

STRESS, COPING AND MENTAL CONTROL

Jeremy R. Dugdale

M.Ph.Ed., B.Ph.Ed., B.Sc.

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ABSTRACT

The purpose of this thesis was to develop a better understanding of the ways in which elite athletes cope with stress and how mental control strategies such as thought stopping can influence performance. Four studies were conducted.

Study One examined the relationship between coping effectiveness and elite athlete performance. New Zealand athletes participating at the 1998 Commonwealth Games were sent questionnaires three weeks before and immediately after the Games. Results revealed that athletes employed a variety of strategies to help them cope with their most stressful experience. Stressor expectedness, however, was not related to coping strategy use or performance and coping evaluations. Significant differences were also observed in the cognitive appraisals of athletes facing expected and unexpected stressors. Unexpected stressors were perceived as more threatening than expected stressors. In addition, athletes indicated a significantly greater tendency to hold back or hesitate from responding or acting in the face of unexpected stressors in comparison to expected stressors. Finally, a modest but significant relationship was observed between coping strategy effectiveness and coping automaticity.

Building upon the knowledge gained from Study One, a further three studies were conducted. Rather than taking a broad all-encompassing view as adopted in Study One, however, the remaining studies focused on self-regulation and the consequences of exerting mental control using Wegner's (1994) ironic cognitive processing theory.

Studies Two and Three focused on the mental control strategy of thought stopping. Thought stopping was chosen primarily because it is a self-regulation strategy commonly advocated by sport psychologists to control intrusive and unwanted thoughts, and reduce stress. Participants were asked to watch a videotape containing a series of clips of Australian Rules Football players, coaches and/or umpires. Study Two revealed that participants were more aware of umpires when instructed not to pay attention to the umpires. Contrary to expectations, ironic effects were not significantly magnified by the combination of high cognitive load and instructions not to pay attention to the umpires. These results were, however, consistent with ironic processing theory contentions. Results from Study Three extended Study Two's observations on ironic awareness by evaluating a theory-grounded hypothesis on the use of a task-relevant cue word. Results indicated that enhanced awareness of the target images observed in Study Two could be negated when

individuals were given a task-relevant cue word to focus on when suppressing unwanted or negative thoughts.

Study Four extended Studies Two and Three by examining ironies of action associated with the exertion of cognitive control. Specifically, theoretical contentions about the role of ironic cognitive processing on the performance of a simple motor task, and the role of expertise in ironic processing, were evaluated. Sixteen full-time dancers performed a static balance task on a wobble board. Descriptively, dancers who performed the task under high cognitive load exhibited less stability compared with those who performed under no cognitive load. A significant within-subjects main effect was observed for instructional set with more unwanted movements occurring when participants attempted to avoid such movements than when instructed to hold the wobble board steady. Contrary to expectations, however, a significant instruction-by-load interaction was not observed. Nonetheless, examination of the associated pattern of effect sizes suggested the presence of a potentially meaningful (albeit non-significant) interaction as hypothesised. This suggests that ironic processes can affect motor performance and, contrary to sentiment in the extant literature, that even highly accomplished performers may experience ironic errors when performing an expertise-relevant motor task.

Findings from studies Two, Three and Four are consistent with ironic processing theory and support previous evidence indicating that trying not to pay attention to a task-irrelevant cue, or perform a simple action under cognitive load can result in ironic errors. From a practical standpoint, they suggest that mental control strategies should not be uncritically advocated. Thought suppression, for example, can be an effective mental control strategy if used in conjunction with a strategy to direct the performer's attention to task-relevant cues. This combination is essentially what Martens (1987) describes in his characterisation of the mental skill of thought stopping. Failure to refocus the performer's attention on task-relevant cues following thought suppression is likely to increase the likelihood that the individuals will experience ironic errors.

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CHAPTER 1: INTRODUCTION

Peak performance research (e.g., Gould, Eklund, & Jackson, 1992a, 1992b, 1993; Gould, Finch, & Jackson, 1993; Gould, et al., 1998¹; Orlick & Partington, 1988) indicates that, in order to perform optimally, elite athletes must successfully cope with a variety of stressors. This evidence also suggests these stressors may be both competitive (e.g., injury, poor officiating, expectations from self and others) and non-competitive (e.g., media, travel, environmental conditions). It is therefore important that elite athletes not only possess psychological skills to facilitate peak performance but also develop coping strategies to manage stressors that could prevent or disrupt optimal performance (Hardy, Jones, & Gould, 1996).

Self-regulation training has become recognised as an important means by which athletes can develop and practise their psychological skills and coping strategies (Hardy & Nelson, 1988). Sport psychologists, for example, commonly teach self-regulatory techniques to athletes to help them cope with stress before and during competition (Zinsser, Bunker, & Williams, 1998). Researchers in the area of mental control, however, have presented theoretical arguments and empirical evidence suggesting that efforts to clear the mind of unwanted thoughts when under stress or cognitive load can be ineffective—or worse. Ironically, these efforts to exert mental control may actually produce the very state the individual is trying to avoid (e.g., Wegner, 1994, 1997a, 1997b; Wegner, Broome, & Blumberg, 1997; Wenzlaff & Wegner, 2000). Therefore, using self-regulation strategies when under cognitive load may actually have the potential to be detrimental to athletic performance.

Interestingly, few researchers have examined the ways in which athletes cope with stress and how mental control strategies influence performance (Finch, 1993). In addition, many of the strategies and techniques advocated by sport psychologists to enhance the performance of athletes before and during competition have not been empirically tested (Greenspan & Feltz, 1989). Thought stopping, for example, is a self-regulatory technique commonly advocated by sport psychologists to control intrusive and unwanted thoughts, and reduce stress. Yet, few researchers have investigated the theoretical explanations as to why mental control strategies such as thought stopping do or do not work, and in particular, Wegner's (1994) theory of ironic processes of mental

¹ The information contained within this grant report is also reported in Gould, Guinan, Greenleaf, Medbery and Peterson (1999), and Greenleaf, Gould and Dieffenbach, 2001.

control has not been extensively considered in the evaluation of various self-regulation strategies employed by athletes. This is surprising because sport psychologists should be heading towards evidence-based practices wherein they know which interventions or strategies are effective and which are ineffective. Indeed, as Greenspan and Feltz (1989) noted, “information on which interventions do not work, with which athletes, under which circumstances, would greatly assist practitioners in deciding which are the best interventions to employ or avoid when working with certain athletes” (p. 230).

Moreover, no researchers have tested Wegner’s (1994) theory of ironic processes of mental control using athletes or explored the ecological validity of the theory in a sporting context. Again, this is surprising considering the many implications ironic processing theory has for both sport psychology researchers and practitioners, particularly in the area of stress and coping. For example, ironic processing theory suggests that ironic effects will most likely occur under situations of high cognitive load or stress. Given that competitive sport can be potentially stressful, athletes may therefore be predisposed to ironic processes (Janelle, 1999).

The purpose of this thesis was to develop a better understanding of the ways in which elite athletes cope with stress and how mental control strategies such as thought stopping may influence performance. A series of studies, which examined the relationships between coping effectiveness and elite athlete performance, and the consequences of exerting mental control using Wegner’s (1994) ironic cognitive processing theory were conducted.

According to Wegner (1989) ‘mental control’ includes any conscious attempts or strategies individuals employ to intentionally influence their own mental states. This thesis, however, focused specifically on the mental control strategies used by athletes to help them cope with stress (i.e., coping strategies), and importantly treated thought stopping as one of a class of phenomena of mental control. It is also important to note that in this thesis the term ‘thought suppression’ referred to the intentional suppression of a conscious thought. In contrast, the term ‘thought stopping’ is a mental control strategy that involves a combination of the intentional suppression of a conscious thought and an effort to refocus on task-relevant thoughts (i.e., suppression plus cue word).

Overview of Thesis

This thesis was divided into six chapters. Following this introductory chapter, an extensive review of the literature on stress, coping and mental control is presented. The

concepts of stress and coping are outlined followed by a review of the existing research and theoretical literature regarding these concepts in the context of sport. The conceptual framework of Wegner's (1994) theory of ironic processes of mental control is then presented and a brief discussion of the implications of ironic processing theory for athletes, coaches and sport psychologists given. Chapter 3 outlines Study One, which examines the relationships between coping effectiveness and elite athlete performance. Specifically this involved: (a) identifying the coping strategies employed by New Zealand's athletes before or during their most stressful experience at the 1998 Commonwealth Games; (b) evaluating the relationship between the use of these coping strategies and successful coping; (c) examining the relationship between their coping strategies and expected and unexpected stressors; and (d) evaluating relationships among coping strategy automaticity, coping effectiveness, and athletic performance. Building upon the knowledge gained from Study One a further three studies were conducted and these are described in Chapters 4 and 5. Studies Two and Three focus on the mental control strategy of thought stopping. Study Four examined ironies of action associated with the exertion of cognitive control. Specifically, the ironic processing influences on the performance of a static balance task among participants with task-relevant expertise, were evaluated. The final chapter summarises the major findings from this thesis and provides suggested recommendations for future research in the areas of stress, coping and mental control in sport.

CHAPTER 2: LITERATURE REVIEW

This chapter reviews the research literature on stress, coping and mental control. It is divided into four sections. The first section provides an overview of stress and the stress process. The second section discusses coping research and theory from mainstream psychology, and then reviews existing sport psychology coping research. The third section outlines the conceptual framework of the theory of ironic processes of mental control, and discusses the theory's implications for athletes, coaches and sport psychologists. Section four provides a brief summary of the chapter.

Stress

In order to understand coping and how mental control strategies such as thought stopping influence performance it is necessary to first define and understand the stress process. Unfortunately, considerable confusion surrounds the term 'stress'. Indeed, researchers have used the term stress in at least three different ways.

First, some researchers have defined stress as a situation or stimulus-based variable that challenges the response resources of the individual (e.g., the stress of competing in a major international competition will test an athlete's resolve or fortitude). Second, researchers who regard stress as a physiological or emotional reaction to an environmental event focus on the way individuals' physiological responses change over time (e.g., the athlete experienced a great deal of stress competing in his/her first major international competition).

Third, researchers who have used intervening-process definitions view stress as a dynamic process that involves a transaction between the environment and personal factors (e.g., Lazarus & Folkman, 1984; McGrath, 1970; Smith, 1986). According to this perspective, the way in which an individual appraises and copes with a particular stressor determines the amount of stress she or he experiences. For example, an athlete who regards international competition as a challenge will not experience the same degree of stress as an athlete who finds it threatening. Athletes will only experience stress if they perceive themselves as unable to meet the demands imposed by the stressful situation. Moreover in this view, the competitive situation is not itself stress inducing and stable personality factors such as hardiness are not strong predictors of stress. Rather the objective stimulus environment provokes a stress response depending on the individual's cognitive appraisal of the situation and his or her available coping

responses. Whether or not athletes experience stress and anxiety therefore depends upon a dynamic interaction between environmental and personal factors. For example, Lazarus and Folkman (1984) argue that minimal stress would be experienced when no threat is perceived, or when coping resources are perceived sufficient to deal with perceived threat. In contrast, stress appraisal should be high when a high degree of threat is perceived and/or when coping resources are perceived to be low.

According to Gould and Krane (1992), there are four advantages to viewing stress as a process: (a) stress is defined as a sequence of events leading to a specific behaviour rather than in an emotional context; (b) stress is viewed in a cyclical, rather than a linear fashion; (c) stress is viewed as either positive or negative. A eustress (positive stress) appraisal is most likely to occur when the perceived imbalance between demands and resources is optimally challenging (Selye, 1974). In contrast, distress (negative stress) appraisal will most likely occur when the perceived demands of the situation substantially outweigh the perceived resources; and (d) emphasis is placed on how the individual perceives the situation, rather than merely on the situation.

A number of conceptual models have been developed to explain the stress process (e.g., McGrath, 1970; Smith, 1986). Of these, Smith's (1986) model is perhaps the most useful because it is sports-specific. As illustrated in Figure 1, Smith's model is composed of situational, cognitive, physiological, and coping and task behaviours. The situational component of the model emphasises that stress is a consequence of interaction between situational demands and resources. The cognitive component focuses on the way the athlete cognitively appraises the demands and resources in the particular competitive situation. The physiological component has to do with physiological response to cognitive appraisal (and vice versa). The fourth component consists of the coping and task behaviours that occur in response to the stressful situation. Finally, the model acknowledges that individual differences in personality and motivational patterns have the potential to influence all aspects of the stress process.

Understanding stress as a process also requires an awareness of the relationship between stress and anxiety as the terms anxiety and stress are often used interchangeably. Although anxiety can be a possible byproduct of the stress process it is better defined as "a negative emotional state with feelings of nervousness, worry and apprehension associated with activation or arousal of the body" (Weinberg & Gould, 1995, p. 93). In other words, anxiety relates to the 'affect' or feelings experienced by an individual when they are under stress, whereas stress primarily focuses upon the individual's cognitive appraisal of the situation or stressor.

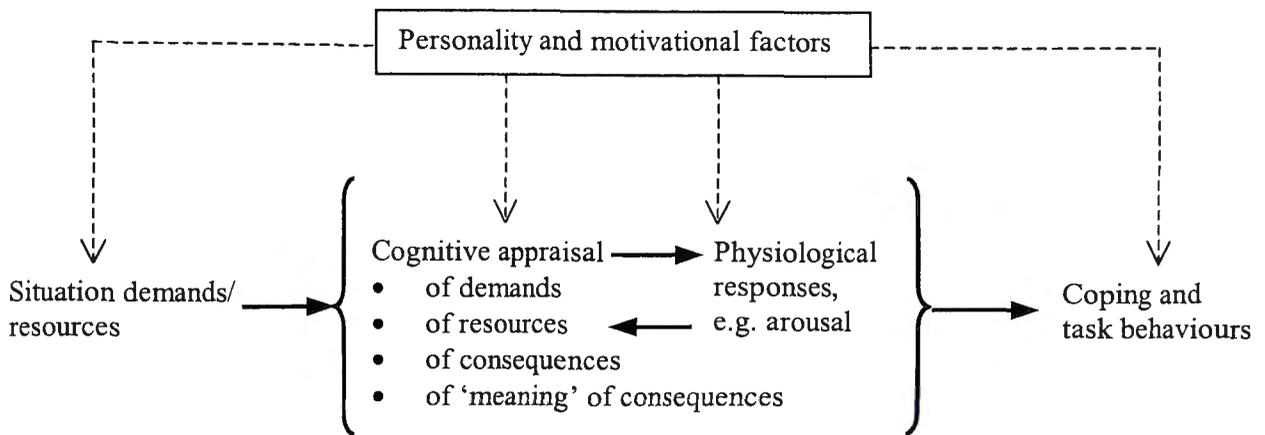


Figure 1.

A conceptual model of stress showing hypothesised relationships among situational, cognitive, physiological and behavioural components (Smith, 1986).

Coping

Conceptual Underpinning of Coping Research

Definition of Coping

Coping strategies have been shown to be a critical factor mediating stress relationships in sport and exercise (Crocker, 1992). However, like the construct of stress, the construct of coping has proven difficult to define. A number of models/perspectives have been proposed for defining coping including: animal-behavioural perspective, psychoanalytical perspective, trait/dispositional perspective, transaction-process perspective (Folkman, 1992). However, all have been criticised for one reason or another. For example, the animal behaviour perspective defined coping as acts that control aversive conditions and thereby lower drive. Studies using this model have focused on how animals coped with aversive stimuli such as electronic shock or excessive temperature, with little or no emphasis, placed on either the coping process or cognitions (Houston, 1987). In contrast, psychoanalytical perspective primarily focused on the role cognitions played in the way individuals coped with stress. Unfortunately, Folkman (1992) identified several problems associated with this model including: (a) it solely focuses on the individual, (b) little attention is paid to the environment or situation, and (c) it understates the complexity and diversity of coping strategies employed by individuals.

The model proven to be most useful or dominant is the transaction-process perspective which views coping as a dynamic process that involves an interaction between environmental and personal factors. Lazarus and Folkman (1984, p. 141) defined coping as “a process of constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands or conflicts appraised as taxing or exceeding the resources of the person”. Thus, coping can be seen as a response or group of responses which are used to reduce or avoid psychological stress (Houston, 1987).

According to Hardy et al. (1996) there are several advantages in viewing coping as a process. First, coping is viewed as a dynamic sequence of steps involving both behavioural and cognitive types of strategies. Second, it encompasses a wide range of purposeful responses (cognitive and behavioural) from appraisal of the situation to stress management (Lazarus & Folkman, 1984). Third, it includes all purposeful attempts to manage stress regardless of effectiveness (Compas, 1987).

Categories of Coping Strategies

Coping may involve both cognitive and behavioural efforts and so it should be no surprise there are many categories of coping strategies. For example, Carver, Scheier, and Weintraub (1989) identified 15 conceptually distinct types of coping strategies (e.g., denial, planning, and suppression of competing activities). Researchers have categorised specific types of coping strategies into broader or more encompassing categories or taxonomies and two of the most widely accepted categories are Lazarus and Folkman’s (1984) problem-focused and emotion-focused coping.

Problem-focused coping refers to cognitive or behavioural efforts used to change or alter the problem causing the distress. These strategies may include planning, suppression of competing activities, increasing effort and problem-solving. In contrast, emotion-focused coping involves strategies used to regulate or manage the emotional distress associated with the stressor (e.g., seeking social support for emotional reasons, denial, wishful thinking and venting of emotions). According to Folkman and Lazarus (1980) individuals will be more likely to use problem-focused coping strategies when they perceive they can do something about the stressor causing the distress, whereas emotion-focused coping will predominate when the individual feels the stressor must be endured. For example, Forsythe and Compas (1987) found that math students used more problem-focused coping strategies when faced with stressful events perceived as controllable, whereas more emotion-focused coping strategies were used when faced with stressful events perceived as uncontrollable. Subjects in Carver, et al.’s (1989) study engaged in more problem-focused coping strategies (e.g., active coping, planning,

suppression of competing activities, seeking social support for instrumental reasons) when they perceived the stressful situation as amenable to change compared with subjects who perceived the situation as something that needed to be tolerated. Interestingly, variations in coping as function of the appraised importance of situation were also found. Subjects used more emotional focusing strategies (e.g., venting of emotions, denial, seeking social support for emotional reasons) when the situations mattered more.

