g. the demands associated with taking or attempting to save a penalty kick in football). Equally, we can consider the broader recurring nature of the stress process whereby an individual's responses to performance-related stressors are likely to fluctuate throughout the transaction (i.e. over the duration of a match, week or even longer period of time). Consequently, in light of the recurring or reciprocal nature of this process, the key implication for the design and study of stress management interventions in sport is that practitioners need to view stress management interventions in a temporal context. Stress can therefore be considered at the macro-, meso- and micro-level. A 'macro'-level perspective considers a performer's experiences of competitive

stress over the duration of their sporting career (cf. Hanton and Jones, 1999a; Hanton *et al.*, 2007). 'Meso'-level perspectives examine competitive stress experiences over a more finite time period, such as directly in the lead up to the start of a specific competition or event (cf. Hanton *et al.*, 2002, 2004a; Thomas *et al.*, 2004, 2007a, b). Finally, a 'micro'-level perspective to the study of competitive stress explores the specific 'snap shot' of a performer's experiences at any one given moment or time (e.g. the exact sequence of demand, appraisal, emotion and behavioural response experienced).

Central to the reciprocal nature of stress as a process over time is the role of cognitive appraisal. According to Lazarus (1966), appraisal describes a person's cognitive evaluation of the meaning or significance of a perceived demand (i.e. the stressor). Therefore, appraisal remains a critical component of the stress process because individuals continuously evaluate their transactions with the environment. In a sporting context, appraisal involves the performer initially evaluating the relevance of a stressor (e.g. the perceived competence of the opposition) and the significance of this demand on their well-being (cf. Fletcher *et al.*, 2006). If, for example, the individual considers the perceived competence of the opposition as meaningful to them, they proceed to evaluate whether they possess the resources to cope with this demand. Lazarus labelled these two cognitive processes as 'primary' and 'secondary' appraisal, and suggested that primary appraisal related to the evaluation of the relevance of an encounter, with secondary appraisal only occurring if the individual ascribes some meaning to the encounter. If meaning is assigned, then secondary appraisal takes place via the individual identifying the availability of coping resources to deal with the potential harm/loss, threat and challenge (cf. Fletcher *et al.*, 2006).

The notion of appraisal is critical to the design of stress management interventions in that how an individual evaluates a performance-related stressor determines whether they will experience strain as the precursor to emotional symptoms such as competitive anxiety. Moreover, as stress is a reciprocal process occurring over time, changes in the demands imposed by sporting performance and the individual's subsequent appraisals of them dictate that a range of psychological skills and strategies require implementation at various intervals. For further detail on the role of appraisal in the competitive stress process, the reader is directed to the conceptual and theoretical reviews of Fletcher *et al.* (2006) and Mellalieu *et al.* (2006a).

The final concept that requires clarification with regard to its influence upon the study and design of stress management interventions is that of the activation state of the performer. As highlighted in the previous section, activation refers to the desired level of cognitive and physical activity individuals require in order to perform optimally in relation to the task demands they face in sport (Hardy *et al.*, 1996; Pribram and McGuinness, 1975; Woodman and Hardy, 2001). For example, the level of cognitive and physiological activity required to demonstrate readiness to perform in weight lifting contrasts greatly to that required to complete the skill of putting in golf (Hanton *et al.*, in press; Hardy *et al.*, 1996). Consequently, as Hardy *et al.* (1996) suggested, it would be more

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logical for theorists and practitioners to consider *appropriate* activation states for a given task rather than focus solely on *levels* of activation as such. Within their commentary, Hardy *et al.* also highlighted the need for sport psychologists to differentiate between activation and competitive anxiety. This position may lead the reader to question why we have included reference to activation within our chapter on stress management. The answer resides in the fact that, although we concur with Hardy *et al.* on the importance of this conceptual distinction, early literature on stress management has neglected this difference (cf. Mellalieu *et al.*, 2008). Specifically, only recently have researchers begun to consider the importance of task demands on the cognitive and physiological states required for performance, and its subsequent role in the competitive stress process. This distinction has direct relevance for the potential stress management interventions practitioners may prescribe in an attempt to ensure the performer enters the competition arena in the desired state of readiness to perform (Mellalieu *et al.*, 2008).

The significance of the concepts outlined in this section for the study and design of stress management interventions become fully apparent as we progress through the stress management content of the chapter. However, it is first necessary to review the key conceptual developments that have directly contributed to shaping existing stress management treatment philosophies in sport.

Conceptual developments pertinent to the context of stress management interventions

This section provides an overview of the conceptual advances that have impacted upon stress management research in sport. It is not our aim to provide a complete review of every conceptual development within the literature (see e.g. Burton, 1998; Jones, 1995a; Mellalieu *et al.*, 2006a; Smith *et al.*, 1998, for in-depth theoretical descriptions of the literature). Instead, we intend to discuss the developments that have directly underpinned the study and use of stress management interventions in sport. Specifically, this section considers developments that have provided the rationale for the reduction and restructuring approaches to stress management respectively, together with the literature that advocates the adoption of a temporal context to the content and delivery of stress management interventions in sport.

Competitive anxiety: early developments and a conceptual rationale for the reduction approach

One of the first major developments relevant to the application of stress management programmes was the identification of anxiety as a situation-specific response as opposed to a single unitary (general) phenomenon that exists across a range of settings (Mandler and Sarason, 1952). Spielberger (1966) expanded this distinction with his proposal of the state-trait theory of anxiety. State anxiety was viewed as a relatively transitory phenomenon that varied from one moment

to another in relation to the perceived threat of the situation. Trait anxiety was termed a more general phenomena related to a predisposition to appraise a range of threatening or unthreatening situations with elevated levels of anxiety. The principle implication that emerged from this distinction was that stress management interventions needed to account for the influence of situation-specific factors within the competitive environment (Martens *et al.*, 1990a).

Another salient conceptual advance in the competitive anxiety literature was the notion that responses were multidimensional in nature (Borkovec, 1976; Davidson, 1978; Davidson and Schwartz, 1976; Liebert and Morris, 1967; Schwartz *et al.*, 1978; Wine, 1971). This distinction separated anxiety symptoms into cognitive and somatic components. Cognitive anxiety was defined as 'the cognitive elements of anxiety, such as negative expectations and cognitive concerns about oneself, the situation at hand and potential consequences' (Morris *et al.*, 1981: 541). Somatic anxiety was identified as 'one's negative perception of the physiological-affective elements of the anxiety experience, that is, indications of autonomic arousal and unpleasant feeling states such as nervousness and tension' (Morris *et al.*, 1981: 541). This distinction was introduced into the sport psychology literature by Martens and colleagues with their proposal of Multidimensional Anxiety Theory (MAT), and the development of the Competitive State Anxiety Inventory-2 (CSAI-2; Martens *et al.*, 1990b) to measure the intensity of cognitive and somatic anxiety symptoms experienced in response to competition.¹ Subsequent research employing this multidimensional approach has provided evidence to support the different components of the CSAI-2 when investigating competitive anxiety as a function of its antecedents (Gould *et al.*, 1984; Jones *et al.*, 1990, 1991), temporal characteristics (Gould *et al.*, 1984; Jones *et al.*, 1991; Martens *et al.*, 1990a), performance outcomes (Burton, 1988; Gould *et al.*, 1987; Jones and Cale, 1989; Parfitt and Hardy, 1987, 1993), goal attainment expectancies (Krane *et al.*, 1992) and in response to interventions (Burton, 1990; Maynard and Cotton, 1993).

Inherent within Martens *et al.*'s (1990a) MAT was the suggestion that the constructs of cognitive and somatic anxiety would have independent and differential influences over competitive performance. Martens *et al.* posited that cognitive anxiety displayed a negative linear relationship with performance and somatic anxiety a quadratic, or inverted-U, relationship (i.e. increases in somatic anxiety to a certain point will benefit performance). Martens *et al.* also theorised that, of the two constructs, cognitive anxiety would provide the principle influence on performance because somatic anxiety would dissipate once performance commenced (cf. Burton, 1990). Although empirical support for these predictions has remained equivocal (see Burton, 1998; Craft *et al.*, 2003; Woodman and Hardy, 2003), several of the theoretical assumptions implicit within the original multidimensional framework have helped to shape the rationale for the *reduction* approach to stress management interventions. Specifically, the fundamental principle of MAT was that high levels of competitive anxiety had a negative influence upon performance (Burton, 1990; Hardy, 1990). This assumption fostered the general philosophy of the reduction framework, such that practitioners

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should seek to decrease the level of anxiety symptoms performers experienced. Further, the separation of anxiety into cognitive and somatic constructs helped to promote the notion that certain stress management techniques are more applicable for certain anxiety responses (Burton, 1990; Davidson and Schwartz, 1976), a premise that underpinned Morris *et al.*'s (1981) proposal of the 'Matching Hypothesis' as a treatment framework within the reduction approach.