Primary Appraisal, Secondary Appraisal and Coping

Lazarus and Folkman (1984) argued that it is necessary to consider both primary and secondary appraisals to understand the stress process. In primary appraisal, an individual evaluates the personal significance of the encounter for his or her well-being (i.e., the individual asks “what is at stake for me in this encounter?”). Thus, primary appraisals can result in threat, challenge and/or harm-loss evaluations. Threat can be understood as evaluation regarding the potential for harm; challenge as an appraisal of a difficult but anticipated gain; while harm appraisals should be understood as an evaluation that a loss that has already occurred (Lazarus, 2000).

Secondary appraisal involves the individual assessing whether she or he has sufficient resources to cope with the stressor (i.e., the individual asks “what can I do about the stressor?”). Various coping responses and options are evaluated such as changing or doing something about the stressor, accepting or getting used to the stressor, seeking more knowledge before acting, or holding back from a desired action. Together, these four appraisals are used to assess how individuals evaluate their coping options or the degree to which they feel they can or cannot do about the stressor.

The meaning individuals attribute to an event also influences their emotional, cognitive and behavioral responses (Folkman & Lazarus, 1980; Lazarus, 2000; Lazarus & Folkman, 1984; Rotella & Lerner, 1992). Rotella and Lerner (1992) noted that the way individuals cognitively appraised a situation affected not only their perceptions as to whether the situation was stressful but also shaped their emotional and behavioural responses. Moreover, Lazarus (2000) argued that coping and the appraisals that underlie the coping process mediates the way in which people react to emotional-provoking encounters.

Over 30 years ago McGrath (1970) noted that past exposure, practice and training to deal with a situation could reduce uncertainty and therefore modify how a person reacts to the stressor. It is therefore surprising that no one has examined

competitive stressors differing in their expectedness in order to come to a better understanding of the stress appraisal and coping process in sport settings.

It may be unexpected stressors are more likely to be appraised as precursors of harm (i.e., threat) in international sporting competition than expected stressors that occur during the competition. While elite athletes may perceive expected stressors as less threatening, these anticipated difficulties accompanying potential gain may quite reasonably be appraised as challenges. Observable differences accompanying differences in primary appraisals should also be anticipated in the athletes' secondary appraisals of expected and unexpected stressors. For example, elite athletes should feel more in control and be less likely to hold back from a desired action when facing expected stressors provided they have developed and practiced various coping strategies for dealing with these stressors.

Coping Dispositions

One of the most contentious issues in coping literature is whether individuals have a coping disposition or whether coping is situation specific (Hardy et al., 1996; Udry, 1997). Some researchers argue that coping dispositions are useful predictors of coping behaviours. For example, Carver et al. (1989, p. 270) contend that "people do not approach each coping context anew, but rather bring to bear a preferred set of coping strategies that remain fixed across time and circumstances". Other researchers have rejected the notion of coping dispositions and argue they are not good predictors of how individuals will behave in stressful situations (Folkman, 1992; Lazarus & Folkman, 1984).

It may be the case that any consistency in coping areas across situations is a reflection of the individual's personality. Several researchers have also begun to examine the personality characteristics (e.g., hardiness, trait anxiety, optimism) that influence the way individuals cope with a stressor (Finch, 1993; Giacobbi & Weinberg, 2000; Ntoumanis & Roth, 2000; Roth & Cohen, 1986; Scheier, Weintraub, & Carver, 1986). For example, Finch (1993) showed that trait anxiety was related to the type of coping strategy used. High trait anxious athletes used maladaptive and emotional-focused coping strategies more often than low trait anxious athletes. Despite these findings most researchers assert that "what an individual does (i.e., coping responses) is potentially more important in mediating the impact of stress than what the person is (e.g., personality variables) or has (e.g., social support)" (Martin, 1989, p. 214).

Coping Efforts and Outcomes

According to Hardy et al. (1996) researchers have adopted two approaches when attempting to examine coping efforts and effectiveness. The first approach involves researchers identifying important outcomes (e.g., athletic performance) and assessing whether the use of a particular coping strategy is associated with improvements in those outcomes. The second approach assesses the quality of coping exhibited by individuals through the 'goodness-of-fit' notion where coping quality is judged based on two fits: (1) the fit between reality and appraisal; and (2) the fit between appraisal and coping (Lazarus & Folkman, 1984). Both approaches have their critics. For example, the goodness-of-fit notion has proven extremely difficult to test and researchers have disagreed over its usefulness (Hardy et al., 1996). It is for this reason, that Folkman (1992) suggested that, where possible, researchers should utilise both approaches when examining coping effectiveness.

Coping Assessments

Over the years a variety of coping assessments have been developed in an attempt to measure coping. For example, the Ways of Coping Checklist (WCC) comprised eight functionally distinct coping scales that measured how an individual coped with a particular stressful event. It was originally developed by Folkman and Lazarus in 1980 and later revised and modified in 1985. A number of researchers have also revised the WCC to make it more sport specific (e.g., Crocker, 1992; Madden, Kirkby & McDonald, 1989; Madden, Summers, & Brown, 1990). Unfortunately, most coping scales have suffered from one or more of the following problems: non-existent empirical validation of the coping subscales, unstable factor structure, inadequate or non-existent construct validity, and no tests of test/retest reliability (Parker & Endler, 1992).

Citing concerns with the WCC, Carver et al. (1989) developed a copied inventory they named COPE. Since then several researchers have used the COPE (e.g., Finch, 1993) or a modified version of the COPE (e.g., Crocker & Graham, 1995) to examine coping in sport. For example, Crocker and colleagues (Bouffard & Crocker, 1992; Crocker & Graham, 1995; Crocker & Issac, 1997) used a modified COPE to study situational-based coping in sport or physical activity, whereas Eklund, Grove and Heard (1998) used a modified COPE to study trait-like coping between performance slumps.

Smith, Schutz, Smoll and Ptacek (1995) have also developed a multidimensional measure of sport specific coping skills, the Athletic Coping Skills Inventory-28 (ASCI-

28). The ASCI-28 is comprised of seven sport specific subscales that can be summed to yield a general measure of psychological coping skills. However, researchers such as Crocker, Kowalski, & Graham (1998) and Hardy et al. (1996) have suggested that the ASCI-28 had several limitations. For example, Hardy et al. (1996) argued that conceptually it went beyond traditional coping strategies because it included psychological skills (e.g., concentration, confidence) and general coping skills (e.g., coping with adversity).

Sport Psychology Coping Research

Until recently, little attention has been given to understanding how elite athletes cope with sport-related stressors (Crocker et al., 1998; Hardy et al., 1996).

Quantitative Sport Psychology Coping Studies

Most of the research that has been conducted involving athletes has utilised quantitative techniques or methodologies. For example, Krohne and Hindel (1988) administered a variety of anxiety assessments to top table-tennis players (N = 36) in an attempt to examine the relations between general and sport-specific trait anxiety, coping dispositions, self-regulatory techniques, emotional and cognitive reactions to stress, and performance. Results revealed successful table-tennis players could be distinguished from non-successful table-tennis players by a specific combination of anxiety and coping dispositions. In particular, successful table-tennis players had fewer task-irrelevant thoughts (i.e., worry) during competition, and used cognitive-avoidant coping strategies more than vigilant coping strategies. Moreover, Krohne and Hindel found that general as well as sport-specific coping strategies were good predictors of success/performance under stress. According to Hardy et al. (1996) this study was important for two reasons. Firstly, it showed that elite athletes performance(s) could be influenced by coping strategies. Secondly, it studied coping simultaneously with stress and showed there was an interaction between these variables.

A number of researchers have used sport-specific versions of the Ways of Coping Checklist to study coping (e.g., Crocker, 1992; Madden et al., 1989; Madden et al., 1990). For example, Madden et al. (1989) used a modified WCC to examine how 21 elite Australian middle distance runners would cope if they experienced a personal slump in performance. Findings revealed that the strategies most frequently used were: seeking social support; increased effort and resolve, and problem-focused coping. The authors also found a significant correlation between the runner's age and use of problem-focused coping. Madden et al. (1990) also used a modified WCC to examine

the influence perceived stress had on coping in basketball. Athletes who had low levels of perceived stress used coping strategies less frequently when compared with athletes who perceived high levels of stress. For example, highly stressed athletes reported using more increased effort and resolve, social support seeking, wishful thinking and problem-focused coping strategies than lowly stressed athletes. However, researchers such as Hardy et al. (1996) and Crocker et al. (1998) have noted that studies by Madden and his colleagues had a number of limitations and argued that their findings needed to be interpreted with caution. For example, athletes were asked how they would cope with a hypothetical as opposed to a stressful situation they actually experienced. As well, the modified WCC they employed has proven to have substantial limitations (Grove, Eklund, & Heard, 1997).

A sport specific version of the WCC was also used by Crocker (1992) to examine how competitive athletes ($N = 237$) cope with stress. Findings revealed that the athletes used a wide variety of cognitive and behavioural strategies. Moreover, factor analysis showed that the coping strategies could be classified into eight separate dimensions: active coping; seeking social support; positive reappraisal; self-control; wishful thinking; problem-focused coping; detachment and self-blame. Crocker also identified a number of major psychometric problems with the modified WCC (e.g., lack of internal factor consistency) and noted improved coping instruments needed to be developed.

Researchers have also used the COPE (e.g., Finch, 1993) or a modified version of the COPE (e.g., Crocker & Graham, 1995) to examine coping in sport. Finch (1993), for example, used the COPE to examine the relationship between specific coping strategies and performance in 148 collegiate female softball players. Findings revealed that the softballers used a variety of coping strategies to deal with stress. Specifically, softballers reported using more adaptive and emotion-focused coping strategies and fewer maladaptive and problem-focused coping strategies. Coping was also found to be significantly related to performance, but only accounted for 3% to 6% of the variance in batting and fielding average, respectively.

Pensgarrd and Ursin (1998) also used the COPE in their investigation of the coping efforts of Norwegian athletes at the 1994 Winter Olympics. Results revealed that the most frequently reported stressful experiences were external distractions and expectations, and the majority of athletes reported stressful experiences occurred prior to competition. Athletes employed problem-focused coping strategies (e.g., active coping, planning) at all times, whereas strategies such as denial and seeking social

support for emotional reasons—termed “cognitive defensive strategies” by Pensgaard and Ursin (1988)—were more often employed days before and after competition. Interestingly, no relationship was found between type of stressor and problem-focused versus cognitive defensive coping strategies, which suggests that the athletes employed different coping strategies to cope with the same stressor.

Crocker and Graham (1995) administered a modified version of the COPE to 235 male and female athletes in an attempt to examine the relationship between coping and affect, and gender differences in coping and affect. Results revealed that the athletes used primarily problem-focused coping strategies such as increasing effort, planning, active coping and suppression of competing activities. They also found some evidence that females and males coped differently with performance-related stress in sport. For example, females used higher levels of social support for emotional reasons and increasing effort to cope with perceived performance difficulties and performance pressure. However, without a common performance stressor it is difficult to determine whether the gender differences were due to differences in types of reported stressors (Crocker & Graham, 1995).

A modified version of the COPE was used by Crocker and Issac (1997) to examine Canadian swimmers’ (aged 10-16 years) coping strategies during training and competition. Results revealed that the swimmers used adaptive coping strategies such as active coping, suppression of competing activities, planning, positive reinterpretation and growth, consistently during training, whereas during competition the only coping strategy consistently used was acceptance. It was suggested that these differences could have been attributable to the different demands training and competition contexts placed on athletes.

Giacobbi and Weinberg (2000) also used a modified version of the COPE to examine the coping efforts of collegiate athletes. Results revealed that highly trait anxious athletes used coping strategies such as behavioural disengagement, self-blame, humour, denial, and wishful thinking significantly more than low trait anxious athletes. In addition, the coping strategies used tended to be more stable than situationally determined.

Recently, Gaudreau, Blondin and Lapierre (2002) used a French translation of the MCOPE to examine changes in male golfers (aged 13-20 years) coping and affect before, during and after competition; and the extent to which performance-goal discrepancy (PGD) moderated these changes. The mediating role of coping strategies in the PGD-affect relationships was also assessed. Results revealed that across the 3

phases of competition golfers with high PGD reported changes in positive affect and negative affect, as well as increased effort, active coping/planning, behavioural disengagement, positive reappraisal and suppression. In contrast, golfers with low PGD reported changes in venting of emotions and humour.

Smith and Christensen (1995), on the other hand, used the Athletic Coping Skill Inventory (ACSI-28) to examine the coping-performance relationship in 104 minor league baseball players. Results revealed a significant relationship between the psychological skills (e.g., confidence, achievement motivation) used by the baseball players and hitting and pitching performance. Psychological skills were also found to be significantly related to survival in professional baseball 2 and 3 years after the ASIC-28 was administered.

Qualitative Sport Psychology Coping Studies

In an effort to gain a better understanding of the coping process, a number of researchers (e.g., Gould, Eklund, & Jackson, 1993; Gould, Finch, & Jackson, 1993) have employed qualitative methodologies to examine stress and coping in sport. For example, in Gould, Eklund, and Jackson's (1993) study all 20 members of the U.S. Olympic wrestling team were interviewed about the coping strategies they had used to cope with the stress they had experienced during the 1988 Olympics. Content analysis of the interviews revealed that the wrestlers employed four major categories of coping: (a) thought-control strategies (e.g., blocking distractions, perspective taking, positive thinking, prayer); (b) task-focused strategies (e.g., focusing on the task at hand, concentrating on one's goals); (c) behavioural-based strategies (e.g., changing or controlling the environment, following a set routine); and (d) emotional control strategies (e.g., arousal control, visualisation).

Gould, Finch, and Jackson (1993) also used interviews to examine the coping strategies of 17 current or former US national champion figure skaters. Content analysis of the interviews revealed a variety of general dimensions or categories of coping strategies. Categories reported by at least 40% of the skaters included:

- rational thinking and self-talk;
- positive focus and orientation (e.g., positive thinking);
- social support (e.g., coach support, assistance from sport psychologist, talking with friends and family);
- time management and prioritisation;
- precompetitive mental preparation and anxiety management (e.g., visualisation, relaxation);

- training hard and smartly (e.g., taking responsibility for one's training);
- isolation and deflection (e.g., avoiding and/or screening the media); and
- ignoring the stressor.

Dale (2000) interviewed seven elite male U.S. decathletes about their most memorable performance in decathlon competition. Interestingly, all seven athletes reported being acutely aware of a number of distractions (e.g., lack of confidence, fear, fatigue) during their most memorable performance, and noted they had employed a variety of strategies to cope with these distractions and remain focused on the task at hand. Six different strategies emerged, including: imagery/visualisation, being aware of cues, competing only against self, confidence in one's training, consistency, and camaraderie. Park (2000) also used interviews to examine coping strategies used by 180 former or current elite Korean athletes. Content analysis of the interviews revealed that the athletes employed seven general dimensions of coping strategies: psychological training, training and strategies, somatic relaxation, hobby activities, social support, prayer, and substance use.

More recently, Anshel and colleagues (Anshel, 2001; Anshel, Kee-Woong, Byung-Hyun, Kook-Jin, Han Joo, 2001) have conducted several qualitative investigations examining how athletes coped with acute stress. For example, Anshel (2001) interviewed 28 Australian Rugby League Players (aged 18-27 years) in an attempt to validate his recently proposed model for coping with acute stress in sport. Content analysis of the interviews at each stage of the model confirmed the use of (a) harm/loss, threat and challenge appraisals, (b) approach and avoidance coping strategies, and (c) three post-coping activity categories. Anshel and Delany (2001) also used interviews to examine sources of acute stress and cognitive appraisals employed by male and female hockey players (aged 10-12 years). Results showed that the most frequently cited and intense sources of stress were receiving a bad call and making a physical game error. Athletes tended to employ an avoidance coping strategy when they appraised the stressor as negative, whereas approach coping was most common following positive appraisals. More importantly, the results indicated that the use of cognitive appraisals and coping strategies was dependent upon the type of stressor encountered by the players.

In summary, most studies describing elite athlete coping have concluded that athletes tend to use multiple strategies in combination to manage any given stressor and that the combination of strategies employed varies depending upon the stressor (e.g., Gould, Eklund, & Jackson, 1993; Gould, Finch, & Jackson, 1993).

Discriminating Between Effective and Non-Effective Copers

Several researchers have used sub-groups (e.g., effective versus non-effective copers, medallists versus non-medallists) to compare athletes' coping strategy use in an effort to identify important differences that may influence performance. Finch (1993) used discriminant function analyses to examine group differences in her coping investigation. Profiles of more effective copers included high use of "adaptive" strategies (e.g., acceptance, planning), low use of "maladaptive" strategies (e.g., denial, behavioural disengagement), and higher self-ratings of coping ability. Analyses from similar investigations, however, have not necessarily found discriminating patterns in use of coping strategies. Gould, Eklund, and Jackson (1993), for example, were unable to identify differences in coping strategy use across 1988 US Olympic wrestling medallists and non-medallists. The only salient difference noted was that non-medallists discussed their coping efforts in ways that suggested that: (a) they did not have their coping strategies as well-learned or automated as the medallists, and (b) they had to consciously engage in coping strategies when faced with a stressor. Interestingly, Finch (1993) reported that more effective copers in her study were also characterised by more automated coping responses.

While the results of comparisons of groups of athletes on coping strategy use are mixed, more consistent evidence has emerged indicating that planning and preparation for stressors encountered in elite sport competition is associated with superior performance. Orlick and Partington (1988), for example, found that the best Canadian athletes (i.e., medallists) at the 1984 Olympics had used simulation training extensively to help them prepare for competition and to develop strategies for coping with potential stressors. More recently, Gould et al. (1998) used both quantitative and qualitative methodologies to examine the factors that positively and/or negatively affected the performance of U.S. athletes and coaches competing at the 1996 Olympics Games. The results revealed clear differences between athletes, coaches and teams who performed well in Atlanta and those who did not meet their performance expectations on this account. Specifically, teams who had performed at or above expectations had mentally prepared themselves to deal with unexpected events and stressors and had plans or systems to deal with the many distractions they encountered at the Games (e.g., media, family, sponsors).

In conclusion, Gould et al. (1998) noted that:

Successful Olympic performance was a complex, multifaceted, fragile, and long-term process that required extensive planning and painstaking implementation. It

seldom happened by chance and was easily disrupted by numerous distractions. Attention to details counted, but had to be accompanied by flexibility to deal with numerous unexpected events (p. 117).

Mental Control

In providing advice on how to cope with distractions and stressors, coaches often tell their athletes to ignore distractions with suggestions such as “don’t think about it”, or “pay no attention to it.” Sport psychologists provide a somewhat more sophisticated version of this advice by using cognitive strategies such as thought stopping, thought replacement (i.e., changing negative self-talk to positive self-talk), countering and reframing to help athletes’ control unwanted or intrusive thoughts (e.g., Martens, 1987; Moran, 1996; Orlick, 1986; Zinsser et al., 1998). These types of strategies still rely upon, at least in part, the notion of purposefully not thinking about the distractor or stressor.

Theory of Ironic Processes

Wegner’s (1994) ironic processing theory of mental control specifies conditions under which the desire to control a mental state can yield the ironic opposite of what is intended. According to the theory, any attempt to control one’s thoughts, emotions or actions initiates two cognitive processes, an “intentional operating process” and an “ironic monitoring process.” The intentional operating process is a conscious, effortful search for mental contents consistent with the desired state. In contrast, the ironic monitoring process is an unconscious, automatic search for the mental contents signalling the failure to achieve the desired state. Usually, the intentional operating process exerts greater influence over our mental states than the ironic monitoring process. However, when a person’s mental processing capacity is under strain (e.g., under conditions of stress, cognitive load, or distraction) “the monitor’s effects on the mind can supersede those of the operator, producing the very state of mind that is least desired. An individual’s attempts to gain mental control may thus precipitate the unwanted mental states they were intended to remedy” (Wegner, 1997a, p. 148).

Evidence of Ironic Effects

Evidence for ironic errors has been observed in several areas of mental control. For example, Wegner and others have conducted a number of laboratory based studies which have shown that: (a) intentional thought suppression under cognitive load can lead to accessibility of suppressed or unwanted thoughts (Wegner & Erber, 1992; Abramowitz, Tolin, & Street, 2001); (b) intentional concentration under load can

increase the accessibility of unwanted distractors (Wegner, 1997b); (c) intentional mood control under load can produce moods opposite to those that are intended (Wegner, Erber, & Zanakos, 1993); (d) intentional relaxation under load can lead to increased anxiety (Wegner et al., 1997); (e) intentional sleep under load can induce wakefulness (Ansfield, Wegner, & Browser, 1996); (f) intentional forgetting under load can lead to greater remembering (Macrae, Bodenhausen, Milne, & Ford, 1997); (g) attempts at pain suppression can magnify pain perception (Cioffi & Holloway, 1993); and (h) attempting not to overshoot a golf putt under load can induce such overshoots (Wegner, Ansfield, & Pilloff, 1998).

Due to the demanding nature of typical sporting contests and the fact that ironic processes are most likely to occur under situations of high cognitive load it is somewhat surprising that no researchers have investigated the potentially detrimental effects of ironic processes in sport. A recent review article by Janelle (1999), however, has examined several interventions and issues in sport and exercise psychology (e.g., anxiety, self-confidence, concentration, movement) and outlined how ironic processing theory may influence performance in these settings. Wegner et al.'s (1998) study on golf putting, for example, suggests that there is significant potential for performance errors to occur from an inability to control thought processes. Janelle (1999) also noted that several strategies or interventions advocated by sport psychologists might actually predispose athletes to ironic processes.

Thought Stopping

One mental control strategy commonly advocated by sport psychologists to cope with stress and the unwanted and/or negative thoughts associated with stress is thought stopping. Thought stopping involves recognising the unwanted or intrusive thought briefly, then using a cue or trigger word to stop the thought and replace it with constructive thinking (Martens, 1987). A similar type of strategy recommended by some sport psychologists (e.g., Orlick, 1986) requires athletes to temporarily set aside their unwanted or irrational thoughts (i.e., to stop thinking about them) for examination at a more appropriate time. Orlick (1986) has suggested, for example, that athletes may mentally write their negative or unwanted thoughts on a piece of paper and then throw them into a rubbish bin, or physically touch an inanimate object such as a tree in order to mentally “park” their unwanted thoughts elsewhere.

On the surface trying not to think about something would appear an effective strategy. For example, Gould, Eklund, and Jackson (1993) reported that 55% of the US wrestlers competing at the 1992 Olympics made interview comments on their efforts “to

deny access to their consciousness of distracting, irrelevant, or irritating thoughts” (p. 88). Forty-one percent of the skaters in Gould, Finch, and Jackson’s (1993) study also reported “ignoring” as a way of coping with the sources of stress they experienced while national champion. However, thought suppression, whether denying access or ignoring thoughts, is not only very difficult for most athletes to do, it usually “brings only passing relief, as it infects every distracting idea with the germ of the rumination they wish to dispel” (Wegner, 1988, p. 694). Dugdale (1996) interviewed a former international cricketer and world record holder who described experiences of this sort while trying to suppress unwanted thoughts and/or distractions while competing:

You get a lot of distractions fielding on the boundary in One Day Internationals in Australia such as verbal abuse and stuff like that. I generally deal with it by trying to ignore it but sometimes it’s gets pretty hard. I try to turn my back on it and shut it out of my mind, but it’s not easy. I have really wanted to punch out some of those people (p. 53).

According to Wegner, Schneider, Carter, and White (1987) one of the reasons thought suppression is so difficult is because thinking without focus is difficult. Generally, individuals who attempt thought stopping do not identify a desired replacement thought which results in them creating associations in their memory between the unwanted thought and whatever they happen to be thinking about at the time. Fortunately, initial research by Wegner, et al. (1987) suggests that individuals given a specific thought or cue word to focus on during thought stopping will be less likely to exhibit later preoccupation with the thought being suppressed.

Research conducted by Wegner, Schneider, Knutson, and McMahon (1991) also suggested that ironic effects would largely be eliminated if individuals used positive, rather than negative cue words during thought suppression. More recently, Wenzlaff and Bates (2001) conducted a series of studies examining the relative efficacy of concentration and suppression strategies of mental control. Results indicated that a concentration strategy of mental control (e.g., concentrating on desirable thoughts) may circumvent the problems associated with thought suppression. Collectively, these findings suggest that: (a) the likelihood of effective self-regulation will be reduced under conditions of stress or cognitive load; and (b) athletes who do not refocus their attention onto appropriate task-relevant cues following thought suppression are more likely to exhibit later preoccupation with the thought being suppressed.

Unfortunately these findings also generate many questions that remain unanswered. For example, is thought stopping (i.e., using cue words to refocus ones

attention following suppression) a more effective strategy for coping with unwanted or intrusive thoughts compared with simply trying to ignore or “not think” about these thoughts? Should athletes be given a general instruction to refocus, or use specific process or performance cues to help them remain focused? A number of sport psychologists (e.g., Orlick, 1986; Zinsser et al., 1998) argue that athletes should focus on the process of performing rather than what they are trying not to do when using positive self-talk. Yet, as previously mentioned, there is little or no empirical evidence to support these suggestions (Greenspan & Feltz, 1989).

Implications

Ironic processing theory has several implications for athletes, coaches, and sport psychologists. For example, ironic processing theory suggests that athletes could lessen the frequency and intensity of ironic errors by one of three ways:

(a) reducing cognitive load or stress. Ironic processing theory stipulates that ironic errors are most likely to occur when athletes attempt mental control under adverse conditions, such as stress or cognitive load. Therefore, anything that reduces cognitive load or stress (e.g., stress management, changing athletes’ cognitive appraisal of stressors, situational familiarisation, familiarity with competitive situations) would lessen the likelihood of ironic errors.

(b) disabling the monitoring process. This is best achieved by using paradoxical interventions (e.g., flooding) which compel athletes to give up trying or to relinquish their attempts at mental control. For example, telling athletes to think their unwanted thoughts and/or dwell on their worries may undo the problem by undoing the control (Wegner, 1997a). However, Janelle (1999) noted that little is known about the use of paradoxical interventions, and suggested that it would be unwise to implement them in applied settings without first conducting extensive research into their effectiveness.

(c) making the operating process more efficient. According to Smart & Wegner (1996) anything that enhances the operating process (i.e., makes it more robust and resilient to interruption) will increase the degree to which the operating process will direct attention to the desired contents of the mind (or goal states). This can be achieved via two means (i) the selection of effective operating process strategies, and (ii) the automatising of the operating process. In other words, athletes can enhance the efficiency of the operating process if they choose effective self-regulatory strategies; and then practise these strategies until they become well learned and automatic. Conversely, athletes who choose poor strategies for mental control, or have had little

practice with the chosen strategies and so perform them haltingly, are more likely to experience ironic errors (Wegner, 1997a).

Summary

The literature reviewed in the previous sections of this chapter suggests that coping is a complex, dynamic process and that elite athletes tend to use a variety of different strategies in combination to manage any given stressor. The combination of strategies employed by these athletes also varies depending upon the particular stressor they encounter.

The theory of ironic processes of mental control (Wegner, 1994) holds that mental control is achieved through the interaction of a conscious, effortful intentional operating process and an unconscious and less-effortful ironic monitoring process. Usually, mental control functions at a satisfactory level but under certain conditions (e.g., stress, cognitive load, time constraints) the monitor's effects on the mind can supersede those of the operator, producing the thoughts, emotions or actions that are least desired. Ironic processing theory, therefore, may be used to account for the failures in cognitive functioning and apparent reversals in attempts at self-regulation that can occur in competitive sport (Janelle, 1999).

CHAPTER 3: STUDY ONE

A number of the studies outlined in Chapter 2 indicated that, in order to perform optimally, elite athletes must successfully cope with a variety of stressors (e.g., Gould et al., 1998). This is important because it shows that elite athletes must not only possess psychological skills to facilitate peak performance but also develop coping strategies to manage stressors that could prevent or disrupt optimal performance (Hardy et al., 1996). Unfortunately, as the review of literature also highlighted, few researchers have specifically examined the ways in which athletes cope with stress and how different mental control strategies such as thought stopping can influence performance. Consequently, our present understanding of how elite athletes cope with stress remains somewhat limited.

This chapter outlines Study One, which attempts to examine the relationship between coping effectiveness and elite athlete performance. The main aims of the study were: (a) to identify the coping strategies employed by New Zealand's athletes before or during their most stressful experience at the 1998 Commonwealth Games; (b) evaluate the relationship between the use of these coping strategies and successful coping; (c) examine the relationship between their coping strategies and expected and unexpected stressors, and (d) evaluate relationships among coping strategy automaticity, coping effectiveness, and athletic performance.

Method

Participants

One hundred and forty-six (67%) of the 218 New Zealand athletes who competed at the 1998 Commonwealth Games in Kuala Lumpur participated in this investigation. Of these, 123 athletes completed and returned a Pre-Games Questionnaire, and 91 athletes completed the Post-Games Questionnaire. Seventy-one athletes completed both the Pre- and Post-Games Questionnaires. Twenty-seven of the 218 athletes selected to represent New Zealand at the Games were not surveyed prior to the Games because they were either: (a) unavailable at the request of the coach and/or section manager; or (b) unable to be contacted by the investigators.

The 123 athletes (75 male, 48 female) who completed and returned a Pre-Games Questionnaire ranged in age from 17 to 60 years ($M = 27.1$ years, $SD = 7.9$). They had on average 14.8 years ($SD = 5.3$) experience playing their respective sport (10

individual sports, 4 team sports) and had competed at a national level on average 6.1 years ($SD = 4.1$). Thirty-four athletes (28%) had not previously competed in a major international competition (e.g., Olympics, World Championships, Commonwealth Games) while a further 33 athletes (27%) had competed in one major international competition. Thirteen of the 123 athletes (11%) had competed in six or more major international competitions.

The 91 athletes (46 male, 45 female), who completed the Post-Games Questionnaire had an average age of 25.6 years (ages ranged from 14 to 46, $SD = 6.2$). Thirteen sports (10 individual, 3 team) were represented: athletics ($n=4$), badminton ($n=3$), boxing ($n=3$), cricket ($n=5$), cycling ($n=2$), diving ($n=1$), gymnastics ($n=9$), hockey ($n=20$), lawn bowls ($n=2$), netball ($n=7$), shooting ($n=7$), squash ($n=5$), weightlifting ($n=3$). On average, athletes had participated in their respective sports for 13.6 years ($SD = 4.7$) and competed at a national level for 6.3 years ($SD = 4.9$). Thirty-seven of the athletes (41%) who returned a Post-Games Questionnaire reported winning medals, whereas 15 athletes (16%) indicated that they had failed to equal or better the standard or time they had achieved in qualifying for the Commonwealth Games.

Instruments

The Pre and Post-Games Questionnaires (Appendix A) used in this study formed part of an externally funded research project involving New Zealand Commonwealth Games athletes (Dugdale, Eklund, & Gordon, 1999). The questionnaires were based on a review of the literature involving coping and elite athletes (e.g., Gould, Eklund, & Jackson 1993; Gould, Finch, & Jackson, 1993; Gould, Horn, & Spreeman, 1983; Gould Jackson & Finch, 1993; Hardy et al., 1996; Scanlan, Stein, & Ravizza, 1991), and feedback received from New Zealand coaches and athletes who had attended previous Commonwealth and Olympic Games. Topical areas included in the questionnaires were: participants' background; importance of the Commonwealth Games; use of psychological skills during training and competition; performance goals and readiness; most important performance; major sources of stress during the 1998 Commonwealth Games; most stressful experience; athletes' cognitive appraisal of expected and unexpected stressors; types of coping strategies athletes used during the Games; effectiveness of athletes' coping strategies; advice and recommendations for young athletes and/or those yet to compete in a major international competition. However, only the questions, inventories and Likert-type scales relevant to this thesis will be discussed here.

Pre-Games Questionnaire

Sport Anxiety Scale (SAS). The SAS (Smith, Smoll & Schultz, 1990) is a 21-item, multidimensional measure of competitive trait anxiety. The SAS consisted of three subscales: (a) somatic anxiety containing 9 items, (b) worry containing 7 items, and (c) concentration disruption containing 5 items. Athletes were asked to respond to each item (e.g., “My body feels tight”) using a 4-point ordinal scale (not at all = 1, very much so = 4). Researchers (e.g., Smith et al., 1990) have shown that the SAS has high internal consistency (Somatic Anxiety .88; Worry .82; Concentration Disruption .74), adequate test-retest reliability ($r = .85$), and convergent and construct validity. Cronbach’s alpha coefficients for the SAS in the present investigation were somatic anxiety .84 (item-total correlations from .40 to .70), worry .72 (item-total correlations from .50 to .66), and concentration disruption .76 (item-total correlations from .36 to .61).

White Bear Suppression Inventory (WSBI). The WSBI (Wegner & Zanakos, 1994) is a 15-item self-report measure of the tendency to suppress unwanted thoughts. Athletes were asked to indicate the extent to which certain thoughts or images occurred in their mind when competing in sport. For example, “I try to keep unwanted thoughts from intruding on my mind” or “I have thoughts I try to avoid”. The items were scored on a 9-point agreement scale ranging from strongly disagree (1) to strongly agree (9). Wegner and Zanakos (1994) reported that the WSBI had acceptable internal consistency and temporal stability. The internal consistency of the WSBI in the current investigation was adequate .82 (item-total correlations from .29 to .58).

Miscellaneous. Athletes were also asked questions about potential sources of stress at the 1998 Commonwealth Games. For example, “How important is it to you, to perform well at the 1998 Commonwealth Games?” and “Is there anything about performing at the 1998 Commonwealth Games in Kuala Lumpur that concerns or worries you?”

Post-Games Questionnaire

Most important performance. Athletes were asked to identify their most important performance during the 1998 Commonwealth Games and answer a series of questions pertaining to that particular performance. For example, “Briefly describe what you were thinking about, or saying to yourself immediately before your most important performance”, “Tick the box on the following scale to represent the degree to which you were focused on the appropriate task-relevant thoughts during your most important performance”.

Readiness to perform. Athletes rated their physical, technical and mental

readiness to perform using three identical 0-100 scales (0 = 0% ready, 100 = 100% ready). Athletes were given the following instructions: “How did you feel immediately before your most important performance? How ready did you believe you were at that moment? Tick the appropriate box from each of the scales below to represent the degree of your physical, technical and mental readiness”. The internal consistency of these 3 scales was adequate (i.e., .71) with the item-total correlations ranging from .60 to .65.

Competitive Sources of Stress (CSS). A 40-item CSS scale was developed specifically for this investigation to assess perceived sources of stress during the 1998 Commonwealth Games. The questionnaire was pilot tested on several coaches and athletes and feedback from these individuals was used to clarify wording of items and ensure context-specific relevance. Athletes responded to each item on a 5-point Likert-type scale in terms of how often they worried about a particular stressor during the 1998 Commonwealth Games (never = 1, always = 5). Example questions included: “I worried about the importance of the competition”, “I worried about what my coach(es) would think or say” or “I worried about my lack of experience”.

Most stressful experience. Athletes were asked, in an open-ended question, to identify and describe the most stressful experience they had prior to or during their most important performance at the Games. They then responded to a series of questions relative to that experience. For example, “Did your most stressful experience affect your performance during your most important performance? If yes, please describe how your performance was affected.” “When did your most stressful experience occur?” Athletes were also asked to indicate whether their most stressful experience had been expected or unexpected (i.e., something they or their team had planned or prepared for) and to briefly describe what they and/or their team had done to prepare or plan for the expected stressors.