Up to this point in the competitive anxiety literature, researchers and practitioners had focused their attention on assessing only the *intensity* of performers' cognitive and somatic anxiety (i.e. the level or amount of symptoms experienced). Furthermore, high intensity levels were also viewed as invariably detrimental to performance. The following sub-section outlines how this 'intensity alone' conceptualisation of competitive anxiety has been viewed as limiting when attempting to understand the stress management process.

***Directional interpretation of competitive anxiety symptoms:
a conceptual rationale for the restructuring approach***

One of the first indications that suggested experiencing anxiety did not always result in negative consequences for sports performance came from Mahoney and Avenier's (1977) comparison of psychological skill usage between unsuccessful and successful qualifiers for the United States 1976 Olympic gymnastics team. Mahoney and Avenier noted that those gymnasts who qualified were able to use their anxiety as a stimulant for better performance. This finding, and the proposition that symptoms associated with competitive anxiety are not always detrimental towards performance, was in line with the beliefs held in other domains of psychology. For example, in the test anxiety literature, Alpert and Haber (1960) indicated that a psychometric scale designed to assess both the intensity and direction (i.e. debilitating and facilitating effects of anxiety) of symptoms was a stronger predictor of academic performance than traditional intensity-only scales.

The work of Jones and associates in the early 1990s then questioned the traditional view within sport that increases in anxiety symptom intensities were always detrimental to performance, subsequently proposing the notion of directional interpretations (Jones, 1991; Jones and Swain, 1992). Jones and colleagues defined directional interpretations as the extent to which a performer viewed their anxiety levels as positive (facilitative) or negative (debilitative) towards upcoming performance (Jones, 1991; Jones and Swain, 1992). Central to the understanding of the concept of anxiety direction is Jones' (1995a) control model. This model, based on the work of Carver and Scheier (1986, 1988), suggests that a performer's ability to control a stressor determines how he or she will interpret anxiety symptoms (i.e. as facilitative or debilitative to performance). Indeed, individuals who appraise that they possess a degree of control over the situation, that they are able to cope with their anxiety symptoms and that achieve their goals (i.e. coping or positive expectancy of goal achievement), are predicted to interpret symptoms as facilitative to performance. In comparison,

performers who appraise that they are not in control, cannot cope with the situation at hand, and possess negative expectancies regarding goal attainment are predicted to interpret such symptoms in a negative manner (Jones, 1995a).

From an applied perspective, the explanation for the cognitive processes associated with control and a performer's ability to interpret anxiety symptoms as facilitative is a salient factor in determining intervention choice. Specifically, it helps to underpin the basis of the *restructuring* approach to stress management in that it focuses on the performer creating appraisals that foster perceptions of control over the demands they face and a subsequent facilitative interpretation of their symptoms experienced. Based on the works of Lazarus (Lazarus, 1966, 1981, 1993, 1999), Fletcher and Fletcher (2005) and Fletcher *et al.* (2006) proposed a meta-model of stress, emotion and performance to further detail the cognitive processes associated with perceptions of control and facilitating anxiety symptom interpretations. Fletcher and colleagues' three-stage model proposes an extension to Lazarus' use of primary and secondary appraisal types to include tertiary and quaternary appraisals. The first stage of the model, the person–environment (P–E) fit, represents what would be commonly associated with a competitive anxiety response. Specifically, incongruence occurs during primary and secondary appraisal between the perceived resources available to the performer and the demands they face (i.e. appraisals of the stressor(s)).

The second stage of the model is based upon the notion of directional interpretations of symptom responses and helps to underpin the theoretical rationale for the restructuring approach. Here, the processes of tertiary and quaternary appraisal are suggested to sequentially reflect an evaluation by the individual of whether the emotion they experience (e.g. competitive anxiety) as a consequence of the incongruence in the first stage of the model is relevant to subsequent performance, and the utility of the coping options available. These additional appraisals are considered mediators of directional interpretations and are proposed to dictate whether the individuals' responses are interpreted as facilitative or debilitative towards performance (Fletcher and Fletcher, 2005; Fletcher *et al.*, 2006; Mellalieu *et al.*, 2006a). In the context of stress management, it is these tertiary and quaternary appraisals that form the target of interventions designed under the restructuring approach. Specifically, the labels a performer ascribes to their anxiety and associated cognitive and somatic symptoms determine their overall affective state, rather than the initial experience of the anxiety response. Performers can therefore experience a negative emotion such as competitive anxiety (i.e. through primary and secondary appraisal processes) and then follow this experience with further appraisals (i.e. tertiary and secondary) that provide them with an overall positive emotional interpretation towards performance (cf. Mellalieu *et al.*, 2006a). Therefore, strategies designed to target the appraisal of *anxiety symptoms* experienced are promoted within the directional interpretation literature and the restructuring approach to stress management interventions.

A common element within both the control model proposed by Jones (1995a) and the meta-model of Fletcher and colleagues is the moderating influence of

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individual difference variables. Indeed, considerable research has investigated the impact of moderating characteristics on individuals' capacity to interpret their symptoms associated with competitive anxiety in a facilitative manner. In their recent review of theoretical advances within the competitive anxiety direction literature, Mellalieu *et al.* (2006a) identified: cognitive bias, positive and negative affect, self-confidence, neuroticism and extroversion, hardiness, coping strategy use, psychological skill use, achievement motivation, competitiveness, gender, skill level, competitive experience, sport type, team cohesion, control, performance level, and temporal patterning as prominent personal or situational moderators of the ability to interpret anxiety symptoms as positive for performance. A complete review of these is beyond the scope of this chapter. However, a summary of the effects of these variables suggests that individuals who possess facilitative interpretations of their anxiety symptoms have been observed to: execute better performance (Jones *et al.*, 1993), be more elite in competitive status (Eubank *et al.*, 1995; Jones *et al.*, 1994; Jones and Swain, 1992; Perry and Williams, 1998), exert greater perceived control over the self and the environment (Hanton *et al.*, 2003b; Jones and Hanton, 1996; Ntoumanis and Jones, 1998; O'Brien *et al.*, 2005), exhibit higher levels of self-confidence (Hanton and Jones, 1997; Hanton *et al.*, 2004b; Thomas *et al.*, 2004), use greater levels of psychological skills (Fletcher and Hanton, 2001), adopt more effective coping strategies (Eubank and Collins, 2000; Jerome and Williams, 2000; Ntoumanis and Biddle, 2000), display more hardy and resilient personality characteristics (Hanton *et al.*, 2003a), possess more competitive experience (Hanton and Jones, 1999a; Mellalieu *et al.*, 2004), demonstrate a more competitive orientation (Jones and Swain, 1992), present greater task cohesion in group settings (Eys *et al.*, 2003), and experience greater positive affect (Jones *et al.*, 1996; Mellalieu and Hanton, 2008) than athletes who interpret their anxiety symptoms as debilitating. Several of these individual difference variables are particularly relevant to informing the design and content of stress management programmes within the restructuring approach. Specifically, the skill level of the performer, the type of sport participated in, the level of self-confidence experienced and the amount of psychological skill use undertaken.

Focusing on the influence of skill level, a consistent finding within the anxiety direction literature has been the relationship between the competitive level of the performer (i.e. elite or non-elite) and their subsequent symptom interpretations. While elite and non-elite performers have been found to display no differences in the intensity of cognitive and somatic anxiety symptoms experienced, elite individuals consistently interpret these levels as more facilitative towards performance than their non-elite counterparts (Eubank *et al.*, 1995; Hanton and Connaughton, 2002; Jones and Swain, 1995; Jones *et al.*, 1994). Similar patterns have also emerged with respect to the moderating influence of skill level at the trait level (Hanton *et al.*, 2003b; Perry and Williams, 1998). Interestingly, both these sets of findings appear constant across a range of sporting activities, including swimming (Hanton and Connaughton, 2002; Jones *et al.*, 1994), cricket (Jones and Swain, 1995), badminton (Eubank *et al.*, 1995) and tennis (Perry and Williams, 1998). However, sport type, or the

nature of the sporting activity engaged in, has also been noted to moderate anxiety interpretation, particularly when the activation demands of the sport contrast in their motor skill requirements. For example, while Hanton *et al.* (2000) and Mellalieu *et al.* (2004) found no differences in the intensity of anxiety symptoms experienced (cognitive and somatic), individuals involved in gross muscular activities (e.g. rugby union and rugby league) interpreted their pre-performance anxiety as more beneficial towards upcoming performance than participants competing in sports that required higher levels of fine muscular control (e.g. pistol shooting and golf).