Cognitive appraisals. Primary and secondary appraisals associated with their most stressful experience were assessed using 9-point Likert-type scales (anchors ranged from 1 to 9 with 9 indicating greater levels on each variable). Threat and challenge primary appraisals were each measured by single items (as developed by Folkman & Lazarus, 1980) that asked the extent to which their most stressful experience was, respectively, one “that you found negative and/or threatening,” and “that you found positive and/or challenging”.

Secondary appraisals were assessed by seven items. Athletes were asked to indicate the extent to which the stressful experience was something: (a) “that you could change or do something about”, (b) “that needed to be accepted or gotten used to”, (c)

“that you needed to know more about before you could act”, (d) “in which you had to hold yourself back from what you wanted to do”, (e) “manageable by me”, (f) “something I can regulate”, and (g) “something over which I have power”. The first four items were originally used by Folkman and Lazarus (1980) as secondary appraisal indicators. The final three items used to assess the degree to which athletes regarded the stressors as controllable were minor modifications (i.e., use of “I” or “me” instead of “you”) of the personal control subscale of McAuley, Duncan and Russell’s (1992) Causal Dimension Scale. The three items used to assess the controllability secondary appraisal of the stressor demonstrated satisfactory internal consistency ($\alpha = .80$, item-total correlations ranging from .61 to .79).

Coping strategies. Coping strategies used by the athletes during the Games were assessed by a modified version of the COPE, which consisted of 16 subscales: 10 original COPE scales (Carver et al., 1989); four sport specific scales developed by Crocker and Graham (1995); and two exploratory scales developed specifically for this study (i.e., avoidance, thought suppression). A number of items were also modified to make them more relevant to elite athletes and a specific stressful situation. For example, “I try to get emotional support from my friends or relatives” was changed to “I try to get emotional support from my coach or teammates”. Each of the 16 scales consisted of 4 items with every item scored on a 5-point ordinal scale (used not at all = 1, used a great deal = 5). Athletes were asked to describe their most stressful experience and then indicate how much they had used each strategy. The modified COPE subscales have demonstrated acceptable internal consistency in earlier investigations (e.g., Crocker & Graham, 1995; Crocker & Issac, 1997), although two of the scales (i.e., denial and behavioural disengagement) have been problematic. For example, Crocker and Graham (1995) reported alpha coefficients between .62 to .92, except for denial that had an alpha of .42. Fourteen of the 16 subscales used in the present study showed adequate internal consistency with alpha values ranging from .70 to .85 (with item-total correlations for each subscale ranging from .12 to .83). The behavioural disengagement .52 (item-total correlations from .28 to .40) and suppression of competing activities .59 (item-total correlations from .16 to .57) subscales were less satisfactory and hence they were removed from further consideration in this study.

Goal attainment. Three items previously employed by Crocker and Graham (1995) were used to measure athletes’ perceptions of performance goal attainment. These items included: (a) “I personally was able to perform as well as I wanted,” (b) “I did not reach my personal performance goal(s)” (reverse scored), and (c) “I was able to

achieve my personal performance objectives”. Each item was scored on a 5-point agreement scale ranging from disagree (1) to agree (5). The items demonstrated high internal consistency in this study ($\alpha = .89$; item-total correlations from .83 to .87).

Coping effectiveness. Athletes were asked to rate the effectiveness of the coping strategies they had used to cope with their most stressful experience using a 11-point Likert-type scale (0% effective = 0, 100% effective = 10).

Coping automaticity. The degree to which athletes’ coping strategies were employed automatically to manage their most stressful experience was measured by the three items Finch (1993) had used to assess coping automaticity. The statement stem of “In general during my most stressful experience” was followed by 9-point bi-polar response scales with anchors of “My coping required effort (1) to “My coping was automatic” (9); “I made a deliberate effort to cope” (1) to “I made no conscious effort to cope” (9); “I thought a great deal about my coping strategies” (1) to “I didn’t have to think about my coping strategies” (9). The observed internal consistency of these items was adequate ($\alpha = .76$; item-total correlations from .47 to .68).

Sport Cognitive Interference Questionnaire (SCIQ). The SCIQ (Schwenkmezger & Laux, 1986) is a 10-item self-report questionnaire, which measures task-irrelevant cognitions experienced by elite athletes during competition. Athletes responded to items such as “I thought about how important the performance was” or “I thought about something that had happened in the past” using a 5-point ordinal scale (1 = never, 5 = always). Researchers have shown that the SCIQ has construct, convergent and predictive validity (Schwenkmezger & Laux, 1986). Several items were also modified as the SCIQ was originally designed to assess the task-irrelevant cognitions of elite athletes in handball. The relevance and wording of the modified items were evaluated by several sport psychologists and elite coaches and the questionnaire pilot-tested on a variety of athletes to ensure the SCIQ was suitable for every athlete competing at the Commonwealth Games. Feedback received from the sport psychologists, coaches and athletes supported the inclusion of all 10 items. The internal consistency of the SCIQ in the present investigation was adequate .76 (item-total correlations from .21 to .64) although one item (i.e., “I thought about how incompetent the official(s) were”) was removed as it had an item-total correlation of .17).

Procedure

Six weeks prior to the Games the New Zealand Olympic Committee was contacted and sent material explaining the proposed investigation (Appendix B). Fifteen National Sporting Organisations (e.g., New Zealand Swimming) sending athletes to the

Games in 17 sports were subsequently sent a cover letter and two page research proposal outlining the aims of the project (Appendix C). Appropriate approvals were obtained from all of these organisations. Coaches and/or section managers attending the Games were then sent a cover letter, a two page research proposal, athlete information packs and instructions on how to administer the questionnaire (Appendix D). Each information pack contained a cover letter, information sheet (Appendix E), informed consent form (Appendix F), Pre-Games Questionnaire, and stamped self-addressed envelope. The information sheet described the purpose of the project, the time commitment required and their rights as a participant. It was emphasised that participation was voluntary, that they could withdraw at any time, and that their responses would be kept confidential.

Information packs were then distributed to the athletes by either the coaches or section managers. The majority of the athletes completed their questionnaires while attending pre-games camps in New Zealand or overseas. Post-Games Questionnaires and information packs were sent to either the coaches and/or section managers during the Games. All but two of the Post-Games questionnaires were completed and returned to the researchers (in sealed envelopes) within seven days of the Closing Ceremony. The remaining questionnaires were posted directly to the researchers three weeks later.

Results

General Descriptives

Forty-two of the athletes (46%) who returned the Post-Games Questionnaire reported winning medals, either individually ($n = 9$) or as a member of a team ($n = 35$). Of the 47 medals won, 4 were gold, 13 were silver and 30 were bronze. Four athletes won two or more medals.

Thirty-two athletes (35%) indicated there was a Commonwealth Games standard or qualifying time for the event they described as their most important. Of these 13 athletes (14%) said they had equalled or bettered the standard or qualifying time, whereas 19 athletes (21%) indicated that they had failed to equal or better the standard or time they had achieved in qualifying for the Commonwealth Games.

Twenty-two (24%) of the athletes surveyed achieved a personal best (PB) during their most important performance. Twenty-three athletes (25%) did not achieve a PB while 46 athletes (51%) indicated that achieving a PB was not applicable with respect to their particular sport (e.g., hockey, netball). Five athletes indicated that they achieved more than one PB during the Games. For example, one male gymnast achieved a PB in

all four events he competed in.

In summary, a number of athletes who participated in this investigation performed very well at the 1998 Commonwealth Games (e.g., 41% won medals, 24% achieved a PB). However, there were also several athletes who performed below expectations (e.g., 16% failed to equal or better a standard or qualifying time they had achieved prior to the Games).

Importance of Commonwealth Games

When asked how important it was to them to perform well at the 1998 Commonwealth Games most of the athletes indicated that it was very important ($M = 8.77$ on a 9-point scale, $SD = 0.59$). Content analysis of the athletes written responses identified several data themes (see Table 1). As can be seen in Appendix G the majority of the athletes reported two or more reasons. For example, one athlete replied:

It is the most important competition in my career so far and it is a chance for me to perform a personal best and also win a Commonwealth medal. It is an opportunity that I might never have again and I want to make the most of it.

Another athlete said:

It was important to perform well because the team did not perform in the World Cup. We have to do well here so we can maintain our funding and so I can keep my place in the team. It is also important for other nations to find out how good I am, and highlight to the New Zealand public that we are a good side.

A willingness to prove others wrong was also mentioned by several athletes. For example, one athlete noted:

I got bad media (trashed) after the World Cup and I want to prove to myself and to the critics that I'm the best [players position] in New Zealand and can foot it with the best in the world.

Table 1

Reasons Why the 1998 Commonwealth Games Were Important to New Zealand Athletes

<u>Reasons</u>	<u>Frequency</u>
Pride/honour/prestige	28
Prove to self and others (e.g., sports administrators, media, public) that they were good enough	23
Dream/goal athlete had set months/years ago (e.g., 2 years)	22
Play well and/or perform to the best of their ability	20
Increases profile of sport (and possible funding) if perform well	19
Chance/opportunity to win a medal	16
Stepping stone to the future (e.g., Sydney Olympics)	12
Once in a lifetime opportunity	12
Secure/establish place/position in squad/team	11
Test skills under pressure and/or at international level	9
Determines where they stand internationally	8
Justified effort and sacrifices athletes had made in getting there	8
Poor preparation and/or performances leading into Games	7
First major international competition and/or representing New Zealand	5
Gauge self against peers	4

Note. Total frequency exceeds 123 as majority of athletes identified more than one reason.

Most Important Performance

Athletes were asked to identify their most important performance during the 1998 Commonwealth Games and explain why they regarded it as their most important. Athletes' written responses were content analysed and are presented in Table 2 (Appendix H). It is apparent that a variety of issues influence the perceptions of importance attached to a particular performance and that not only medal performances are important in athletes' minds.

Table 2

Reasons Why Identified Performance Was Important to New Zealand Athletes

<u>Reasons</u>	<u>Frequency</u>
Needed to win to qualify (e.g., semi-finals, finals, next round)	30
First and/or only performance at the Games	17
Decided who won a medal and/or type of medal	16
Quality of opposition	5
Favourite event	4
Personal expectations	4
Best opportunity to perform well	3
Determined how much funding individual/team/sport would receive in future	3
Poor preparation and/or performances leading into Games	2

The majority of the athletes indicated that their most important performance at the 1998 Commonwealth Games was moderately stressful ($M = 5.38$ on a 9-point scale, $SD = 2.11$). There was considerable variability between the athletes with several perceiving little stress while others found it very stressful. Themes from content analysis of the athlete's written responses are presented in Table 3 (Appendix H). For example, one athlete said:

It was stressful thinking about what would happen if I didn't do well.

Another athlete commented:

I was scared I would muck up and I really wanted to perform well for my country and me. I was a little nervous having to perform in such a big crowd but once I got going I really enjoyed competing.

Table 3

Reasons Why New Zealand Athletes Most Important Performance Was Stressful

<u>Reasons</u>	<u>Frequency</u>
Expectations of self and others (e.g., sports administrators, media, public)	21
Importance of the performance (e.g., semifinal, final, must-win situation)	16
Closeness of the score/pressure	7
Poor preparation and/or performances leading into the Games	6
Quality of opposition	5
First and/or only performance at the Games	4
Carrying an injury or coming back from injury	2
First major international competition and/or representing New Zealand	2
Lack of communication (e.g., teammates, management)	2
Poor umpiring/officiating	2
Environmental conditions (e.g., heat, humidity)	2

The variability in reasons identified is interesting and reveals that it was not necessarily the importance of the match per se or the fact that it was a medal event that made their most important performance stressful. There were a number of other reasons (e.g., expectations of self and others).

Athletes also rated their physical, technical and mental readiness on a scale of 0-100, where 0 = 0% ready and 100 = 100% ready. As can be seen in Table 4 there was large variability in athlete degree of readiness. Several athletes said they were 100% ready, whereas a number said they were not ready mentally, physically and/or technically despite spending months and/or years preparing for the Games. For example, two athletes indicated that they were only 30% ready mentally.

Table 4

Degree of Physical, Technical and Mental Readiness Prior to New Zealand Athletes
Most Important Performance at the 1998 Commonwealth Games

<u>Variable</u>	<u>M</u>	<u>SD</u>
Physical	87.05	14.87
Technical	85.11	14.30
Mental	83.60	16.29

Athletes were then asked to identify the reasons why they were not 100% ready and, in hindsight, what they might have done differently (Appendix I). Content analysis of the written responses from athletes who were not 100% ready physically revealed several main themes, including: injury, illness (e.g., tummy bug, sinus infection), the heat, fatigue/tiredness, poor fitness levels and lack of match practice. A variety of themes were revealed when the written responses from athletes who were not technically 100% ready were content analysed. For example, problems with technique, lack of match practice, poor game plan and/or tactics, not enough training due to injury, and lack of knowledge about the opposition. In contrast, athletes who were not 100% ready mentally said they were nervous, lacked confidence, had self-doubts, had negative thoughts, were concerned or worried about injuries, lacked recent match play, had a poor Pre-Games preparation, were concerned or worried about the opposition, and were unsure about their role individually or as a team. They also felt that they should have been more positive, done more mental preparation, developed and practised their coping strategies earlier, worked with a sport psychologist on a regular basis, and not changed their original game plan.

Athletes were also asked to describe their thoughts and feelings immediately before and during their most important performance. Content analysis of the athletes written responses revealed a considerable array of thoughts and feelings (Appendix J). Despite this, several observations can be made. First, athletes were thinking immediately before and during their most important performance. Second, although not entirely clear, it appeared there were patterns in types of thinking. For example, athletes who rated their coping as non-effective lacked confidence, had a lack of focus, negative feeling states, and experienced negative and task-irrelevant thoughts during their most important performance. In contrast, athletes who rated their coping as effective were

extremely confident, positive, totally focused on the task at hand, optimally aroused, and had clear tactical strategies and/or game plans.

Stress

Anticipated Sources of Stress at the Games

The 123 athletes responding to the Pre-Games Questionnaire reported a variety of concerns when asked to identify particular concerns or worries about performing at the 1998 Commonwealth Games in Kuala Lumpur (Appendix K). Content analysis of responses (see Table 5) showed that the most frequently reported concerns or worries were about “environmental conditions (e.g., heat, humidity)”. Interestingly, a few of the athletes reported a complex of concerns rather than focusing on a single issue. For example, one athlete said:

I just really want to do my best [performance] and [perform] like I did at the World Championships in 1998. I know I can do it but my biggest problem is I don't believe in myself and I am terrified of failing and embarrassing myself. I am also very worried about not being able to [perform] well in the heat.

These comments were echoed by two fellow competitors:

I think I will be more nervous at the Commonwealth Games than I was at the World Championships because the nation puts so much emphasis on the Commonwealth Games. I just really want to do well and show everyone I can do it.

It is six days away from competition and I still have no idea whether I will be competing at the Games. I cannot focus on anything at the moment because I am attempting to juggle various aspects of my life, instead of being able to put everything else aside and concentrating solely on [my sport]. I believe this is definitely not conducive to me for top performance. Time will tell.

Table 5

Anticipated Sources of Stress at 1998 Commonwealth Games

<u>Concerns</u>	<u>Frequency</u>
Environmental conditions (e.g., heat, humidity)	31
Failure to achieve one's personal goals or to perform to best of their ability	23
Expectations from self and others (e.g., sports administrators, media, public)	17
Inability to deal with any distractions that occur before or during competition	8
Inability to handle the pressure and/or manage emotions before or during competition	7
Condition of competition venue/ground	6
Traffic and travel times between the village and competition venue	5
Hygiene/sanitation issues	5
Food/diet	4
Loss of confidence	3
Time delays between warm-up and competition	3
None selection in team/starting line-up	3
Injury	3
Poor preparation and/or performances leading into Games	3
Lack of match practice	3
Competition schedule (e.g., games being played back to back)	2
Poor officiating/bad umpire calls	1
Poor technique	1
Getting adequate sleep in Games village	1

Note. Total frequency exceeds 123 as a few athletes identified more than one concern or worry.

Competitive Sources of Stress Ratings

As illustrated in Table 6, the highest rated sources of stress were: “the importance of the competition”, “what my coach(es) would think or say”, and concerns about “the level of competition”, “the food” and “what my teammates would think or say”. Athletes also expressed concerns about “the heat”, “my future”, “my health”, “interpersonal problems within the squad/team”, and “bad calls by officials”. Conversely, athletes were least concerned about “the smog”, “the noise pollution”, “my sponsorship commitments”, “the traffic”, and “the rain”. Considerable variability in the degree of stress experienced by athletes is also evident with indications that some athletes were always worried. For example, several athletes said that during the Games they were always worried about “what my coach(es) would think or say”, whereas others indicated they never did. It is interesting to note that many of the concerns or worries prior to the Games (e.g., “condition of competition venue/ground”, “lack of match practice”) were not major sources of stress during the Games. Factor analyses of the ratings of sources of stress to identify potential latent variables underlying more specific sources of stress were not conducted because of the low subject to item ratio (i.e., 1.8:1).