Perhaps one of the most robust findings to emerge from the direction literature on moderating variables relates to the influence of self-confidence upon performers' anxiety symptom interpretations. Individuals with facilitative interpretations of their symptoms (i.e. facilitators) consistently report greater levels of self-confidence than those with debilitating interpretations (i.e. debilitators; Hanton and Jones, 1997; Hanton *et al.*, 2000; Jones and Swain, 1995; Jones *et al.*, 1994; Perry and Williams, 1998; Thomas *et al.*, 2004). This has led researchers to propose that self-confidence serves as a protection mechanism against the potential debilitating effects of anxiety symptom experiences (Hanton *et al.*, 2004a; Hardy *et al.*, 1996; Hays *et al.*, 2007; Mellalieu *et al.*, 2006b). Finally, an additional personal variable suggested to moderate the relationship between the intensity and direction of the symptoms associated with competitive anxiety is the performers' psychological skill use. Studies have identified those individuals with more facilitative interpretations of symptoms report greater use of psychological skills than their debilitating counterparts (Fletcher and Hanton, 2001; Hale and Whitehouse, 1998; Neil *et al.*, 2006; Page *et al.*, 1999).

Taken collectively, the findings of these studies highlight the moderating effects of individual difference variables upon facilitative interpretations of anxiety symptoms and the experience of an overall positive affective state in relation to performance. Researchers within the direction literature have recently drawn on these findings to justify a shift away from research predominantly focused on assessing the moderating influence of personal and situational characteristics towards the exploration of a more fundamental understanding of the underlying skills performers use to attain facilitative interpretations. This shift has seen a trend towards the adoption of qualitative methods to provide detailed evidence to inform the content and structure of stress management intervention programmes. Commentary on these qualitative studies occurs later in the chapter when we summarise the specific content of stress management intervention approaches used in the sport psychology literature.

Frequency of cognitive intrusions: a conceptual rationale for temporal-based interventions

In addition to highlighting the need to move beyond the measurement of solely the intensity of competitive anxiety responses, via the consideration of directional symptom interpretations, Jones and associates also advocated the study of the

frequency of cognitive intrusions experienced by performers (Swain and Jones, 1993). In this context, frequency of intrusions referred to the amount of time (i.e. percentage amount of occurrence) that anxiety-related thoughts or feelings occupied the performer's mind. The conceptual rationale for frequency derives from the transactional perspective of stress that suggests an individual's responses to the demands (i.e. stressors) placed upon them should be viewed as products over time (i.e. are temporal in nature; Lazarus, 1999; Lazarus and Folkman, 1984). In a practical context, stress should therefore be viewed as a dynamic process whereby responses are assessed in a temporal context (i.e. temporal patterns) in order to identify prescriptive points for any form of intervention as the competitive event approaches (Hanton *et al.*, 2004b; Mellalieu *et al.*, 2006a; Thomas *et al.*, 2004). The study of the temporal patterning of the experiences of competitive stress was originally based in the early multidimensional anxiety research that examined responses from an intensity only perspective (for a review, see Cerin *et al.*, 2000). Traditionally, 'meso'-level anxiety responses were collected within the seven-day pre-performance period leading up to the competitive event (e.g. 7 days, 5 days, 48 hours, 24 hours and 1 hour). Based on the original work of Martens *et al.* (1990a), predictions for competitive anxiety indicated that if the evaluation of performance expectancy remained unchanged, the intensity of cognitive anxiety and self-confidence symptoms would remain constant during the time leading up to the competitive event. The intensity of somatic anxiety was proposed to initially remain stable, but show a sharp rise to its peak at the onset of competition, before dissipating once the event commenced. Although some support for these predictions was initially forthcoming (e.g. Gould *et al.*, 1984), the literature base has remained equivocal (see Cerin *et al.*, 2000, for a review).

The lack of support for Martens *et al.*'s (1990a) original predictions led Swain and Jones (1993) to question the sole use of intensity within a temporal approach. Swain and Jones (1993) indicated that the same level or intensity of cognitive anxiety symptoms experienced at seven days and one hour before performance did not provide a complete representation of the athlete's overall emotional state. Indeed, it merely represented the same intensity at two different time periods without providing reference to how often these symptoms occupied the athlete's mind (i.e. frequency of cognitive intrusions). In line with Lazarus' view of stress as a dynamic process (Lazarus and Folkman, 1984), Swain and Jones (1993) added a frequency continuum to each item of the CSAI-2 asking, 'How frequently do you experience this thought or feeling at this stage?' The findings established that, while the intensity of cognitive anxiety responses remained constant, frequencies of cognitive anxiety intrusions differed significantly during the two days preceding competition (48 hours, 24 hours, 2 hours and 30 minutes). Swain and Jones concluded that states where cognitive anxiety symptoms occur for 5 per cent of the time are considerably different from those where they are experienced for 90 per cent of the time, even though the intensity of the responses may remain constant. The importance of frequency as a dimension to assess temporal changes in symptom experiences has been emphasised in the work of Hanton *et al.* (2004b) and Thomas *et al.*

(2004). These studies indicated that the frequency of symptoms experienced (both cognitive and somatic anxiety) appear to be a more sensitive indicator of anxiety responses as the individual neared the competitive event. Coupled with the existing beliefs held in clinical psychology that humans are able to recall and encode more information of emotion frequency as opposed to information of emotion intensity (Diener *et al.*, 1991; Kardum, 1999), Thomas *et al.* have suggested that frequency information should be used to help practitioners devise meso-level interventions within stress management programmes.

Research evidence underpinning the content of stress management interventions

The preceding commentary has provided a brief overview of the key conceptual issues relevant to the application of stress management interventions. Distinctions were made in respect to the conceptual rationale for the reduction and restructuring approaches, and the need for interventions to consider the temporal nature of the stress process. In this section we now focus explicitly on the empirical evidence behind the rationale for the content of the interventions under the reduction and restructuring approaches, and the actual psychological skills utilised within each stress management programme.

Research evidence for the content of stress management interventions within the reduction approach

The treatment philosophy of the reduction approach is based on the premise that increases in anxiety levels are considered detrimental to performance, suggesting practitioners should aim to lower performers' intensity of symptom responses (cf. Jones, 1995a). The evidence base that has driven the content of these intervention programmes in sport psychology was highly dependent on developments of the time within the clinical and test anxiety literature (e.g. Borkovec, 1976; Davidson and Schwartz, 1976; Meichenbaum, 1975, 1985). Early approaches proposed that independent or unimodal strategies should be used to treat cognitive and somatic anxiety separately (e.g. Borkovec, 1976). An extension to this perspective occurred with the proposals of Morris *et al.*'s (1981) Matching Hypothesis and Davidson and Schwartz's (1976) Psychophysiological Relaxation Model (see Burton, 1990, for a review). These two approaches were based on the notion that anxiety reduction techniques should be 'compatible' with or 'matched' to the client's dominant anxiety response. Davidson and Schwartz (1976) highlighted that anxiety problems demonstrated variable response rates to different anxiety-management approaches, and that specific anxiety-management techniques (i.e. cognitive or somatic) had a more significant impact on reducing the specific types of anxiety (i.e. cognitive or somatic). This led to the proposal of Davidson and Schwartz's multi-process theory, and the notion that relaxation interventions would be more effective if they were directed at the dominant symptoms experienced. Consequently, a

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cognitive relaxation procedure would have a primary impact on reducing cognitive anxiety, while a somatic technique would have the greatest influence on reducing unwanted somatic anxiety. In their review of the test anxiety literature, Morris *et al.* (1981) supported these findings and the notion of the matching hypothesis. However, they also concluded that improvements in actual examination performance were only observed when both cognitive and somatic anxiety was reduced. Further, several studies that have used incompatible treatment frameworks (i.e. cognitive techniques to treat dominant somatic responses and vice versa) have also shown positive results in comparison to the compatible treatment approach (Burton, 1990). These findings are to some extent paradoxical in relation to the conceptual foundations of the psychophysiological relaxation model/matching hypothesis and question the accuracy of their construction and effectiveness as frameworks to drive intervention choice (Maynard *et al.*, 1998). 'Cross-over effects' have been used as possible explanations for these anomalies due to the fact that cognitive anxiety and somatic anxiety display a level of shared variance (i.e. any attempt to reduce one of the anxiety components is likely to influence the other).

The preceding literature provided two contradictory viewpoints of the time for the choice of stress management intervention. The first was based on the notion that the intervention should be 'matched' to the prominent anxiety response displayed by the client. However, the second suggested that interventions should be designed to treat both cognitive and somatic anxiety simultaneously. Here, one school of thought argued that the matched interventions would reduce both forms of anxiety due to cross-over effects (Davidson and Schwartz, 1976), whereas the second view proffered support for treatments that combined cognitive and somatic treatments through the use of multimodal treatment packages (Meichenbaum, 1975, 1985; Smith, 1980).

Fundamental psychological skills and techniques associated with the reduction approach

Several psychological skills have been associated predominantly with the reduction approach. The use of these skills has developed from their adoption in unimodal applications of relaxation methods to more complex approaches that have advocated combining the techniques into multimodal interventions. The final progression has seen the adoption of strategies that enable athletes to 'inoculate' themselves against the negative effects of the stress process or 'simulate' stressful situations, thereby enabling performers to more successfully manage their competitive environments. This sub-section briefly reviews these techniques and their use within applied contexts. Practical guides on the techniques covered in this sub-section can be found in the work of Burton (1990), Hanton *et al.* (in press), Hardy *et al.* (1996) and Williams and Harris (2006).

One of the fundamental psychological skills primarily associated with the reduction approach is the use of relaxation techniques. Following the distinction of competitive anxiety responses into cognitive and somatic elements, and the

proposal of the matching hypothesis, relaxation skills have traditionally been grouped into physical and mental relaxation techniques (cf. Hardy *et al.*, 1996). Derivatives of Jacobson's (1938) Progressive Muscular Relaxation programmes have formed the basis of many of the physical relaxation techniques applied in sport. Indeed, Ost's (1988) applied relaxation technique has become synonymous with stress management in sport due to its diverse application to stressful situations that occur before, during and after performance (Hanton *et al.*, in press; Hardy *et al.*, 1996; Rotella, 1985). The primary goal of an applied relaxation programme is to transfer the athlete through a series of progressive stages towards an end-point where a physically relaxed state can be rapidly attained in any given situation.

In comparison to physical relaxation techniques, cognitive relaxation strategies have received less exposure within the stress management literature. One technique, transcendental meditation, has begun to be adopted within stress management interventions. However, Jones' (1993) progressive meditative relaxation programme, based on the philosophy of Ost (1988) for use with physical relaxation techniques, remains one of the few structured applications of cognitive meditation. Performers using this type of strategy adopt a focused breathing technique combined with the use of a 'mantra' word through self-talk (Benson, 1975; Hanton *et al.*, in press; Hardy *et al.*, 1996; Jones, 1993; Williams and Harris, 2006). Here, the goal of the practitioner is to develop a programme that enables the performer to transcend to a deeper level of cognitive relaxation. Additional techniques synonymous with the reduction of cognitive anxiety that fall outside the classification of relaxation include thought-stopping, Suinn's (1987) positive thought control technique, calming imagery and autogenic training (cf. Hanton *et al.*, in press; Meyers and Schlessner, 1980; Zinsner *et al.*, 2006).

As alternatives to the techniques outlined above, more complex advanced multimodal stress treatment frameworks have been proposed and tested (see Burton, 1990; Hardy *et al.*, 1996), including stress inoculation training (Meichenbaum, 1975, 1985) and stress management training (Smith, 1980). Stress inoculation training combines the skills of imagery, self-talk and relaxation to develop a coping skills programme. These programmes initially use imagery to rehearse exposure to increasingly stressful encounters in order to develop an adaptive coping behaviour pattern. The athlete is then exposed to challenging but manageable stressful environments where these coping skills are tested in real life. The intensity of the demands placed on the performer is steadily increased so that their coping skills are built up to effectively deal with the most stressful situation they may encounter, thereby 'inoculating' the athlete to the effects of the stressors (Burton, 1990; Hardy *et al.*, 1996). Stress management training (Smith, 1980; Smith and Ascough, 1985; Smith and Rohsenhow, 1987) adheres to similar underlying principles of stress inoculation training. However, the distinguishing factor of stress management training is the focus on coping with emotional and affective responses to the stressor(s). Specifically, during the imagery rehearsal phase of the technique the athlete is asked to acutely focus on their emotional and affective responses to the stressor(s) they are visualising. Then, during the

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rehearsal phase the practitioner encourages a strong and intense emotional response through the use of verbal propositions (Burton, 1990; Smith and Ascough, 1985). Once experienced, the athlete is instructed to 'turn off' their intense emotional and affective response by implementing coping responses in the form of relaxation and self-instruction skills (Burton, 1990). These skills are then transferred from imagined rehearsal scenarios to real-life settings of a steadily increasing stressful nature.

Research evidence for the content of stress management interventions under the restructuring approach

The evidence base for the content of interventions under the restructuring approach has developed through a series of qualitative-based studies investigating the mechanisms that lead to facilitative interpretations of anxiety symptoms. The first of these was Hanton and Jones' (1999a) adoption of a 'macro-level' perspective to study the temporal nature of the competitive stress process through the exploration of how performers had developed the ability to interpret anxiety-related symptoms across their competitive careers. Specifically, Hanton and Jones examined how ten elite-level swimmers who consistently experienced their interpretations of anxiety as facilitative had acquired the cognitive skills and strategies that enabled them to view symptoms with positive performance consequences. At the early stages of their career, negative performance consequences associated with their pre-performance anxiety symptoms were experienced. However, as the swimmers developed over time, they reported learning to interpret these symptoms as having positive performance impact. Specifically, natural learning experiences and educational methods, such as seeking advice from critical others, were adopted to build refined pre-competition and pre-race routines that enabled pre-race symptoms to be viewed as facilitative towards performance.

Hanton and Connaughton (2002) expanded on these initial findings by conducting a qualitative examination of Jones' (1995a) control model of facilitative and debilitating anxiety. In supporting the model, Hanton and Connaughton reported elite and sub-elite swimmers interpreted pre-race symptoms as debilitating or facilitative based on their perception of control over the anxiety responses experienced and in relation to the situation they faced. Hanton and Connaughton also noted the elite group were able to trigger self-regulatory psychological skills which resulted in the re-interpretation of anxiety symptoms originally appraised and perceived as negative, uncontrollable and debilitating to performance into symptoms that were appraised and perceived as positive, controllable and facilitative. This process supports the second stage of Fletcher and Fletcher's (2005) meta-model of stress, emotion and performance described earlier in the chapter. Specifically, it highlights the contribution of tertiary and quaternary appraisal to the processes of anxiety symptom interpretation and the mechanisms by which individuals may experience an overall subsequent emotional or affective experience in relation to performance (cf. Fletcher *et al.*, 2006).

Hanton *et al.* (2004a) then further extended research into facilitating anxiety mechanisms by examining the relationship between elite performers' levels of self-confidence and their subsequent interpretation of competitive anxiety symptoms. The rationale for their study derived from the quantitative findings that have consistently demonstrated an association between facilitative interpretations of competitive anxiety-related symptoms and increased levels of self-confidence (Hanton and Jones, 1997; Hanton *et al.*, 2000; Jones and Swain, 1995; Jones *et al.*, 1994; Perry and Williams, 1998; Thomas *et al.*, 2004). Following interviews with ten elite performers from a range of sports, high self-confidence was reported to be associated with facilitative interpretations of anxiety symptoms that led to enhanced levels of motivation and task-related effort. Conversely, low self-confidence was associated with debilitating interpretations of anxiety symptoms, leading to losses in focus and concentration. In providing evidence to support the protective nature of self-confidence over the potential debilitating effects of anxiety symptoms, Hanton *et al.* indicated that cognitive confidence management strategies were pivotal for performers requiring stress management interventions designed to restructure debilitating anxiety interpretations and/or maintain facilitative interpretations of anxiety-related symptoms.

The psychological skills used to maintain facilitating symptom interpretations have also been considered in a meso-level context (i.e. in the time to competition). For example, using the time period of 24 hours prior to competition, Hanton *et al.* (2002) highlighted the dynamic properties of the anxiety response in a sample of elite athletes. Their findings also suggested that self-confidence management strategies were particularly important in protecting against debilitating interpretations of competitive anxiety symptoms. Thomas *et al.* (2007a) complemented these findings by comparing the elite female field-hockey performers' anxiety experiences during the seven-day competitive cycle associated with many elite-level team sports. The findings supported the dynamic properties of the competitive stress process during the seven days between competitive fixtures – specifically, anxiety responses (intensity and frequency of intrusions) fluctuating across the seven-day cycle through three phases: a post-performance phase (one-to-two days post-performance) and two pre-performance phases (two-to-one day pre-performance and match day respectively). The study also highlighted the differential application of psychological skills by the facilitators and debilitators of symptoms during the tertiary and quaternary phases of the appraisal process that resulted in either positive or negative performance consequences of anxiety symptoms (i.e. directional interpretations). Specifically, facilitators possessed a refined repertoire of psychological skills that they could draw upon during the seven-day cycle, enabling them to interpret anxiety symptoms as facilitative towards performance. In comparison, debilitators attempted to implement psychological skills, but did not possess the control over these skills, leading to a continued debilitating interpretation of their pre-performance anxiety symptoms.