Table 6

Ratings of Generic Sources of Stress During the 1998 Commonwealth Games

<u>I worried about:</u>	<u>M</u>	<u>SD</u>	<u>Range</u>
the importance of the competition	2.92	1.13	1-5
what my coach(es) would think or say	2.55	1.17	1-5
the level of competition	2.38	1.06	1-5
the food	2.32	1.13	1-5
what my teammates would think or say	2.27	.98	1-4
the heat	2.26	.98	1-4
my future	2.22	1.10	1-5
my health	2.17	1.13	1-5
interpersonal problems within the squad/team	2.16	1.16	1-5
bad calls by officials	2.11	1.07	1-5
my career outside of sport	2.10	1.09	1-5
my sporting career	2.10	1.12	1-5
the temperature	2.05	.98	1-5
the humidity	2.05	.91	1-4
team management	2.03	1.08	1-5
what the media would think or say	2.00	.99	1-5
getting hurt or injured	1.95	1.10	1-5
my lack of experience	1.91	.98	1-5
what my spouse/family would think or say	1.87	1.00	1-5
the weather conditions	1.80	.91	1-5
my financial situation	1.78	1.06	1-5
the sleeping arrangements	1.75	1.00	1-4
the type of playing surface (e.g., track, court)	1.73	.94	1-4
what my parents would think or say	1.71	.95	1-4
the transport arrangements	1.68	.93	1-5
the condition of the playing surface (e.g., track, court)	1.68	.93	1-5
our accommodation	1.63	.79	1-4
the water	1.62	1.00	1-5
conditions in the village	1.62	.85	1-4
my roommate(s)	1.62	.97	1-5

the timing of my event	1.60	.86	1-5
the competition venue	1.59	.80	1-4
my lack of sponsorship	1.57	1.03	1-5
the equipment I was using	1.52	.78	1-4
the clothing I was using	1.50	.76	1-4
the rain	1.49	.75	1-4
the traffic	1.45	.71	1-4
my sponsorship commitments	1.41	.83	1-5
the noise pollution	1.22	.58	1-4
the smog	1.15	.42	1-3

Note. Scale was anchored by never = (1) to always = (5).

Most Stressful Experience

Seventy-one athletes described a stressful experience that had occurred prior to or during their most important performance in their open ended responses. Nineteen of these athletes described more than one stressful experience but only the responses relative to their most stressful experience were used in the analyses. As shown in Table 7, the stressor identified as most stressful was a recent or ongoing injury problem and/or illness. The remaining 20 athletes said they experienced no stress before or during the Games. For example, one athlete indicated:

I never had a stressful experience. We had team problems with a couple of our members but this did not cause me any stress because I had made up my mind I was going to play well and enjoy the experience.

Table 7

Stressors Identified by Athletes as Most Stressful Prior to or During Their Most Important Performance at the 1998 Commonwealth Games

<u>Stressor</u>	<u>Frequency</u>
Injury/illness	9
Negative thoughts	6
Traffic and travel times between the village and competition venue	6
Conceding goals/points at crucial times	6
Poor build-up or warm-up prior to competition	6
Loss confidence	6
Making mistakes or errors during game	4
Closeness of score/pressure	4
Expectations from self and others (e.g., sports administrators, media, public)	3
Not achieving personal goals or to performing poorly	3
Non-selection in team/starting line-up	3
Performances not going to plan	3
Watching teammates perform poorly or lose	3
Poor officiating/bad umpire calls	3
Team talk/coaches pre-game instructions	2
Environmental conditions (e.g., no air conditioning)	2
Fatigue/tiredness	1
Competing at trials prior to Games	1

Thirty-four athletes perceived the stressor they had identified as their most stressful had affected their performance (Appendix L). In contrast, 37 athletes reported that their performances had not been affected. Thirty-two of the 34 athletes felt the stressor had negatively affected them while two said that it had a positive effect. Athletes who reported being negatively affected indicated that they had lost concentration and/or task focus, became preoccupied with task relevant thoughts, lost confidence and either tried too hard or alternatively gave up trying altogether. For example, one of the shooters said he had missed more targets in the final than during the remainder of the competition because of stress.

Approximately one-third of the athletes identifying a stressful experience (i.e., 22 of 71) indicated that the stressor had been expected (i.e., something for which they had planned and/or prepared). The remainder identified stressors such as injury, a poor build up or poor warm-up prior to competition and bad umpire calls as unexpected.

Athletes who indicated that they had planned or prepared for potential stressors reported that they had used a variety of strategies, including: positive self-talk, relaxation, centering, pre-performance plans, repeated things that were successful in the past, participating in team discussions, and practicing the potential stressors during training or low level competition.

Interestingly, a number of athletes perceived their concentration levels were also affected by the stressful experience (Appendix L). For example, one athlete said that it had made him think more about the final outcome as opposed to performing each [move] successfully. Another replied, "I started to worry about one particular move and did not concentrate on my other moves as much".

Relationship between refocusing strategies and concentration. The correlation between the athletes' ability to maintain concentration and/or refocus when distracted and use of refocusing strategies was significant ($r = .24$, $p < .05$). Strategies used by the athletes to help them maintain their concentration and/or refocus included: breathing exercises, relaxation, centring, goal setting, seeing a sport psychologist, and imagery (Appendix M). For example, one of the athletes said:

I talked to a sport psychologist. Focused on my good matches. Used another match in between to refocus and regain some confidence. Visualised shooting good shots.

Correlations between the athletes' use of specific cue words and/or thoughts and concentration were also in the expected direction but were not significant. As can be seen in Appendix M the majority of the thoughts, cue words and/or mood words were related to the process of performing as opposed to the outcome.

Cognitive Appraisals

Examination of descriptive statistics (see Table 8) reveals that, on average, athletes rated stressors (unexpected or not) as greater than moderately challenging. Perceptions of threat were also rated as greater than moderate by athletes facing unexpected stressors while those experiencing expected stressors rated their perceptions of threat as notably less than moderate. These variables were inconsequentially correlated ($r = .05$). MANOVA analyses conducted to evaluate the reliability of the observed descriptive differences across expected and unexpected stressors indicated a

significant multivariate effect, Wilks $\Lambda = .89$; $F(2, 69) = 4.19$; $p < .02$; $\eta^2 = .11$. Unexpected stressors were rated as significantly more threatening than expected stressors, $F(1, 70) = 8.48$; $p < .005$, $\eta^2 = .11$ while the stressor types were not rated differently with regard to challenge primary appraisals, $F(1, 70) = .05$; $p = .82$, $\eta^2 = .001$.

Descriptive statistics indicate that athletes facing expected stressors appraised them as something that: (a) needed to be accepted or gotten used to, (b) was moderately (or better) subject to control or change, and (c) caused them only a modest urge to acquire more knowledge before acting or to hold back from a desired action. Athletes facing unexpected stressors also appraised them as something that needed to be accepted or gotten used to but were moderate in all of their other secondary appraisals. MANOVA revealed a significant multivariate effect across expected and unexpected stressors in the ratings of secondary appraisals, Wilks $\Lambda = .77$; $F(5, 64) = 3.80$; $p < .004$; $\eta^2 = .23$. Univariate F values were evaluated using a Bonferroni correction to control for Type 1 error inflation ($p < .01$). Athletes experiencing unexpected stressors rated secondary appraisals for holding back from a desired course of action significantly higher than those experiencing expected stressors, $F(1, 68) = 9.46$; $p < .003$; $\eta^2 = .12$. Observed differences in perceived control approached significance, $F(1, 68) = 6.51$; $p < .02$; $\eta^2 = .09$, under the Bonferroni adjustment. Significant differences were not observed for any of the remaining secondary appraisal variables.

Table 8

Descriptive Statistics of Cognitive Appraisal Variables for the Total Sample and Expected/Unexpected Stressor Subsamples

<u>Variables</u>	<u>Total</u>		<u>Expected</u>		<u>Unexpected</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
<u>Primary appraisal variables</u>						
Threat	4.82	2.77	3.42	2.32	5.50	2.73
Challenge	6.01	2.58	5.91	2.79	6.06	2.50
<u>Secondary appraisal variables</u>						
Perceived control	5.12	2.60	6.06	2.56	4.67	2.52
Change	4.32	3.13	4.58	3.20	4.18	3.11
Acceptance	6.99	2.38	7.78	1.83	6.61	2.52
Knowledge	4.08	3.01	3.57	2.76	4.33	3.12
Hold back	4.35	3.23	2.87	2.72	5.04	3.24

Note. Appraisal scale scores ranged from 1 to 9 with 9 indicating greater levels on each of the variables.

Coping

Coping Strategies

With regard to coping strategy use relative to the most stressful experience (see Table 9), responses indicated only moderate use, on average, of the most frequently used coping strategies (i.e., acceptance, increasing effort and planning) among athletes facing both expected and unexpected stressors. Least used strategies (i.e., venting of emotions, humour and denial) appeared to be employed rarely or not at all on average regardless of whether a stressor was expected or not. MANOVA revealed no significant differences in ratings of COPE subscales across expected and unexpected stressors, Wilks' $\Lambda = .80$; $F(14, 57) = 1.03$; $p = .44$; $\eta^2 = .20$.

Table 9

Descriptive Statistics of Coping Strategy Variables for the Total Sample and Expected/Unexpected Stressor Subsamples

<u>Coping strategy Variables</u>	<u>Total</u>		<u>Expected</u>		<u>Unexpected</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Acceptance	3.64	1.06	3.43	1.17	3.75	0.99
Increasing effort	3.50	1.16	3.39	1.09	3.56	1.20
Planning	3.38	1.12	3.39	1.03	3.37	1.17
Active coping	3.37	0.96	3.18	0.83	3.47	1.02
Positive reinterpretation/growth	3.05	1.20	3.13	1.14	3.02	1.25
Thought suppression	2.80	0.98	2.60	0.92	2.90	1.00
Wishful thinking	2.62	1.04	2.34	1.02	2.76	1.03
Social support instrumental	2.42	1.12	2.22	1.17	2.52	1.10
Social support emotional	2.35	1.12	2.01	1.00	2.52	1.15
Self-blame	2.31	1.06	2.12	0.80	2.40	1.16
Avoidance	2.17	0.98	2.26	0.96	2.12	0.99
Venting of emotions	1.97	1.04	1.65	0.81	2.12	1.11
Humour	1.87	0.95	1.82	0.89	1.89	0.99
Denial	1.77	0.83	1.59	0.74	1.86	0.86

Note. Coping strategy scores ranged from 1(i.e. “not used at all”) to 5 (i.e. “used a great deal”).

Performance and Coping Evaluation

Athletes, on average, rated their goal attainment as moderate while also rating the effectiveness of their coping efforts quite positively regardless of whether they were facing expected or unexpected stressors (Table 10). Coping strategy automaticity relative to the most stressful experience was reported to be moderate on average. A significant but modest positive correlation was found between coping strategy automaticity and coping effectiveness ($r = .26$, $p < .05$) but not between coping automaticity and goal attainment ($r = .14$, $p > .05$). MANOVA evaluation of performance and coping evaluation variables across stressors types revealed no significant multivariate effect, Wilks' $\Lambda = .95$; $F(3, 67) = 1.69$; $p = .30$; $\eta^2 = .05$. Finally, a chi-square test of association between the categorical variables of stressor type (expected versus unexpected) and athletes' perceptions (“yes” versus “no”) that their

performance was affected by the stressor was also non-significant, $\chi^2 = 102$, $df = 1$, $p < .31$.

Table 10

Descriptive Statistics of Study Variables for the Total Sample and Expected/Unexpected Stressor Subsamples

<u>Performance and coping evaluation variables</u>	<u>Total</u>		<u>Expected</u>		<u>Unexpected</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Goal attainment	3.07	1.19	3.04	1.16	3.07	1.22
Coping effectiveness	7.32	2.02	7.92	1.59	7.02	2.16
Coping automaticity	5.27	1.94	5.58	1.60	5.11	2.09

Note. Goal attainment scores ranged from 1 to 5 with 5 indicating greater goal attainment; Coping effectiveness scores were on an 11 point scale (0% effective = 0, 100% effective = 10); Coping automaticity scale scores ranged from 1 to 9 with 9 indicating greater levels on each of the variables.

Thought Suppression

As expected there was large variability in what the athletes think about during competition. Content analysis of the athletes' written responses revealed they consciously tried to think about the following during competition: performing the basics, staying positive, playing well, their game plan, individual and/or team goals, technique, having fun, staying relaxed, being confident, past successful performances, and coaches' instructions. The majority of their thoughts are positive, process oriented and framed in the present as opposed to the past or the future. This is what we had expected to find. However, a number of athletes also reported they consciously try to think about winning, the outcome, and the opposition (Appendix N).

Athletes were also asked what they consciously tried to not think about during competition. Content analysis of the athletes' written responses revealed that the majority of their thoughts are negative and related to performing below expectations or dealing with unwanted distractions. For example, negative thoughts, self-doubt, losing, performing badly, failure, making mistakes/errors, opponents, equipment failure, past poor performances, and what other people were thinking (Appendix N).

Correlations between White Bear Suppression Inventory (WBSI) and SAS subscales are presented in Table 11 along with the results of a series of hierarchical regressions. When all SAS subscales were included they accounted for approximately 17% of the total variance in thought suppression. The only independent variable in the final model to contribute uniquely to the prediction of WBSI was worry.

Table 11

Correlations and Hierarchical Multiple Regression Analyses to Evaluate SAS Subscales Unique Contribution to the Thought Suppression Variable

<u>Thought Suppression Variables</u>	<u>r</u>	<u>R² Change when entered last</u>	<u>F Change when entered last</u>	<u>p</u>
Worry	.38**	.04	5.91	.02
Concentration disruption	.33**	.02	3.48	.07
Somatic anxiety	.22*	.01	.53	.47

Note. $F(3, 118) = 8.15, p < .01$ $R^2 = .17$, adjusted $R^2 = .15$

* $p < .05$ two tailed, ** $p < .01$ two-tailed

Discriminating Between Effective and Non-Effective Copers

Relationship Between Degree of Physical, Technical, Mental Readiness, Performance and Coping Evaluation

Correlation between the athletes' degree of physical, technical and mental readiness and the performance and coping evaluation variables appear in Table 13. Significant relationships were found between mental readiness and both goal attainment and coping effectiveness. A significant relationship was also found between physical readiness and goal attainment. However, neither variable was significantly related to technical readiness. Collectively, these results suggest that greater mental and physical readiness were associated with enhanced coping effectiveness at the Games.

Table 12

Correlations Among Physical, Technical, and Mental Readiness, Performance and Coping Evaluation Variables

<u>Performance and coping evaluation variables</u>	<u>Degree of readiness</u>		
	<u>Physical</u>	<u>Technical</u>	<u>Mental</u>
Goal attainment	.29**	.14	.26*
Coping effectiveness	.18	.21	.28*

* $p < .05$ two tailed, ** $p < .01$ two-tailed

Relationship Between Cognitive Appraisals, Performance and Coping Evaluation

As can be seen in Table 14, both variables were significantly related to threat and personal control. In addition, holding back was significantly related to coping effectiveness. These results suggest that more effective copers tended to perceive less threat, more control, and were less hesitant of stressors compared with non-effective copers.

Table 13

Correlations Among Primary Appraisal, Secondary Appraisal, Performance and Coping Evaluations

<u>PCEV*</u>	<u>Primary appraisal</u>		<u>Secondary appraisal</u>				
	<u>Threat</u>	<u>Chall</u>	<u>PC</u>	<u>Change</u>	<u>Know</u>	<u>Accept</u>	<u>Hold</u>
Goal attainment	-.23*	.13	.28*	-.07	-.07	.01	-.16
Coping effectiveness	-.51**	-.03	.44**	-.12	-.12	.23	-.31*

Note. PCEV = Performance and coping evaluation variables; Chall = Challenge; PC = Personal control; Know = Knowledge; Accept = Acceptance; Hold = Hold back.

* $p < .05$ two tailed, ** $p < .01$ two-tailed

Relationship Between Cognitive Interference, Performance and Coping Evaluation

Goal attainment and coping effectiveness were significantly and negatively related to cognitive interference (Table 15). Correlations between number of task-relevant thoughts and the two variables were also significant (and positive). In contrast, no significant relationships were observed between mind wandering and the two

variables. Consequently, coping effectiveness was associated with less thought disruption and a greater task focus at the Games.

Table 14

Correlations Among SCIQ, Task-Relevant Thoughts, Mind Wandering and Criterion Variables

<u>Performance and coping evaluation variables</u>	<u>SCIQ</u>	<u>Number of task-relevant thoughts</u>	<u>Degree to which mind wandered</u>
Goal attainment	-.24*	.25*	-.07
Coping effectiveness	-.46**	.28*	-.14

Note. SCIQ = Sport Cognitive Interference Questionnaire

* $p < .05$ two tailed, ** $p < .01$ two-tailed

Relationship Between Trait Anxiety, Performance and Coping Evaluation

Correlations between SAS subscales and goal attainment and coping effectiveness are presented in Table 16. Significant relationships were found between somatic anxiety and the two variables. Significant relationships were also observed between worry and goal attainment and coping effectiveness.

Table 15

Correlations Among SAS Subscales, Performance and Coping Evaluation

<u>Performance and coping evaluation variables</u>	<u>Somatic anxiety</u>	<u>Worry</u>	<u>Concentration disruption</u>
Goal attainment	-.47**	-.28*	.06
Coping effectiveness	-.29*	-.35*	-.01

Note. * $p < .05$ two tailed, ** $p < .01$ two-tailed

Discussion

Stress

Prior to competing at the Games athletes identified a number of potential stressors they anticipated encountering during the Games. Not surprisingly, the most frequently reported concerns or worries were about “environmental conditions (e.g., heat, humidity)” as the Games were held in Malaysia in September (average temperature = 32 C, 91 F). Moreover, many of the athletes had been forewarned about the heat and humidity that they would likely experience and were encouraged to do some form of acclimatisation training in the months leading up to the Games. Post-games ratings of an array of generic competitive stressors produced results consistent with previous research involving elite athletes (e.g., Gould, Jackson, & Finch, 1993; Gould, et al., 1998; Scanlan et al., 1991). The main sources of stress identified were: “the importance of the game”, “concern about the coach”, and concerns about the “level of competition”, “food” and “what their teammates would think or say”.

In addition to rating generic sources of stress, majority of athletes reported experiencing a stressor prior to or during their most important performance. These were typical of the stressors identified in other investigations involving elite athletes (e.g., Gould, Jackson, & Finch, 1993; Gould et al., 1998; Scanlan, et al., 1991). For example, major stress dimensions reported by skaters in Gould, Jackson, & Finch’s (1993) study included: psychological demands, competitive anxiety and self-doubts, relationship issues, expectations and pressure to perform, and environmental demands.