The final qualitative study that has helped to support the rationale for the restructuring approach also focused on the performer's use of psychological skills

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at a meso-level temporal context. Specifically, Mellalieu *et al.* (2008) examined elite rugby union players' emotional, behavioural and affective states experienced in the pre-competition period, particularly at times directly prior to performance. Mellalieu *et al.* also considered the psychological strategies performers used to achieve desirable applicable activation states rather than a focus on anxiety responses per se. Mellalieu *et al.*'s findings supported the dynamic nature of performers' responses to stressors as the competition moved closer and indicated that a wide range of emotions were experienced in the time leading up to competition. Further, the elite performers reported using a number of psychological skills, including imagery and verbal persuasion, in order to interpret their pre-competition symptoms as facilitative and create an optimal activation state to enter the competitive arena.

Collectively, the evidence that has emerged from these qualitative studies has helped to identify the psychological skills and strategies associated with the restructuring approach to stress management. Specifically, a number of psychological skills and techniques appear to be used to help maintain a facilitative interpretation of pre-competitive anxiety symptoms, and protect against the potential debilitating performance consequences of competitive anxiety. The following sub-section proceeds to outline these specific skills and techniques.

Fundamental psychological skills and techniques associated with the restructuring approach

The literature outlined in the previous sub-section has highlighted a number of psychological skills that are synonymous with the restructuring approach to stress management. Specifically, imagery, goal setting, positive self-talk and rationalisation/restructuring skills (underpinned by self-talk) have been identified as the key strategies performers employ to foster facilitative interpretations of competitive anxiety symptoms (Hanton and Connaughton, 2002; Hanton and Jones, 1999a; Hanton *et al.*, 2002, 2004a; Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a). The literature has also highlighted that performers use external sources of information such as verbal persuasion from significant others (Hanton and Jones, 1999a; Hanton *et al.*, 2004a; Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a), an applicable team climate (Mellalieu *et al.*, 2008) and superior warm-up routines (Hanton and Jones, 1999a; Thomas *et al.*, 2007a; Mellalieu *et al.*, 2008) to help develop or maintain facilitative interpretations. This sub-section will review the contribution of a number of these techniques towards the self-regulatory skills associated with the restructuring approach.

It is important to emphasise at this point that, if prescribed, the aim of these skills is to promote control over anxiety symptoms and the competitive environment without attempting to reduce the level of symptoms experienced. Consequently, the range of skills summarised here focus on techniques that create positive interpretations of symptoms and high levels of self-confidence to offer protection against potential debilitating effects of anxiety symptoms experienced. Practical guides on execution of the techniques covered in this

sub-section can be found in the work of Hanton *et al.* (in press), Hardy *et al.* (1996) and Williams and Harris (2006).

The most consistent skill to emerge from the literature associated with the restructuring approach is that of imagery. Indeed, all the qualitative studies reviewed in this chapter have indicated the prominent role of effective imagery routines in maintaining facilitative interpretations of anxiety symptoms. However, only recently has the literature base provided any substantial information on the precise form and function of these imagery routines. Specifically, imagery routines that use cognitive-specific and cognitive-general functions appear to be more suited to developing facilitative interpretations of anxiety (Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a). Additionally, both the cognitive and motivational mastery functions of imagery have emerged as key skills associated with the techniques that manage self-confidence in order to protect against potential debilitating anxiety effects (Hanton *et al.*, 2004a; Mellalieu *et al.*, 2008).

Cognitive rationalisation and restructuring of an athlete's thoughts and perceived feelings have also been identified as key psychological skills within the restructuring approach (Hanton and Connaughton, 2002; Hanton and Jones, 1999a; Hanton *et al.*, 2004a; Thomas *et al.*, 2007a). The basis for the adoption of these skills derives from the use of effective self-talk, and has close links to Rational Emotive Behaviour Therapy (REBT) within clinical psychology (Ellis, 1962, 1970, 1994). According to Ellis's cognitive theory, people experience situations that lead to rational and/or irrational or negative beliefs. These beliefs then lead to cognitive, emotional and behavioural consequences. Rational beliefs lead to functional consequences for the individual and are associated with a positive interpretation of anxiety-related symptoms. In contrast, irrational beliefs lead to dysfunctional consequences and are associated with a negative interpretation of anxiety-related symptoms (cf. David *et al.*, 2002; Ellis, 1962, 1970, 1994). As a therapeutic approach, REBT involves individuals disputing irrational beliefs and incorporating rationale ones, with the aim of realising a positive influence over cognitive, emotional and behavioural responses. Therefore, individuals rationalise and restructure any negative symptoms experienced (David *et al.*, 2002). In line with Lazarus' perspective of stress (Lazarus, 1999), this approach suggests a performer's thoughts directly affect their feelings, which in turn affect their behaviour at that time (i.e. preparation for performance and/or performance). When these thoughts and associated feelings are appraised as negative or irrational (i.e. a debilitating interpretation), dysfunctional preparation for performance or performance consequences will arise. However, through the process of REBT, these negative or irrational thoughts can be restructured (i.e. reinterpreted using tertiary or quaternary appraisal), to create rational or restructured beliefs that promote functional consequences for performance preparation and/or performance (i.e. a facilitative interpretation). The application of REBT within sport psychology has tended to utilise the fundamental questioning approach that enables athletes to 'identify', 'dispute' and 'replace' their negative initial appraisal of anxiety-related symptoms (see Hanton and Jones, 1999b; Thomas *et al.*, 2007b).

In addition to using self-talk skills during the process of cognitive rationalisation and restructuring, the autonomous use of positive self-talk has also been associated with the restructuring approach (Hanton *et al.*, 2002, 2004a; Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a). For example, the use of self-talk is synonymous with strategies that use cognitive confidence management techniques to create a protection mechanism against debilitating anxiety symptoms (Hanton *et al.*, 2004a; Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a). Specifically, findings have highlighted the positive effect that a phonetically brief positive self-talk statement can have over debilitating competitive anxiety symptom interpretation (Hanton *et al.*, 2002, 2004a; Thomas *et al.*, 2007a). Self-talk skills have also been associated with the use of thought-stopping in this process, aiding performers in their attempts to protect confidence by repressing negative self-statements experienced (Hanton *et al.*, 2002, 2004a). Further, positive verbal persuasion from credible and significant external sources (e.g. coach and team-mates) have also been found to help manipulate confidence and protect against the debilitating performance consequences of symptoms associated with competitive anxiety (Hanton *et al.*, 2004a; Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a).

Goal setting is the final self-regulation skill that has emerged as critical within the restructuring approach (cf. Hanton and Jones, 1999a; Thomas *et al.*, 2007a). Interestingly, in both these studies, performance and process goals have been cited as effective goal types for performers to adopt as the competitive event draws nearer. This finding has direct links to the notion of goal attainment expectancy within Jones' (1995a) control model of facilitative and debilitating anxiety, and the suggestion within the goal-setting literature that effective performance and process goals are easier for performers to control, due to their self-referenced nature (see Kingston *et al.*, 2006). Specifically, goals of a more controllable nature (i.e. performance and process) become more effective at helping to maintain a facilitative interpretation of anxiety-related symptoms. However, caution is advised here in relation to presenting the perspective that outcome goals are directly associated with debilitating interpretations of competitive anxiety symptoms and should therefore be avoided in stress management interventions. The preliminary position that has emerged from the anxiety literature, in addition to the perspective voiced in some areas of the sports motivation literature (see Kingston *et al.*, 2006), indicates that although perceived controllability of outcome goals can be an issue, and that unrealistic outcome goals may actually create anxiety for the performer, their powerful motivational properties cannot be ignored. Therefore, we would advocate a combined goal-setting programme (outcome, performance and process) where the performer is encouraged to focus on performance and process goals at anxious times close to competition (cf. Thomas *et al.*, 2007a).

The application of the psychological skills outlined under the restructuring approach has tended to occur in the form of athlete education, with the creation of structured pre-competition and pre-race routines where the strategies taught are predominantly designed for use immediately prior to performance (Hanton and Jones, 1999b; Mamassis and Doganis, 2004). However, recent studies have

provided evidence of how psychological skills can be used differentially at a meso-level during the seven days preceding performance (e.g. Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a, b). For example, Thomas *et al.* (2007a) examined how psychological skills were employed by facilitators of symptom interpretations across three phases of the seven-day competitive cycle. During Phase I (post-performance), imagery skills were used by the facilitators to replace naturally occurring negative post-performance images (e.g. skill execution) with counter images that were positive in nature. During Phase II (two-to-one day pre-performance), imagery skills focused on best performance imagery routines associated with the cognitive-general and motivational-general-mastery functions (Hall, 2001; Paivio, 1985). Finally, in Phase III (match day), imagery skills focused on snap-shot best performance imagery routines of cognitive-specific functions related to the player's role within the team (e.g. shooting skills for a forward). This differential application of techniques was also found to be extended to the cognitive rationalisation and restructuring, goal setting and self-talk skills employed within the seven-day competitive cycle providing a clearer evidence base for the timing, structure and specific content of stress management programmes within the restructuring approach (see Thomas *et al.*, 2007a). Mellalieu *et al.* (2008) have supported these findings in their examination of the psychological skills elite rugby union players used to attain desirable activation states and facilitating interpretations of emotional and affective symptoms prior to performance. Specifically, players reported differential use of imagery skills as competition moved closer, and the salience of the use of the mastery function of imagery to maintain and protect against the potential debilitating effects of anxiety symptoms immediately prior to performance.

The qualitative literature reviewed in this section provides an insight into the fundamental psychological skills associated with the restructuring approach. A number of studies have also empirically tested the efficacy of different multimodal cognitive behavioural interventions on pre-competitive anxiety responses and performance. Consequently, in the penultimate section of the chapter we review these studies, together with the body of literature that has tested the efficacy of interventions designed under the reduction-based approach to stress management.

Applied research testing the efficacy of stress management interventions

This section reviews the research that has tested the efficacy of stress management interventions in sport under the label of either the reduction or restructuring approach. Investigations using the reduction approach have adopted three main practice philosophies: the matching hypothesis (e.g. Maynard *et al.*, 1995a, b, 1998), techniques associated with stress management training (e.g. Crocker, 1989; Crocker *et al.*, 1988; Kenney *et al.*, 1987; Smith, 1980; Smith and Ascough, 1985) and interventions associated with stress inoculation training (e.g. DeWitt, 1980; Hamilton and Fremouw, 1985; Kerr and Leith, 1993; Mace

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and Carroll, 1985, 1989; Mace *et al.*, 1986, 1987; Meyers and Schleser, 1980; Meyers *et al.*, 1982; Zeigler *et al.*, 1982). In contrast to the literature on the reduction approach, only a limited number of studies have empirically tested the effectiveness of interventions under the label of the restructuring approach (i.e. Hanton and Jones, 1999b; Mamassis and Doganis, 2004; Thomas *et al.*, 2007b).

Research testing the efficacy of stress management interventions under the reduction approach

Investigations testing the efficacy of stress management interventions in sport based on the tenets of the matching hypothesis have come from a programme of research conducted by Maynard and associates. Initially, Maynard *et al.* (1995b) examined the impact of a somatic intervention in the form of an applied relaxation technique with 17 semi-professional football players. The eight players most debilitated by their somatic anxiety symptoms formed the intervention group, whilst the remaining nine players comprised the control group. Following an eight-week period of applied relaxation, the intervention group showed significant decreases in cognitive and somatic anxiety intensity, and significantly more facilitative interpretations of somatic anxiety symptoms. In comparison, no significant pre-post-intervention changes were noted across anxiety symptoms in the control group.

Using a similar sample, Maynard *et al.* (1995a) replicated their original study, but replaced the somatic intervention with a cognitive strategy based on the application of Suinn's (1987) positive thought control technique. Participants were assigned to a cognitive debilitative, somatic debilitative or control group based on their competitive anxiety direction scores. To examine issues of 'cross-over effects' within the matching hypothesis, both the cognitive and somatic debilitated groups received the cognitive intervention. The findings indicated that the cognitive intervention decreased both cognitive and somatic intensity, and created more facilitative interpretations of both cognitive and somatic anxiety symptoms in both intervention groups. These findings added further uncertainty to the premise of the matching hypothesis that the selection of treatments should be made compatible with the performers' dominant anxiety response. Indeed, Maynard *et al.* suggested their findings corroborated the 'cross-over' argument proffered to explain the questionable conceptual accuracy of the original predictions of the matching hypothesis.

In a direct extension to these conclusions, Maynard *et al.* (1998) proceeded to examine the efficacy of what they termed 'unimodal compatible', 'unimodal non-compatible' and 'multimodal' stress management interventions over performers' intensity and direction of anxiety responses. Unimodal compatible treatments comprised a single treatment technique that matched the athletes' dominant anxiety response. Unimodal non-compatible constituted a single treatment technique that was the opposite of the athletes' dominant response, while the multimodal intervention adhered to the stress management principles within Smith's (1980) approach. Using a matched pairs design, 44 athletes with debilitative

interpretations of cognitive anxiety symptoms were assigned to either one of the treatment groups or a control group. The results indicated the unimodal-matched and the multimodal intervention programmes decreased cognitive anxiety intensity. Somatic anxiety and self-confidence intensity were decreased within multimodal intervention only. For the direction of symptom responses, the unimodal-matched and multimodal intervention programmes increased facilitative interpretations of cognitive anxiety, the unimodal-unmatched and multimodal intervention increased facilitative interpretations of somatic anxiety, and the multimodal intervention increased facilitative interpretations of self-confidence. These findings led Maynard *et al.* to conclude that multimodal interventions appeared to be the most robust design for stress management interventions, and highlighted the lack of sensitivity with some of the theoretical predictions of the matching hypothesis.

Several additional conceptual issues have been identified within Maynard and associates' research (cf. Hanton and Jones, 1999a, b). Specifically, in all three of their applied studies, Maynard and colleagues utilised directional interpretations (in addition to the intensity of symptoms) as a dependent variable. Further, Maynard and colleagues used the direction scores of the participants (i.e. the interpretation of their anxiety responses) as the screening variable that dictated intervention application (i.e. their cognitive or somatic dominant response). This is somewhat paradoxical in relation to the underlying principles we outlined previously within the chapter regarding the conceptual basis for the intervention choice that is associated with the matching hypothesis. Specifically, the proposition of matching hypothesis is that treatments should be designed to reduce competitive anxiety symptom responses, and that intervention choice (i.e. cognitive versus somatic) should be dictated by the athletes' response (in terms of the level or intensity of symptoms experienced), appears to have been overlooked. The conceptual rationale for utilising direction in this way within these studies has never been fully explained and it appears that inclusion within these research questions may have been associated more with the contemporary thinking of the time (i.e. the recognition of directional interpretations within stress-related research) rather than on the underlying tenets of the matching hypothesis. However, although the theoretical foundation of these studies can be questioned, the findings regarding the utility of the multimodal interventions investigated have helped inform the stress management literature at both an individual and collective level.

Several studies have empirically tested the efficacy of multimodal interventions associated with stress management and stress inoculation training respectively (see Burton, 1990; Cox, 1998; Smith and Smoll, 2004). Although the majority of these studies were conducted approximately 20 years ago, their practical relevance to the treatment of stress-related issues remains applicable within the contemporary sport psychology literature. Due to their clinical foundation, stress management training and stress inoculation training have been successfully applied across a wide range of settings and populations. For example, stress management training has been shown to be an effective treatment approach

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in test-anxious students (Smith and Nye, 1989), heavy alcohol drinkers (Rohenshenow *et al.*, 1985) and stressed student populations (Holtzworth-Munroe *et al.*, 1985). In comparison, stress inoculation training has emerged as an effective approach with individuals in the stressful occupations of nursing, teaching, policing, social working, probationary working and the military (see Burchfield *et al.*, 1985; O'Leary and Wilson, 1998; Spiegler and Guevremont, 1998).

Researchers in sport have transferred the application of these frameworks into the treatment of stress-related issues within athletic populations. For example, derivatives of Smith's (1980) stress management training have been found to be successful in reducing anxiety-related symptoms across the sports of football (Smith and Smoll, 1978), figure skating (Smith, 1980), running (Kenney *et al.*, 1987; Zeigler *et al.*, 1982) and volleyball (Crocker, 1989; Crocker *et al.*, 1988). In comparison, adaptations of Meichenbaum's (1975, 1985) stress inoculation training have been successfully applied across the sporting populations of basketball (DeWitt, 1980; Hamilton and Fremouw, 1985; Meyers and Schleser, 1980; Meyers *et al.*, 1982), abseiling (Mace and Carroll, 1985; Mace *et al.*, 1986), running (Ziegler *et al.*, 1982) and gymnastics (Mace and Carroll, 1989; Mace *et al.*, 1987). Although these studies point to the obvious benefits of stress management training and stress inoculation training in relation to lowering levels of anxiety symptom intensity, limited information can be gleaned from the studies in relation to the performance enhancing effects of the techniques. Further, the multimodal nature of the interventions applied renders it difficult to ascertain which specific component parts (versus the total programme used) provide the beneficial reducing influence over anxiety-related symptoms (cf. Burton, 1990).