Over two thirds of the athletes indicated that the stressor they experienced (i.e., 49 of 71) was unexpected even though many were not unfamiliar events. For example, several athletes regarded problems such as transport delays, poor food, or bad refereeing decisions as unexpected stressors despite having had previous experience with these sorts of stressors at other competitions. Gould, Eklund, and Jackson (1991) reported similar observations wherein they noted that 1988 Olympic wrestlers perceived various stressors as unforeseen not because the stressors were unfamiliar but because the wrestlers had not expected them to occur at ‘their’ Olympics.

Interestingly, many of the anticipated sources were not highly rated following the Games. This may have been because having identified potential stressors athletes had prepared accordingly (i.e., acclimatisation training to minimise the effects of heat). Furthermore, many of the concerns or worries identified by the athletes prior to the Games were subsequently identified as being of no substantial concern during the Games (e.g., “condition of competition venue/ground”, “lack of match practice”). In

contrast, several unforeseen or unexpected stressors were major sources of stress during the Games (e.g., “what my coach(es) would think or say”, “interpersonal problems within the squad/team”).

A number of researchers have shown that coaches and support staff play an important role in helping athletes perform successfully (e.g., Eklund, 1994, 1996; Gould et al., 1998; Pensgarrd & Ursin, 1998). For example, Gould et al. (1998) found that the coach-athlete relationship and coaching issues (i.e., coaches’ expectations, coaches’ ability to deal with crisis, coaches’ experience with athletes) were critical factors in Olympic performance. The results of Study One support these findings. However, it is important to point out that several athletes regarded coaches/managers as a major source of stress during the 1998 Commonwealth Games. This finding was consistent with Murphy and Ferrante (1989) who found that communication problems with coach and athlete were salient reasons for requesting sport psychology services at the 1988 Olympics.

It was also interesting to note that the most frequently reported stressful event before or during their most important performance was recent or ongoing injury problems and/or illness. This suggests that a number of athletes were either carrying injuries going into the Games, or were worried about their ability to recover from a previous injury or illness.

Several athletes’ also perceived their concentration levels were affected by the stressor. Athletes who used refocusing strategies when distracted found it easier to concentrate and/or refocus compared to those athletes who did not use refocusing strategies. Interestingly, no significant relationships were found between the use of specific cue words or thoughts and the athlete’s ability to refocus and/or maintain concentration. However, this may have been because these constructs were measured by a single item that required a simple yes/no response.

Expected and Unexpected Stressors

Clear differences were observed in athletes’ cognitive appraisals of expected and unexpected stressors. Unexpected stressors were perceived as more threatening than expected stressors. A tendency to hold back or hesitate from responding or acting in the face of unexpected stressors was also reported. Athletes indicated that they had employed a variety of strategies to help them cope with their most stressful experience. Unexpectedly, however, stressor expectedness was not related to coping use or performance and coping evaluations in data collected in this study. These findings support researchers (e.g., Folkman & Lazarus, 1980; Lazarus & Folkman, 1984) who

have suggested that the way in which an individual cognitively appraises a stressful situation is extremely important and is often a critical determinant in the coping process. For example, Rotella and Lerner (1992) argued that the way individuals cognitively appraised a situation affected not only their perceptions as to whether the situation was stressful but also shaped their emotional and behavioural responses. Moreover, whether the athletes' cognitive appraisals reflected reality was incidental and had little influence on how they responded to the situation (Rotella & Lerner, 1992).

Descriptive statistics revealed that, on average, threat appraisals (or appraisals of potential for harm) differed significantly across stressor types with unexpected stressors being perceived as more threatening than expected stressors. Interestingly, athletes rated these same expected and unexpected stressors as equivalently but more-than-moderately challenging. These findings are interesting because they suggest that, in the instance of unexpected stressors, the realization of potential harm did not negate the appraisal of an anticipated yet difficult-to-attain gain. Lazarus and Folkman (1984) also associated challenge with performance enhancement and threat with performance impairment yet the results of this study indicated there were no significant differences in performance attainment by the athletes facing different types of stressors.

Ratings on the athletes' secondary appraisals were also revealing. Athletes' most salient secondary appraisal for both expected and unexpected stressors was that the stressor was something that needed to be gotten used to or accepted. A significant difference in secondary appraisals indicating a greater tendency to hold back or hesitate from responding or acting when facing unexpected stressors was observed. Differences in perceptions of control approached but did not attain significance in this investigation. Given that control is an important mediator of the experience of stress (Lazarus & Folkman, 1984) this finding was unexpected.

Exactly why unexpected stressors were perceived more threatening and less controllable is unclear although it should not be surprising given that athletes and coaches had planned and/or prepared for expected stressors. Several researchers have suggested that experience, in terms of familiarity with the situation, may act as a moderator of the stress response. For example, McGrath (1970) noted that past exposure, practice and training to deal with the situation could reduce uncertainty and therefore modify how a person reacts to the stressor. Jones and Hardy (1990) who interviewed six elite athletes about how they coped with stress and anxiety also showed that perception of control was an important mediator of the experience of stress. All six athletes viewed stress as a positive and said they had physically practised in the

presence of simulated competitive stressors and/or mentally rehearsed the actual competitive event to help them prepare for competition. Sue Challis, a former World Champion trampolinist, said: "When I'm prepared, it (the stress) is positive, and when I'm not prepared it's negative" (as quoted in Jones & Hardy, 1990, p. 250). Interestingly, stressor expectedness was not associated with any effects upon performance. However, this may have been a consequence of a self-presentational or social desirability effect as coping effectiveness did approach significance.

Coping

Consistent with other investigations of athlete coping (e.g., Crocker & Graham, 1995; Gould, Eklund, & Jackson, 1993), athletes in this study reported employing a variety of coping strategies to help them cope with their most stressful experience. The most frequently employed strategies (e.g., acceptance, increasing effort, planning) were only used moderately, on average, whereas, the least frequently used coping strategies (e.g., venting of emotions, humour, denial) were used rarely or not at all. These findings are reminiscent of earlier research with samples of athletes. For example, athletes in Crocker and Graham's (1995) study reported using primarily problem-focused coping strategies such as increasing effort, planning, active coping and suppression of competing activities.

It is tempting to conclude from frequency data from elite athletes that certain coping strategies (e.g., active coping) may be more adaptive than other strategies, or that emotion-focused strategies such as venting of emotions may be less relevant for elite athletes competing in major international sporting events. Caution is needed, however, when using macrolevel taxonomies (e.g., adaptive versus maladaptive, problem-focused versus emotion-focused, approach versus avoidance, etc.) to describe data as the purpose and utility for employing a particular coping strategy or strategies can vary depending upon the situation or context (Gould, Eklund, & Jackson, 1993). For example, avoidance coping strategies such as denial can be adaptive if athletes use them to delay confronting a stressor until a more opportune moment, but maladaptive when the stressor should not be evaded because it requires immediate attention (Roth & Cohen, 1986).

No significant differences were observed in coping strategy use between expected and unexpected stressors. This was somewhat surprising as several researchers (e.g., Folkman & Lazarus, 1980; Forsythe & Compas, 1987; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986) have noted that the type of coping strategy chosen by an individual often depends on how he or she cognitively appraise the stressor. For

example, Forsythe and Compas (1987) found that college students used more problem-focused coping strategies when faced with stressful situations perceived as controllable and more emotion-focused coping when faced with stressful situations perceived as uncontrollable. Variations in the types of stressors encountered by the athletes in this study and the way in which they perceived these stressors, however, may be contributing factors to this unexpected finding.

Lazarus and associates (e.g., Folkman & Lazarus, 1980; Lazarus, 2000; Lazarus & Folkman, 1984) contend that cognitive appraisals influence emotional and behavioural responses. Results from this study, however, did not support this contention. Results revealed significant differences in the athletes' appraisals of expected and unexpected stressors but no differences in the way they rated their performance and coping behaviours. One possible explanation for this unexpected finding is that the dichotomous variable used to assess performance in this study was not able to pick up subtle effects, or more simply, as a consequence of a self-presentational or social desirability effects.

Several researchers have suggested that coping effectiveness is, in part, a consequence of coping automaticity (e.g., Gould, Eklund, & Jackson, 1993; Gould et al., 1999). Gould, Eklund, and Jackson (1993), for example, noted that a key difference between Olympic medallists and non-medallists was the degree to which the medallists automatically used coping strategies. Finch (1993) found significant differences in the automaticity of coping strategies between more effective and less effective copers. Pensgarrd and Ursin (1998) also reported that Olympic athletes in their study employed fewer coping strategies when they experienced stress during competition and suggested that this further underscored the importance of automatising coping strategies. According to Gould, Eklund, and Jackson (1993) automatised coping responses act as a buffer to the stress process because the stress and anxiety is dealt with immediately and before it has a chance to affect performance.

Correlational evidence from this study provides some modest support for this proposition. Athletes who rated their coping as more effective during the Games tended to rate their coping as somewhat more automatic. Caution is needed, however, when construing the results in this manner because other interpretations are certainly viable given the correlational design. For example, it is possible that effective coping is an antecedent rather than a consequence of perceptions of automaticity and hence the observed correlation would take on a considerably different meaning.

Thought Suppression

A number of coping strategies were used by New Zealand athletes during the 1998 Commonwealth Games to control unwanted and/or intrusive thoughts. For example, some athletes reported consciously trying not to think about the unwanted thought (i.e., thought suppression), whereas others tried to positively reinterpret their unwanted thought(s). Not surprisingly, there was considerable variability in the athletes' use of thought suppression. Several athletes reporting that they used it all the time, whereas others said used it rarely or not at all. Results also revealed that high trait anxious athletes were more likely to use thought suppression to help them cope with stress and anxiety than low trait anxious athletes. These findings support researchers who have shown that an individual's tendency to suppress unwanted thoughts, as measured by the WBSI, was positively correlated with self-reported measures of trait anxiety (Muris, Merckelbach, & Horselenberg, 1996; Wegner & Zankos, 1994). However, this latter finding should be interpreted with caution, as it is not clear whether thought suppression causes anxiety, or whether thought suppression is the result of being anxious.

Discriminating Between Effective and Non-Effective Copers

Collectively, the findings of Study One revealed a number of significant differences between athletes who rated their coping as more effective compared with athletes who rated their coping as non-effective. First, coping effectiveness was associated with athletes' degree of mental readiness. This suggests that athletes who planned and/or prepared for expected stressors were more effective in coping with expected and unexpected stressors. Second, significant differences were observed in the way athletes' cognitively appraised expected and unexpected stressors. For example, unexpected stressors were perceived as more threatening than expected stressors. Third, a modest but significant relationship was observed between coping strategy effectiveness and coping automaticity. Fourth, athletes who rated their coping as more effective experienced fewer task-irrelevant thoughts and a greater number of task-relevant thoughts than athletes who rated their coping as non-effective. It may be that the minds of the athletes who had trouble coping were cluttered with negative and/or task-irrelevant thoughts and their performances suffered as a result. On the other hand, they may have experienced negative thoughts as a by-product of their inability to effectively cope with the stressor. Finally, coping effectiveness was shown to be significantly and negatively correlated with somatic anxiety and worry.

Methodological Considerations

One of the major strengths of Study One from a methodological standpoint was that it involved elite athletes from a variety of sports (individual and team) competing at a major international competition (i.e., 1998 Commonwealth Games). Administering the Post-Games questionnaire to elite athletes immediately after competing at a major international competition was also important as it meant athletes were asked to recall events or situations that had occurred less than two weeks previously rather than months or years after the event (e.g., Gould, Eklund, & Jackson, 1993; Gould, Finch, & Jackson, 1993). Third, having athletes provide responses relative to actual competitive stressors was a strength as most researchers examining coping have asked athletes how they would cope with a hypothetical situation (e.g., Crocker, 1992) as opposed to a stressful situation they actually experienced. Using self-referenced performance indices (e.g., goal attainment) and subjective measures of coping effectiveness was also a strength of this study as previous researchers have tended to use either imprecise competitive outcome measures such as medal placings (e.g., Gould, Eklund, & Jackson, 1993) or, alternatively, compared performance measures between subjects (Burton, 1990).

Despite the importance of cognitive appraisal in the coping process, few researchers have examined how athletes cognitively assess stressful situations or related cognitive appraisal to coping behaviours and/or outcomes (Finch, 1993). A strength of Study One, therefore, was in asking athletes how they cognitively appraised their most stressful experience. Another strength of the study was that questionnaires were administered to elite athletes from a variety of sports (individual and team) three weeks before and immediately after competing at a major international competition (i.e., 1998 Commonwealth Games).

Interestingly, several of the athletes who completed the Pre-Games questionnaire immediately before the Games regarded it as a worthwhile exercise and felt that it had assisted rather than hindered their preparation. For example, one athlete commented, "I enjoyed this questionnaire. It made me think about my preparation to date", and another commented: "In filling out this questionnaire I have been able to isolate many of my own thoughts about Kuala Lumpur, and why I am doing it and what I hope to achieve from it. Thank you".

Self-report measures were also used to examine the way elite athletes coped with stress and anxiety in this study. Although self-report was a requirement of this sort of research, the results of Study One should be understood to be limited by this

investigative protocol. Clearly athletes may, in some instances, purposefully respond to questions in socially desirable ways and self-report instruments have other limitations. For example, despite vigorous psychometric testing and status as the best instrument for measuring coping in sport, the COPE has been shown to have a number of inherent weaknesses (Crocker et al., 1998; Eklund et al, 1998; Finch, 1993). In this study athletes were asked to “indicate how much they had used each coping strategy in coping with their most stressful experience”. It is not clear, however, whether the athletes reporting of the coping strategies they had used during the Commonwealth Games reflected frequency, duration or effort (Crocker et al., 1998).

Additional limitations associated with Study One must also be acknowledged. First, data in this study were retrospective in nature and so the researcher was unable to determine the extent to which event outcomes and attributional processes coloured responses. For example, athletes’ who completed successfully at the Games would be more likely to attribute their success to their ability to mentally cope with any stressors or distractions they had encountered, than those athletes who had performed less successfully. Second, this study did not feature the sort of experimental design that allows for prudent inference on the cause-effect relationships. While appropriate scepticism is warranted, these results do contribute to the extant literature on stressors (and associated cognitive appraisals) in major international competitions. Employing qualitative methodologies such as interviews with interesting subsamples (e.g., athletes who did not experience stress) of the larger sample may have yielded richer insights into the coping process. Alternatively, more sophisticated analytical approaches (e.g., structural equation modelling) may have provided interesting results if data had been attained from the whole New Zealand Commonwealth Games team. Fourth, no assessments were performed to determine whether the athletes had recently received any Psychological Skills Training in preparation for the Commonwealth Games, and more importantly, if the addition or absence of such training influenced the results. Fifth, twenty athletes who did not experience stress during the Commonwealth Games were not required to answer the cognitive appraisal questions. In hindsight, asking these athletes how they cognitively appraised their most important performance may have provided additional insight into the stress process.

CHAPTER 4: STUDIES TWO AND THREE

Chapters 4 and 5 describe a series of studies that were designed to build upon the knowledge gained from Study One. Each of the studies outlined is grounded in ironic cognitive processing theory (Wegner, 1994). Studies Two and Three, for example, focus on the mental control strategy of thought stopping. Study Four is designed to investigate ironies of action by examining the role of ironic cognitive processing on the performance of a simple motor task. One of the most significant findings arising from Study One was that the athletes reported using a variety of mental control strategies, including thought stopping, to cope with the stressors they encountered before and during the Games. Unfortunately, many of these strategies and techniques, including those advocated by sport psychologists, have not been empirically tested (Greenspan & Feltz, 1989). Thought stopping, for example, is a self-regulatory technique commonly advocated by sport psychologists to control intrusive and unwanted thoughts, and reduce stress. Yet, little research has been conducted which examines the theoretical explanations as to why strategies such as thought stopping do or do not work.

Consequently, there is a clear need for empirical studies on mental control strategies such as thought stopping to ensure that sport psychologists are not inadvertently advocating intervention strategies that may be detrimental to athletic performance. Studies Two and Three were conducted to address these issues.

Study Two

The purpose of Study Two was to examine the role of ironic processing on the salience of target images within the video presentation (i.e., umpires, intentional harm behaviours). Awareness of umpires and intentional harm behavior images within the video presentation were used to evaluate ironic effects as a number of researchers have shown that concerns about officials and injury are salient sources of stress for elite athletes (e.g., Dugdale, Eklund, & Gordon, 2001; Gould, Eklund, & Jackson, 1992a, 1992b, 1993; Gould, Jackson, & Finch, 1993; Gould et al, 1999; Orlick & Partington, 1988).

It was hypothesised that (a) participants would be more aware of umpires when instructed not to pay attention to the umpires, and (b) these ironic effects would be magnified under a high cognitive load. Similarly, it was hypothesised that intentional

harm images would be most salient to participants when they were told not to pay attention to these images. It was also anticipated that awareness of these images would be greatest under high cognitive load conditions. The possibility that the frequency of stimulus presence could moderate ironic rebound effects (Beilock, Afremow, Rabe, & Carr, 2001) was evaluated by examining awareness of images that occurred frequently (i.e., umpires) in the video presentation as well as those that occurred infrequently (i.e., intentional harm). Finally, it was anticipated no ironic effects would be observed for awareness of the coaches and/or support staff as these images were not relevant to the manipulations.

Method

Participants

One hundred and two (50 male, 52 female) undergraduate students in Human Movement and Exercise Science at the University of Western Australia contributed data to the analyses of this study. Ages ranged from 17 to 32 ($M = 19.49$, $SD = 3.04$). On average, participants were moderately knowledgeable of Australian Rules Football ($M = 4.85$ on a 9-point Likert-type scale, $SD = 2.20$). Informed consent was obtained from each participant prior to data collection (Appendix E). After the study had concluded participants received \$5.00 for their participation. Data provided by seven other participants were removed from consideration because their responses to manipulation check questions (subsequently discussed) indicated they had: (a) not paid attention to the video presentation; or (b) not been distracted by the audio stimulus employed in the high cognitive load manipulation (i.e., rating scores of 5 or below on two separate 9-point Likert-type scales). This resulted in 17 participants per group.