Research testing the efficacy of stress management interventions under the restructuring approach

A limited number of studies have empirically tested the effectiveness of interventions formulated under the umbrella of the restructuring approach (i.e. Hanton and Jones, 1999b; Mamassis and Doganis, 2004; Thomas *et al.*, 2007b). All of these studies have used derivatives of single-subject multiple-baseline designs together with some form of multimodal intervention as the stress management programme associated with their work. The first of these was Hanton and Jones' (1999b) application of a psychological skills programme with elite swimmers who interpreted their pre-competitive anxiety symptoms as debilitating towards upcoming performance. In line with the conceptual standpoint of the restructuring approach, the primary goal of the intervention was to restructure debilitating interpretations of anxiety-related symptoms (cognitive and somatic), increase levels of self-confidence experienced and, in turn, elicit positive effects on performance. The content of the multimodal psychological skills programme was based on in-depth qualitative interviews with elite swimmers who had utilised psychological skills to control their stress-related symptoms (see Hanton and Jones, 1999a) and included goal setting, imagery and positive self-talk. The findings indicated no effect on the intensity of cognitive

and somatic anxiety. However, swimmers reported increases in self-confidence and changes in symptom interpretations (both cognitive and somatic) from debilitating to facilitative. Increases in swimming performance of between 2 to 3 per cent were also recorded.

In the next study to assess the efficacy of the restructuring approach, Mamassis and Doganis (2004) used a multimodal psychological skill package similar to that adopted by Hanton and Jones (1999b) to influence the intensity and directional interpretations of tennis players' pre-competitive cognitive, somatic and self-confidence responses. Although Mamassis and Doganis' rationale for their intervention was primarily based on their experiences of the use of mental training programmes with the sample used within in their study (junior elite tennis players), the content of their season-long intervention programme was linked to a number of skills advocated within the restructuring approach. These included imagery, goal setting, positive thinking and self-talk, arousal regulation and concentration skills. The results provided support for the efficacy of the restructuring approach in that no changes were reported in levels of cognitive and somatic anxiety experienced, levels of self-confidence increased, and interpretations of cognitive and somatic anxiety symptoms became more facilitative. Improvements in players' subjective (self-reported) tennis performance scores were also supported (see Mamassis and Doganis, 2004).

The most recent study to test the efficacy of stress management programmes designed under the umbrella of the restructuring approach is that of Thomas *et al.* (2007b). In line with the theory-to-practice philosophy adopted by Hanton and Jones (1999a, b), Thomas *et al.* derived the content of their restructuring intervention from interviews with facilitators of anxiety symptoms (Thomas *et al.*, 2007a). Adopting a focus on the reciprocal process of stress, Thomas *et al.* tested the efficacy of a meso-level temporal intervention programme over a seven-day competitive cycle commonly associated with team sports (i.e. Saturday to Saturday). The intervention consisted of the psychological skills of imagery, rationalisation and restructuring, goal setting and self-talk. However, the specific form and function of each skill was applied differentially within the temporal period of the intervention (see Figure 4.1; Thomas *et al.*, 2007a, b). For example, imagery routines used seven-to-five days prior to performance were described as 'counter imagery routines' and were structured around replacing negative post-performance images that players naturally experienced following performance with positive images of similar scenarios that depicted accomplishment of skills and tasks. Imagery routines used two-to-one day prior to performance focused upon mastery elements through the integration of cognitive general and cognitive specific functions in routines that were rehearsed for some length of time (see Figure 4.1). Finally, imagery routines utilised on match day focused on positive performance scenarios based solely on cognitive specific functions and utilised routines that were short in time and described as 'snap-shot' in nature (see Figure 4.1). Similar variation in the implementation of rationalisation and restructuring, goal setting and self-talk skills was applied throughout the seven-day intervention period. The results of the study indicated that the temporal

Temporal phase I (Post-performance – seven days to five days preceding next match)		Participant time commitment	Consultant time commitment (per participant)
Preparation booklets	- Review of individual performance errors. - Review of countering performance accomplishments.	~1 hr	~1 hr
Intervention (one-on-one consultation)	- Replacing negative post-performance images with countering positive images. - Rationalising and restructuring negative post-performance symptoms.	~5 hrs (including skill practice time)	~3 hrs
Temporal phase II (Two days to one day preceding match)		Participant time commitment	Consultant time commitment (per participant)
Preparation booklets	- Review of best performances. - Recording of negative pre-performance symptoms.	~1 hr	~1 hr
Intervention (one-on-one consultation)	- Best performance imagery (CG function) . - Rationalising and restructuring of negative pre-performance symptoms. - Performance and process goals.	~7 hrs (including skill practice time)	~4 hrs
Temporal phase III (Match day pre-performance)		Participant time commitment	Consultant time commitment (per participant)
Preparation booklets	- Review of key skills for position.role (examples of recent best performance of these skills). - Recording of key technical words/ statements. - Recording of negative pre-performance symptoms.	~1.5 hrs	~2 hrs
Intervention (one-on-one consultation)	- Best performance imagery (CS function) . - Rationalising and restructuring of negative pre-performance symptoms. - Integrated self-talk programme (positive self-statements and performance and process goals).	~3 hrs (including skill practice time)	~4 hrs

Figure 4.1 Holistic representation of a temporal intervention programme (source: Thomas *et al.*, 2007b).

intervention successfully restructured interpretations of cognitive and somatic anxiety, increased levels and frequency of occurrences of self-confidence symptoms, and decreased frequency of occurrences of cognitive and somatic anxiety-related symptoms. In addition, in line with the conceptual standpoint of the direction approach, these changes occurred without affecting the levels of cognitive and somatic anxiety experienced. These effects were also associated with increased levels of performance across all three field-hockey players.

Practical implications

In this section, we draw together a number of issues discussed in the chapter to give a summary of the status on the efficacy of stress management interventions. We also present several recommendations for practitioners that are grounded in the relevant findings from the literature.

Although we have considered both approaches to stress management in this review so far (i.e. reduction versus restructuring), issues have arisen with the application of techniques under the matching hypothesis that question the 'compatibility' stance adopted within that approach. Consequently, the recommendations presented in this section cement our position that it is the situational and personal variables that have been identified to moderate performers' symptom responses and interpretations that should determine the stress management techniques employed. The simplification of the debate to a straight comparison of 'reduce' versus 'restructure' would, in our opinion, present a rather naive and futile position at this point in time given the emerging knowledge base surrounding the study of stress management in sport.

In relation to the need to consider the moderating influence of situation variables when designing stress management interventions, thereby choosing between a 'reduce' or 'restructure' approach to adopt, one of the key findings highlighted in the literature is that the relative activation demands of the sport should form a prime factor underpinning intervention choice (cf. Mellalieu *et al.*, 2008). For example, techniques designed to reduce anxiety intensity may also decrease a performer's activation state and subsequent mental and physical readiness to compete. For sports with higher activation demands, the application of techniques designed to reduce anxiety-related symptoms may, therefore, be more harmful than beneficial to the overall psychological preparation of the individual (Hanton *et al.*, 2000; Mellalieu *et al.*, 2008). In these situations practitioners should strive to alter the performers' interpretation of anxiety-related symptoms via the cognitive and confidence management strategies associated with the restructuring approach (cf. Hanton and Jones, 1999a, b; Hanton *et al.*, 2000; Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a, b). Conversely, for sports with low activation demands, techniques associated with reducing anxiety-related symptoms would appear more applicable (Hanton *et al.*, 2000; Mellalieu *et al.*, 2008).

One personal variable that also appears to have direct implications for intervention choice is the consistent finding related to the moderating effects of skill level upon experiences of, and techniques for, coping with competitive stress.

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Indeed, whether the status of the performer is elite or non-elite appears to dictate the type of psychological skills that should be adopted. Specifically, when compared to their non-elite counterparts, elite performers not only view their symptom responses as more facilitating to performance, but also appear to have a more salient understanding and controlled application of the advanced psychological skills associated with the restructuring approach (Fletcher and Hanton, 2001; Hanton and Jones, 1999a, b; Jones *et al.*, 1994; Thomas *et al.*, 2007a). Therefore, when working with non-elite performers, it may be more applicable to initially attempt to reduce anxiety-related symptoms experienced, and then proceed to restructure interpretations of responses before returning activation states to the levels required for the specific demands of the sport (cf. Mellalieu and Hanton, 2008; Mellalieu *et al.*, 2006a). In contrast to their non-elite debilitating counterparts, however, and due to the potential capacity to adopt advance psychological skills, elite performers debilitated by anxiety responses should adopt techniques that restructure interpretations, with a focus on combining the psychological skills of imagery, goal setting, cognitive rationalisation and restructuring and self-talk (Hanton and Jones, 1999 a, b; Hanton *et al.*, 2005b; Thomas *et al.*, 2007a, b).