Materials

Video. All participants observed a 5-minute videotape consisted of a series of 60 clips (5 to 6 seconds in length) of on- or off-field action involving Australian Rules Football players, coaches and/or umpires. Forty-five of the video clips contained images of one or more umpires. Nine clips contained images of players intentionally trying to harm another player (e.g., dangerous play, punch), while six clips contained images of the coach or members of the support staff (e.g., runner, physiotherapist).

Audio. All participants wore headphones during testing. Participants in the high cognitive load condition listened to a 5-minute audiotape (minidisc) containing actual AFL commentary overlaid by loud background noise. The commentary, while comprehensible, was out of sync with the video footage and designed to disrupt the

participants' attentional focus. Participants in the low cognitive load condition received no audio signal through the headphones they were wearing.

Awareness of target images questionnaire (ATI). An 8-item, "Awareness of Target Images" questionnaire was specifically developed for the purposes of the present study (Appendix A). The 8 items included: 3 continuous semantic rating scales, 2 open-ended questions, and three 9-point Likert-type scales. The two open-ended questions were diversionary and were not part of the analysis. For example, "What action did one of the AFL coaches make with his hand when he walked onto the field at halftime?"

The three continuous visual analogue rating scales were used to measure the degree to which participants were paying attention to (a) the umpires, (b) any players who intentionally tried to harm another player; and (c) the coaches or members of the support staff, respectively. For example, the rating scale for awareness of the umpire consisted of a statement stem of "In what percentage of the clips was an umpire (i.e., field umpire, boundary umpire, goal umpire) present?" followed by two anchors ("0%" — "100%") separated by a continuous 10 cm line (see Figure 2). Participants drew a mark on the line to represent their answer. Scores were obtained by measuring (in millimetres) from the left end of the line to the participants mark on the line. Scores ranged from 0 to 100. Continuous scales were used in this study to measure awareness because Albaum, Best, and Hawkins (1981) showed they can provide the same aggregate information (e.g., mean, variance) as discrete rating scales yet provide greater discrimination at an individual level of measurement.

Manipulation checks were used to measure the degree to which participants were paying attention while watching the video; and the degree to which participants were distracted by the commentary and white noise while watching the video in the high cognitive load condition. These were assessed using 9-point Likert-type scales (anchors ranged from 1 to 9 with 9 indicating greater levels on each variable). For example, "How distracting did you find the background noise?" Data from participants indicating moderate or less attention or distraction (i.e., scores of 5 or below on the scales) were removed from consideration. To ensure the questionnaire effectively assessed the questions most relevant to this investigation, it was pilot-tested on several students unfamiliar with the purposes of the study.

In what percentage of the clips was an umpire (i.e., field umpire, boundary umpire, goal umpire) present?



Figure 2.

Continuous visual analogue rating scale used to assess participants' awareness of the umpires while watching the video.

Research Design and Procedure

Participants were randomly assigned to conditions in a 3 (instructional set: general vs. suppression of intention to harm vs. suppression of umpires) x 2 (cognitive load: high vs. low) between-subjects design. Participants were tested individually in a small room equipped with a video recorder, mini-disc player, headphones and monitor. Participants were told that the purpose of the study was to examine their memory for what they were about to see on the video and given a practice question to ensure they were familiar with the continuous semantic rating scales employed in the post-experimental questionnaire.

Participants were all then given the following instructions: "You are about to watch a 5 minute video of Australian Rules Football. You will then be asked to complete a brief questionnaire on what you have just seen", and asked to put on the headphones and told that regardless of whether they heard sound or did not hear sound that what was important was what they would see on the video. Participants in the general instruction condition received an additional instruction verbally and on a card with large letters: "Your task is to closely observe what each person is doing in the video". Participants in the suppression of intentional harm condition were told: "Your task is to closely observe what each person is doing in the video. Whatever you do, do not pay any attention to any player who intentionally tries to harm another player." Participants in the suppression of umpires condition were told: "Your task is to closely observe what each person is doing in the video. Whatever you do, do not pay any attention to what the umpires are doing." After the video had finished the participants were instructed to fill out the questionnaire. Participants were then given \$5, debriefed and thanked for their participation.

Results

Descriptive statistics are presented in Table 17. Separate 3 x 2 ANOVAs were performed to evaluate the effects of instructional set and cognitive load on participants' awareness of images of (a) the umpires, (b) any players who intentionally tried to harm another player; and (c) the coaches or members of the support staff, respectively.

Table 16

Estimated Percentage of Target Images as a Function of Cognitive Load and Instructional Set in Study Two

<u>Target Questions*</u>	<u>Instructional Set</u>	<u>Load</u>			
		<u>Low Load</u>		<u>High Load</u>	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
<u>Coach/support staff</u>					
	General	15.41	8.92	16.47	15.26
	Suppression (harm)	12.18	13.92	21.35	16.98
	Suppression (umpires)	21.18	13.95	17.82	14.73
<u>Intention to harm</u>					
	General	34.47	18.56	32.88	13.77
	Suppression (harm)	27.18	18.79	26.18	13.74
	Suppression (umpires)	40.76	26.27	30.47	24.42
<u>Umpires</u>					
	General	36.24	15.13	33.88	11.97
	Suppression (harm)	35.47	16.54	47.94	15.79
	Suppression (umpires)	54.94	17.03	65.65	19.03

Note. All instruction groups for both low cognitive load and high cognitive load conditions have $n = 17$.

* The three questions in the questionnaire were: "There were 60 clips in the video. In what percentage of the clips: (a) was a coach or member of the support staff (e.g., runner, physiotherapist) present?; (b) did you observe a player intentionally harm another player (e.g., dangerous play, punch)?; (c) was an umpire (i.e., field umpire, boundary umpire, goal umpire) present?"

No significant instructional set by cognitive load interaction was observed in responses to the awareness of umpires question, $F(2, 96) = 2.16$; $p = .12$, $\eta^2 = .043$. A significant cognitive load main effect was observed in responses to this question with a greater tendency to be aware of umpires under high cognitive load ($M = 65.65$) than low cognitive load ($M = 54.94$); $F(1, 96) = 4.77$; $p = .03$ although the effect size was small $\eta^2 = .047$. A significant main effect of substantial magnitude was also observed for instructional set indicating that umpire images were more noticeable when participants were told not to pay attention to the umpires than when given a general instruction or told not to pay attention to intentional harm images, $F(2, 96) = 22.56$; $p = .001$, $\eta^2 = .320$ (see Figure 3). Tukeys HSD post-hoc tests indicated that the suppression of umpires instruction resulted in significantly greater awareness of umpires ($M = 60.29$) than both the general instruction ($M = 35.06$, $p < .001$) and the suppression of intentional harm instruction ($M = 41.71$, $p < .001$). Awareness of the umpires did not differ significantly between the general instruction condition and the suppression of intentional harm instruction condition ($p = .208$).

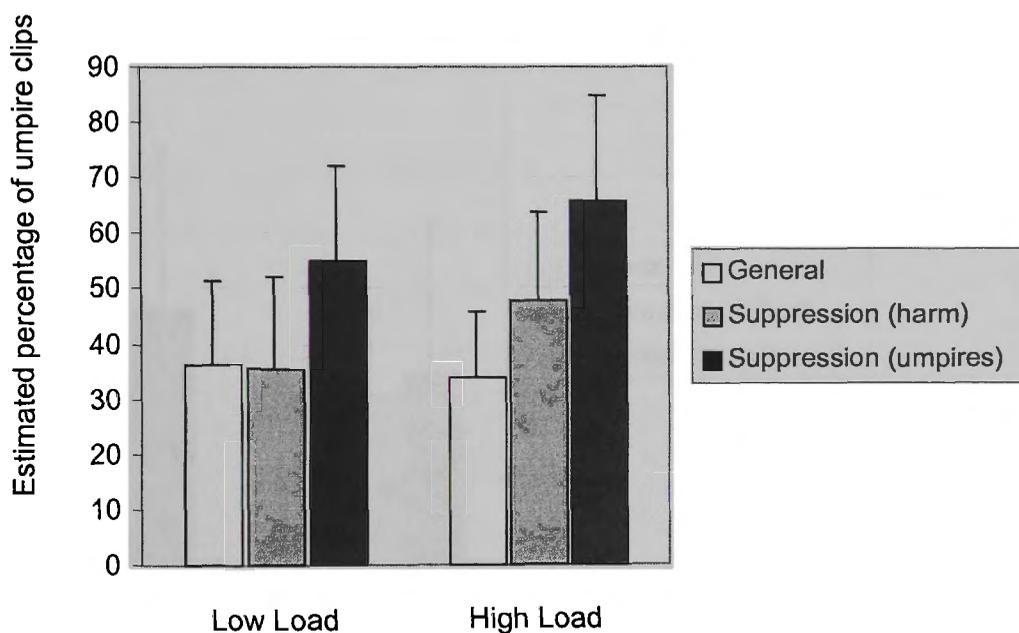


Figure 3.

Estimated percentage of umpire clips (with standard deviation bars) as a function of cognitive load and instructional set in Study Two.

An instructional set by cognitive load interaction was not observed in the responses to the intentional harm question, $F(2, 96) = .59$; $p = .56$, $\eta^2 = .012$. As well, no main effects were observed for awareness of intentional harm images across cognitive loads, $F(1, 96) = 1.19$; $p = .28$, $\eta^2 = .012$ or instructional sets, $F(2, 96) = 1.91$; $p = .15$, $\eta^2 = .038$ (see Figure 4). These findings were unexpected and difficult to interpret. This result could be interpreted as an indication of the tenability of the moderation hypothesis by arguing that the expected ironic rebound effects were not observed because of the low frequency of presentation of these images. As an a posteriori observation, however, it seems more likely that the notion of intentional harm was too subjective to be useful in evaluating this hypothesis and hence that the condition did not amount to a satisfactory test of the hypothesis.

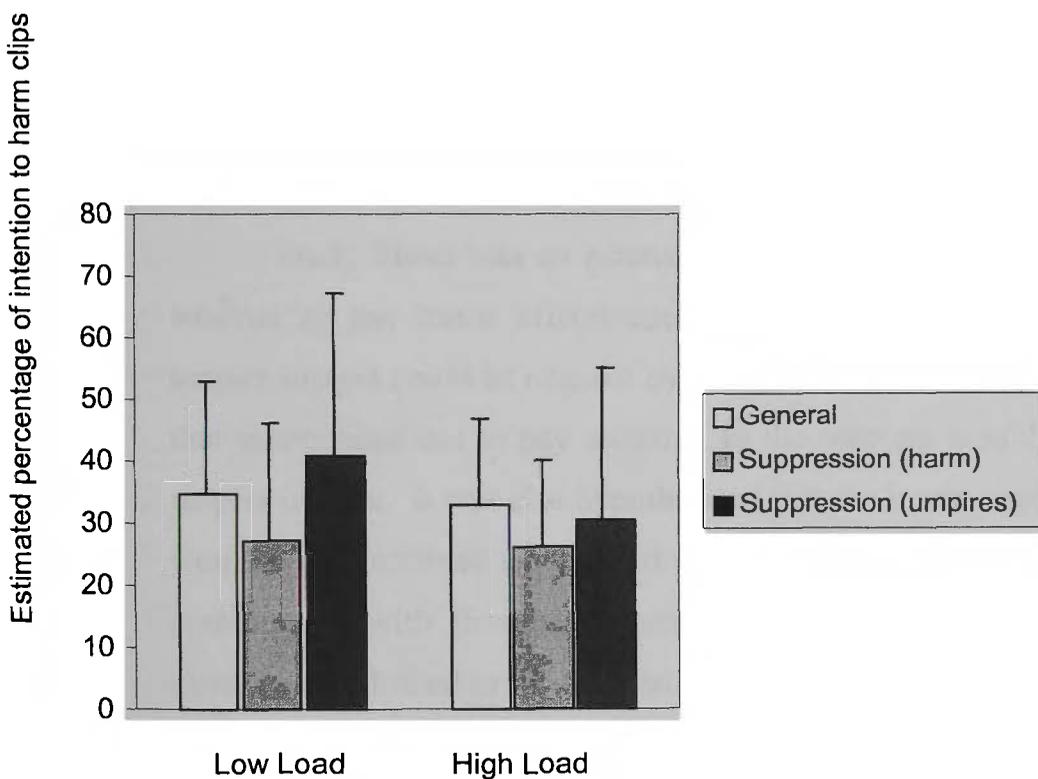


Figure 4.

Estimated percentage of intention to harm clips (with standard deviation bars) as a function of cognitive load and instructional set in Study Two.

Awareness of coach or support staff images were equivalent across instructional sets and conditions. More specifically, no significant instructional set by cognitive load interaction was observed for awareness of these images, $F(2, 96) = 1.71$; $p = .19$, $\eta^2 = .034$. There were also no significant main effects for awareness of the coach or support staff images between cognitive load groups, $F(1, 96) = .67$; $p = .42$, $\eta^2 = .007$, or across instructional sets, $F(2, 96) = 1.70$; $p = .56$, $\eta^2 = .012$.

In sum these results indicate that ironic effects for awareness of umpire images occurred when participants were told not to pay attention to the umpires. Umpire images were more salient when participants were told not to pay attention to the umpires than when they were told not to pay attention to intentional harm images or when they received a general instruction. Contrary to expectations, however, ironic effects for the suppression of umpires condition were not magnified under high cognitive load conditions. Ironic effects were also not apparent when participants were told not to pay attention to intentional harm images. Importantly, however, non-specific ironic effect impacts were not observed in the salience of images in any instance. For example, instructions not to pay attention to umpires did not impact upon the salience of coach/support staff images or intentional harm images.

Study Three

Study Three was an extension of Study Two, which examined the question of whether or not ironic effects associated with attempting to suppress awareness of umpire images could be negated by using a task-relevant cue word. It was hypothesised that instructions not to pay attention to the umpires would increase the awareness of umpire images. It was also hypothesised that the ironic cognitive processing influences would be undermined among participants instructed to use a task-relevant cue word in combination with thought suppression. It was also hypothesised that responses to questions not linked to a manipulation (e.g., images of coaches and/or support staff, and intentional harm images) would be unaffected by the manipulation instructions.

Method

Participants

Undergraduate students ($n = 64$; male = 36, female = 28) in Human Movement and Exercise Science at the University of Western Australia provided data for this study. The participants ranged in age from 17 to 27 ($M = 18.72$, $SD = 2.02$) and rated themselves as, on average, moderately knowledgeable about Australian Rules Football,

($M = 5.27$ on a 9 point Likert-type scale, $SD = 2.18$). Data from four participants who indicated that they were not paying attention during the video and/or had not found the background noise distracting were removed from the analysis. This resulted in four groups of 16. Participants received AU\$5.00 for their participation.

Materials

This study was intended to extend Study Two, and hence it employed all the same materials (i.e., video, audio, questionnaire) as Study Two.

Research Design

Participants were randomly assigned to conditions of a 2 (instructional set: suppression of umpires vs. suppression of umpires plus cue word) x 2 (cognitive load: high vs. low) between-subjects design. The high and low cognitive load conditions were identical to the cognitive load conditions in Study Two. The suppression of umpires condition also used precisely the same instructions used in Study Two. In contrast, participants in the suppression of umpires plus cue word condition were told to immediately refocus their attention onto a single cue, the ball, if they found themselves paying attention to the umpires. No manipulations relative to intentional harm images were employed in this study.

Procedure

The procedure was identical to Study Two. Specifically, participants filled out an informed consent form, completed the practice question, received instructions, watched the video while wearing headphones and then completed the post-experimental questionnaire.

Results

The descriptive statistics are presented in Table 18. Inferential examination of the effects of instructional set and cognitive load on participants' awareness of target images was conducted via 2 x 2 ANOVA analyses. No significant main effect in awareness of umpires was observed for cognitive load, $F(1, 64) = .29$; $p = .59$, $\eta^2 = .005$, however, a significant instructional set effect was observed on this question, $F(1, 64) = 10.91$; $p = .001$, $\eta^2 = .154$. This main effect was superseded by a significant instructional set by cognitive load interaction $F(1, 64) = 9.48$; $p = .001$, $\eta^2 = .136$ (see Figure 5). Evaluation of this significant interaction via independent samples t-tests revealed that the suppression of umpires condition resulted in no greater awareness of umpires than the suppression of umpires plus cue word condition ($p > .05$) in the absence of cognitive load. The presence of cognitive load, however, resulted in a

significant difference between instructional sets. Specifically, the suppression of umpires plus cue word condition resulted in significantly less umpire awareness than instructions not referencing cue word use ($p < .01$) in the presence of cognitive load.

Table 17

Estimated Percentage of Target Images as a Function of Cognitive Load and Instructional Set in Study Three

<u>Target Questions*</u>	<u>Instructional Set</u>	<u>Load</u>			
		<u>Low Load</u>		<u>High Load</u>	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
<u>Coach/support staff</u>					
	Suppression (umpires)	23.19	14.18	19.75	12.90
	Suppression (umpires) plus cue	15.06	7.32	19.69	15.37
<u>Intention to harm</u>					
	Suppression (umpires)	35.63	20.44	28.50	18.11
	Suppression (umpires) plus cue	41.00	24.22	32.25	20.01
<u>Umpires</u>					
	Suppression (umpires)	53.30	15.80	64.60	17.80
	Suppression (umpires) plus cue	52.30	23.60	36.20	12.10

Note. All instruction groups for both low cognitive load and high cognitive load conditions have $n = 16$.

* The three questions in the questionnaire were: "There were 60 clips in the video. In what percentage of the clips: (a) was a coach or member of the support staff (e.g., runner, physiotherapist) present?; (b) did you observe a player intentionally harm another player (e.g., dangerous play, punch)?; (c) was an umpire (i.e., field umpire, boundary umpire, goal umpire) present?"