The literature highlighted throughout this chapter has also emphasised the importance of accounting for the temporal nature of performers' responses to the demands they face, particularly the need to consider macro-, meso- and micro-level perspectives when designing stress management interventions (cf. Mellalieu *et al.*, 2006a). For example, at a macro-level, Hanton and Jones (1999a) described how the temporal responses of elite swimmers and the strategies employed to cope with competitive demands shifted as their career progressed. Specifically, positive interpretations of pre-race symptoms developed via natural learning experiences and educational input from several sources. These findings suggest that early career interventions should be orientated towards educating performers to accept that the thoughts and feelings they experience are an intrinsic part of elite performance (see also Hanton *et al.*, 2007). Indeed, while these symptoms may initially appear unpleasant and discomforting, they may not necessarily be debilitating towards performance.

Although some attention has focused on the macro-level perspective regarding how performers manage competition stress over time, the majority of research has examined how stress management interventions can be applied at the meso- and micro-level. Indeed, the studies reviewed in this chapter suggest the core psychological skills of relaxation, imagery, goal setting, cognitive rationalisation, and restructuring and self-talk should be applied differentially within the time leading up to individual competitive events (Hanton and Jones, 1999b; Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a, b). Specifically, Mellalieu *et al.*'s (2008) findings suggested that, during the early preparation period, where lower activation states are more desirable (e.g. five-to-seven days pre-performance), performers use strategies that regulate or reduce emotional responses (i.e. anxiety). However, closer to the event (e.g. 30-to-60 minutes pre-performance), strategies are adopted that focused on energising the performer to achieve the higher activation state required for the

demands of the competition. Mellalieu *et al.*'s findings also support Thomas and colleagues' differential application of psychological skills during the time leading up to competition. However, it is interesting to note that individual difference variables again provide an influence over the potential application of these findings from these studies. Indeed, both Thomas and colleagues, and Mellalieu *et al.* investigated team sports that required relatively high levels of activation. Therefore, practitioners should consider the salient individual difference variables applicable to their client(s) when constructing temporal interventions.

The final key implication to emerge from the studies assessing temporal change at the meso-level is that, in line with the current trend of research, a fine-grained measurement approach should be adopted when assessing pre-competitive responses. Here, practitioners need to consider assessing not only the intensity of symptom responses performers experience in relation to the time to event, but also the directional interpretations and frequency of intrusions reported.

Future research directions

In light of the body of research that has considered the study and application of stress management programmes in sport we now present several areas where we believe future research efforts may wish to focus. This includes investigations that seek to compare the situations where reduction or restructuring techniques are most applicable, further the understanding of the application of stress management techniques across temporal contexts and attempt to clarify the contribution of individual psychological skills in the stress management process.

In discussing the chronological developments within the stress management literature, this chapter has identified that research to date has examined the efficacy of interventions designed either under the umbrella of the reduction (e.g. Maynard *et al.*, 1995a, b, 1998) or restructuring approach (e.g. Hanton and Jones, 1999b; Thomas *et al.*, 2007b). An obvious extension to this body of literature is one that directly compares the effectiveness of these approaches to provide more conclusive answers regarding the efficacy of interventions to specific groups (cf. Thomas *et al.*, 2007b). For example, a comparison of the effectiveness of the psychological skills used within the reduction approach to those associated with the restructuring approach in groups of elite versus non-elite performers would reveal the efficacy of the interventions relative to a key individual difference variable (i.e. skill level). A further extension to this work would be to test the efficacy of interventions of the two approaches relative to the activation or task demands of different sports (cf. Hanton *et al.*, 2000; Mellalieu *et al.*, 2008).

The adoption of a temporal perspective to the stress process (i.e. at the macro-, meso- and micro-level) is also important for future research in stress management (Hanton and Jones, 1999a; Hanton *et al.*, 2002; Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a). As this body of research remains in its infancy within sport psychology, investigation is required to corroborate the findings of Hanton and Jones (1999a) relative to developing macro-level educational interventions that foster facilitative symptom interpretations in performers during early career development. This should

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be supplemented with research at a meso-level that extends information relative to the use of psychological skills in the time leading up to specific events (Mellalieu *et al.*, 2008; Thomas *et al.*, 2007a). Indeed, these studies have already indicated distinct uses for several psychological skills during the week leading up to competitive events in team sports that tend to operate within a competitive seven-day cycle. Consequently, there is obvious scope to explore the activities and disciplines that fall outside the seven-day competitive cycle commonly associated with team sports. In addition, to date, studies have only focused on how elite performers utilise psychological skills in the time period preceding competition. Research assessing how non-elite performers utilise psychological skills will help to provide a more comprehensive picture of this particular population. In addition, it will also serve to strengthen the proposal that stress management interventions are more suited to the application of skills associated with the reduction approach in non-elite performers (cf. Fletcher and Hanton, 2001; Hanton and Jones, 1999a, b; Jones *et al.*, 1994; Maynard *et al.*, 1998; Thomas *et al.*, 2007a).

Studies that examine the direct influence of each psychological skill upon the competitive stress process should also be encouraged. With the exception of Maynard and colleagues' work testing the matching hypothesis, research considering the efficacy of stress management interventions using stress inoculation and stress management training and restructuring interventions has tended to examine the efficacy of multimodal intervention programmes. Although recent qualitative studies have provided more detail regarding perceived explanations of how facilitative symptoms interpretations are developed and maintained, these studies have provided general guidance for the application of psychological strategies. Future research should therefore attempt to use this information as the basis to generate more specific knowledge regarding the use and application of each psychological skill. For example, the use of self-talk and cognitive rationalisation has emerged as a particularly pertinent psychological skill within the restructuring approach, but no study has yet to address a specific research question on its role and mechanism in fostering facilitative symptom interpretations. As Fletcher and Hanton (2001) suggested, research should be encouraged that elicits clear information on the success of individual psychological skills or that directly compares the efficacy of one strategy versus another to gain a clearer understanding of the successful deployment of psychological skills in the stress management process.

Finally, although the content of this chapter has focused on the study of the application of techniques to deal with competitive stress, the notion of organisational stress and, more specifically, organisational stress management has recently begun to emerge as a topic of interest within sport psychology. Specifically, Fletcher and colleagues have attempted to define and contextualise organisational stress within a sporting environment (see Fletcher *et al.*, 2006), generating an initial conceptual framework for classifying groups of organisational stressors experienced (see Fletcher and Hanton, 2003; Hanton and Fletcher, 2005; Hanton *et al.*, 2005a). However, in comparison to the wealth of research that exists in competitive stress management, developments within the

organisational stress management literature in sport remain in their infancy. To date, no research has considered or tested the efficacy of organisational stress management interventions in sport. Fletcher *et al.* (2006) have provided a framework for the treatment of organisational stress through their proposal of primary, secondary and tertiary level interventions. This framework requires rigorous testing in order to develop a theory-to-practice rationale for the content of organisational stress management interventions. Intuitively, this would appear a fruitful area for research to develop holistic intervention strategies that enable individuals and groups to deal with the effects of both competitive and organisational stress.

Concluding remarks

This chapter has discussed the conceptually distinct treatment frameworks associated with the *reduction* and *restructuring* stress management approaches used in sport psychology. In addition, these different positions have been underpinned by reference to the body of literature highlighting the temporal elements of the competitive stress process. We conclude our chapter, therefore, with a series of statements summarising what we consider are the salient points at present within this research area. Specifically, the current findings into stress management in competitive sport highlighted within this review suggest:

- 1 Stress is an ongoing transaction for the performer and as such, subsequent research and interventions should consider the temporal facets of the stress process. This can be considered at the macro-, meso- or micro-level.
- 2 When dealing with an individual's emotional response within this transaction, the intensity (i.e. level), direction (i.e. interpretation) and frequency (i.e. occurrence) of performers' anxiety symptoms experiences should be considered to elicit a more complete understanding of the responses to the demands of competition.
- 3 Within the transaction process, the role of individual difference variables (e.g. the activation demands of the sport and the skill level of the performer) should be used as the pivotal criteria when selecting psychological skills either aligned to the reduction or restructuring approach for stress management interventions.

We hope these statements provide a clearer understanding of some of the pertinent issues facing researchers and practitioners when attempting to develop and investigate stress management interventions in sport.

Note

- 1 Martens *et al.*'s (1990a) MAT also included the construct of self-confidence. Given the stress management focus of this review we have omitted detail on this issue within this chapter.

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