Analyses were also conducted on the two questions (i.e., intentional harm, coach or support staff) that were not relevant to the manipulations employed in Study 2. No significant instructional set by cognitive load interaction for the intentional harm question was observed, $F(1, 64) = .024$; $p = .88$, $\eta^2 = .000$. Significant main effects for cognitive load, $F(1, 64) = 2.32$; $p = .13$, $\eta^2 = .037$, and instructional set, $F(1, 64) = .77$;

$p = .38$, $\eta^2 = .013$, for awareness for intentional harm images were also not observed. Finally, no significant main effects for cognitive load, $F(1, 64) = .03$; $p = .85$, $\eta^2 = .001$, or instructional set, $F(1, 64) = 1.63$; $p = .21$, $\eta^2 = .026$, were observed in responses to the question on awareness of the coach or support staff images nor was any significant instructional set by cognitive load interaction observed for this question, $F(1, 64) = 1.58$; $p = .21$, $\eta^2 = .026$.

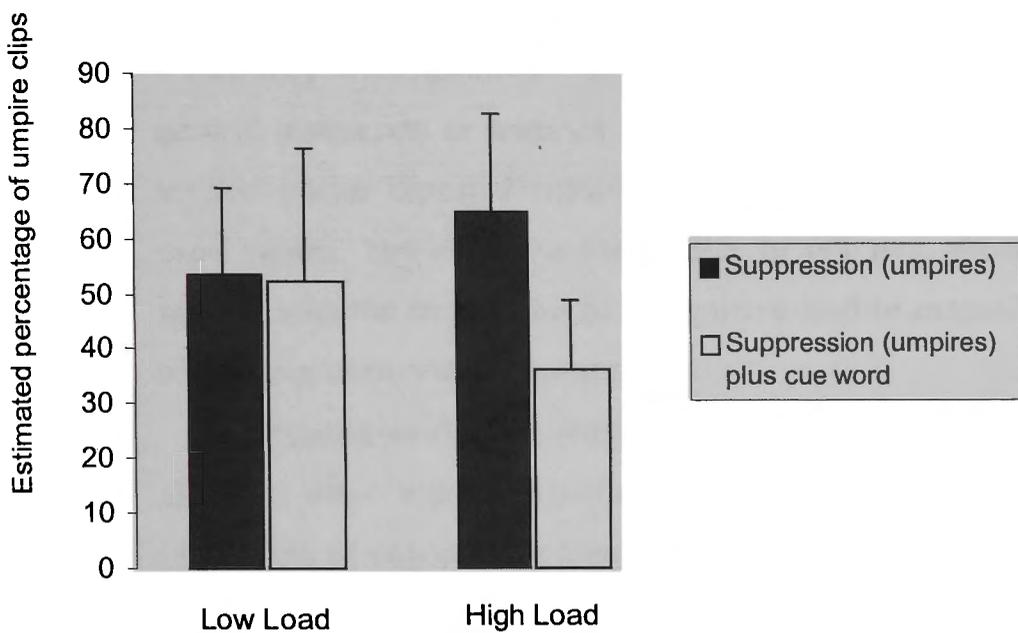


Figure 5.

Estimated percentage of umpire clips (with standard deviation bars) as a function of cognitive load and instructional set in Study Three.

In sum, ironic effects were observed in the salience of umpire images when participants were told not to pay attention to the umpires. Further, the instruction to use a cue word interacted with the suppression of umpire image instruction. Specifically, it was observed that the salience of umpire images was equivalent across instruction groups under low cognitive load conditions. Under high cognitive load conditions, however, the salience of umpire images was significantly less for participants receiving instructions to use a cue word in addition to suppressing umpire thoughts compared to participants who only received instructions to suppress umpire thoughts. Importantly,

no ironic effects were observed in awareness of images not associated with the umpires (e.g., coach/support staff, players trying to intentionally harm). These results demonstrate that cue words may negate potential ironic effects associated with thought suppression under high cognitive load conditions.

General Discussion

The purpose of Study Two was to examine the role of ironic processing on awareness of target images. As predicted by ironic processing theory, ironic effects were observed in Study Two on recall of umpire images. Specifically, participants' reporting the greatest awareness of umpire images were in the experimental condition where they were instructed not to pay attention to the umpires. Participants given a general instruction or told not to pay attention to players intentionally trying to harm another player reported significantly less awareness of umpire images. Contrary to expectations, however, the instruction to not pay attention to the umpires did not interact with the imposition of a cognitive load to magnify the participants' awareness of umpires in the video presentation.

Studies evaluating ironic processing hypotheses tend to report similar results although often with a significant interaction between thought suppression and the imposition of cognitive demand. Specifically, Wegner and his colleagues have shown that, while under cognitive load, intentional efforts to: (a) suppress thoughts can lead to increased accessibility of the suppressed or unwanted thoughts (Wegner & Erber, 1992); (b) concentrate can increase awareness of unwanted distractors (Wegner, 1997b); (c) control mood can produce moods opposite to those that are intended (Wegner et al., 1993); (d) intentional relaxation can lead to increased anxiety (Wegner, et al., 1997); (e) intentional sleep can induce wakefulness (Ansfield et al., 1996); (f) intentional forgetting can lead to greater remembering (Macrae et al., 1997); (g) attempts at pain suppression can magnify pain perception (Cioffi & Holloway, 1993); and (h) attempting not to overshoot a golf putt can induce such overshoots (Wegner, et al., 1998).

Importantly for this investigation, Wenzlaff and Wegner (2000) noted in a recent review article that it is not unusual for studies investigating ironic processing to report an enhanced occurrence of target thoughts following thought suppression even in the absence of added cognitive demands. For example, Macrae et al. (1997) found that instructions to suppress specific stereotyped thoughts led to enhanced recall of the thoughts even in the absence of cognitive load. Wenzlaff and Wegner suggest that cognitive demands are a typical means by which the monitoring process can produce

ironic effects. But, they also argue that reports of ironic effects in the absence of cognitive demands are also consistent with ironic processing theory predictions. The increase of suppression-related thoughts under these circumstances simply indicates a continued vigilance for unwanted thoughts by the monitoring process after one's conscious effort to suppress such thoughts has terminated. Obviously, Study Two did not involve a measure of voluntary relinquishment, but it is a theoretical concept that may merit further investigation.

No ironic effects were found for the intentional harm condition. As outlined in the Results, this was unexpected. It could be interpreted as supporting the moderation hypothesis by arguing that the expected ironic rebound effects were not observed because these images were presented infrequently. Beilock et al. (2001), for example, recently reported a moderating effect for frequency of suppressive imagery on golf putting performance. A more plausible explanation for the absence of ironic effects in this investigation, however, would be that the notion of intentional harm was too subjective to be useful in evaluating the moderation hypothesis. For example, a person who abhors violence could reasonably find abundant instances of intentional harm in the Australian Rules Football images while aficionados of the game would be unlikely to see anything of the sort. Further investigation of these possibilities is warranted in pursuing a fuller understanding of potential ironic processing influences.

Study Three extended the findings of Study Two by showing that potential ironic effects could be negated when individuals were given a task-relevant cue word to focus on when suppressing unwanted or negative thoughts. Specifically, a significant instructional set by cognitive load interaction was observed, with participants reporting significantly less awareness of the umpires under high cognitive load conditions when they received instructions to use a cue word in addition to suppressing umpire thoughts. Therefore it appears that thought suppression strategies may have utility when used in combination with a task-relevant cue word. Wegner, et al. (1987) reported a similar absence of the ironic process rebound effect among participants who were told to replace unwanted thoughts of a white bear with a focused distraction of a red Volkswagon. Nonetheless, Study Three's results should be viewed with caution given the lack of a control condition (i.e., general instruction condition) with which to contrast the results of the experimental conditions.

It seems unlikely that the use of thought suppression and task-relevant focusing strategies (i.e. cue words) in combination is completely foreign to elite athletes. For example, Olympic wrestlers in Gould, Eklund and Jackson (1993) study reported using

both thought control strategies (e.g., blocking distractions) and task focus strategies (e.g., narrow, more immediate focus) to help them cope with stress during the 1992 Olympics. It may be that these wrestlers were describing practical (if theoretically naive) instances of the utility of the combination of thought suppression self-regulation and task-relevant cue words in a highly competitive sport environment.

From a practical standpoint, the results of these two studies suggest that thought control strategies should not be uncritically advocated. Thought suppression, for example, can be an effective mental control strategy if used in conjunction with a strategy to direct the performer's attention to task-relevant cues. This combination is essentially what Martens (1987) describes in his characterisation of the mental skill of thought stopping. Failure to refocus the performer's attention on task-relevant cues following thought suppression is likely to increase the likelihood that the individuals will experience ironic errors.

CHAPTER 5: STUDY FOUR

Intrusive thoughts are relatively common occurrences (e.g., Freetston, Ladouceur, Thibodeau, & Gagnon, 1991; Purdon & Clark, 1994). Furthermore, they are not uncommon to the experience of highly skilled athletes (e.g., Eklund, 1994, Gould, Eklund, & Jackson, 1992a; Van Raalte, Brewer, Rivera, & Petipas, 1994). Freetston et al. (1991), for example, found that 99% of their non-clinical subjects reported experiencing intrusive or unwanted thoughts. Similarly, Van Raalte et al. (1994) found that the vast majority of junior competitive tennis players participating in their investigation self-reported negative self-talk during their matches. It has been suggested that athletes may experience movement control problems from time to time as a result of their inability to effectively cope with their thought processes (Janelle, 1999). Certainly, it is intuitively reasonable to believe that the ability to appropriately manage one's thought processes, especially when distracted or under stress, is a skill important to quality athletic performance.

Evidence for ironic errors has been observed in a number of areas relevant to sport performance, such as: thought suppression (Wegner & Erber, 1992; Abramowitz, Tolin & Street, 2001); pain control (Cioffi & Holloway, 1993); intentional relaxation (Wegner et al., 1997); intentional concentration (Wegner, 1997b) and awareness of target images (see Chapter 4). For example, results from Studies Two and Three (Chapter 4) showed that participants who watched the videotape were more aware of the umpires when instructed not to pay any attention to the umpires. Overall, the evidence across studies clearly indicates that efforts not to think about something or not to pay attention to something can result, ironically, in greater rumination on or attention to that matter.

Initial evidence has also been found for the ironic effects on movement. For example, a recent two-part investigation by Wegner, et al. (1998) showed that trying not to perform simple actions under cognitive or physical load could induce the occurrence of those actions. In the first study, subjects were asked to either not move a handheld pendulum in a particular direction or to hold it steady without mention of a direction. Under conditions of high cognitive load, more unwanted movements occurred when subjects were instructed to avoid such movement than when they were simply told to hold it steady. In the second study, subjects putting a golf ball were instructed to avoid overshooting. Consistent with ironic processing theory, subjects under cognitive load

tended to overshoot more compared with those not under load. Hence evidence exists indicating that an athlete attempting to control his or her thought processes while under stress or cognitive load may be prone to experiencing cognitive and behavioural ironic errors.

Janelle (1999) suggests, however, that “ironic processes do not occur all (or even most) of the time in highly successful people and athletes” (p. 205). While ironic processes may not greatly trouble performance among highly successful athletes, it is probably precipitous to assume that these performers have no susceptibility for ironic errors. Unfortunately, no empirical studies have been conducted which specifically address the role of expertise in ironic processing. The purpose of Study Four, therefore, was to examine ironic processing influences on the performance of a static balance task among participants with task-relevant expertise. It was hypothesised that (a) more unwanted wobble board movements will occur when participants are instructed to avoid such movements than when they are simply told to hold the wobble board steady, and (b) these ironic effects will be magnified under a high cognitive load.

Method

Participants

Sixteen full-time female dance students from the West Australian Academy of Performing Arts participated in this study. Ages ranged from 17 to 21 years ($M = 19.25$, $SD = 1.06$). On average, they had been involved in dance for 12.66 years ($SD = 3.87$) and been training full-time for 2.78 years ($SD = 1.53$). Informed consent (Appendix F) was obtained from each participant prior to data collection and they were compensated for their involvement in the investigation.

These full-time dancers were chosen for this experiment for two reasons. First, balance is a task-relevant issue in dance performance and dancers train extensively on tasks relevant to both dynamic and static balance. Second, these dancers sometimes employed wobble boards in their training to improve postural stability and balance. This familiarity minimised the likelihood of task novelty being an issue in testing.

Measures

Balance was assessed by placing a wobble board (a balance training device used in the rehabilitation of ankle and knee injuries) on a Advanced Mechanical Technology, Inc. force platform to measure the rate of change of the participant’s Centre of Pressure (COP). The COP represents the collective outcome of the postural control system and

the force of gravity and is the main parameter used in balance studies (Duarte & Zatsiorsky, 2000).

The dependent measurement obtained from the force platform determination of COP displacement was the Stability Index (SI). The SI was originally employed by Rozzi, Lephart, Sterner, and Kuligowski (1999) to examine the effects of a 4-week balance-training program but was modified to incorporate the COP analysis. The SI was calculated using LabVIEW™ (a graphical programming language) and provided a quantifiable measure of the participant's ability to hold the wobble board steady (i.e., maintain static balance) during each trial. The SI represents the rate of change of COP displacement and is calculated using the following equation:

$$SI = \sum \sqrt{(X_i - X_{i+1})^2 + (Y_i - Y_{i+1})^2}$$

Where $i = i^{\text{th}}$ time point

An SI of 0 indicates no movement (perfect stability) over the course of the 20 second trial. Increases in SI values indicate more movement, and therefore less stability, in the performance of the task.

Research Design and Analyses

A Latin square (within-subjects) research design was employed in this investigation to manage order effects. Participants completed a block of five trials in each of four conditions within this design. A 5 (trials) x 2 (cognitive load: high vs. low) x 2 (instruction: hold-steady vs. don't-wobble) repeated measures ANOVA was conducted to evaluate the investigative hypotheses. The instructions and methodology employed in the present study were pilot tested with junior-elite rhythmic gymnasts from the West Australian High Performance Centre.

Procedure

Prior to the start of testing, participants completed 30 minutes of wobble board training (10 minutes a day for three days) under the supervision of a dance instructor. This training was done in order to minimise the effects of learning on the experimental protocol. During the testing, participants stood barefoot on a wobble board with their feet together, arms comfortably at their sides, and eyes open. Le Clair and Riach (1996) showed that the optimum test-retest reliability for force platform postural stability measurements was obtained at 20 second and 30 second trial periods. A period of 20 seconds was used in this study because of the fatiguing nature of the task and the

demands of the within subjects design. Force plate data was sampled at a frequency of 100 hz.

Each participant completed a series of 20 trials on the wobble board. These trials occurred in 4 sets (2 cognitive load conditions by 2 instruction conditions) of five trials. Within-set rest periods of 50 seconds were provided. Between-set rest periods were 30 minutes in duration. Subjects completed all trials and sets within the same day. The researcher collected data over the course of two days (i.e., 8 subjects per day).

A script (Appendix O) was employed to standardise the presentation of instructions across participants. Participants in the don't-wobble condition were told to try not to let the wobble board wobble, whereas those in the hold-steady condition were simply told to hold the wobble board as steady as possible. To ensure participants were following the correct instructions for each condition, they were asked to verbally repeat the instruction set given prior to the performance of each trial. If a participant provided an incorrect answer, the instructional set was repeated and she was again asked to verbalise the appropriate instruction for the researcher.

In high cognitive load conditions, participants were asked to, in their head, count back from 1000 by sevens (e.g., 1000, 993, 886 and so on) and report the lowest obtained figure to the researcher after each trial. The researcher made a pretence of recording the number reported by each participant and gave verbal feedback on its accuracy. These steps were taken to reinforce the cognitive load manipulation by providing the impression that the values reported were important to the results of the investigation and to ensure that attempts were being made to perform the counting task appropriately. This cognitive load manipulation task was identical to that employed by Wegner et al. (1998) in their investigation on the ironic effects of the mental control of a handheld pendulum.

Results

All participants were able to successfully maintain their balance on the wobble board during each trial. However, descriptive statistics presented in Table 1 make it apparent that their success in performing the static balance task (i.e., hold the wobble board steady) varied across conditions. Examination of ϵ values associated with the 5 x 2 x 2 RM-ANOVA indicated that the sphericity assumption for the repeated measure analysis was tenable (i.e., $\epsilon = 1.0$ for instructions, $\epsilon = 1.0$ for cognitive load, $\epsilon = .81$ for trials, $\epsilon = 1.0$ for the instruction by cognitive load interaction) (see Schutz & Gessaroli, 1987 for a discussion of ϵ and repeated measures analyses).

Table 18

Stability Index Means and Standard Deviations by Instructional Set and Cognitive Load Conditions

<u>Instructional Set</u>	<u>Cognitive Load</u>				<u>Total</u>	
	<u>Low</u>		<u>High</u>		<u>M</u>	<u>SD</u>
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>		
Hold Steady	1324.61	377.94	1486.33	408.96	1405.47	391.20
Don't Wobble	1325.97	388.00	1611.30	430.96	1468.63	379.26
Total	1325.29	375.99	1548.81	402.43	1437.05	381.94

No within-subjects main effect for trials was observed, $F(4, 60) = 7.34$; $p = .134$, $\eta^2 = .11$, indicating that no reliable pattern of differential performance was observed across trials. This result suggests that neither learning nor fatigue were confounding factors in task performance. A significant within-subjects main effect was observed for instructional set, $F(1, 15) = 6.24$; $p = .025$, $\eta^2 = .29$, with more unwanted movements occurring when participants attempted to avoid such movements ($M = 1468.63$) than when they sought to hold the wobble board steady ($M = 1405.47$). A significant within-subjects main effect for cognitive load was also observed, $F(1, 15) = 34.59$; $p = .001$, $\eta^2 = .70$, with participants displaying less stability under cognitive load ($M = 1548.81$) than when they were not under cognitive load ($M = 1325.29$).

The hypothesised interaction between instructional set and cognitive load was not observed, $F(1, 15) = 2.07$; $p = .171$, $\eta^2 = .12$. Descriptively, however, the data were consistent with the expected instructional set by cognitive load interaction (see Figure 6). Effect sizes (ES) for the differences among conditions were calculated to assist in interpreting the meaningfulness of this descriptive pattern. According to Thomas and Nelson (1990) an ES greater than .8 is large, an ES around .5 is moderate and an ES less than .2 is small.

The observed pattern of effect sizes suggested the presence of a potentially meaningful (if not statistically significant) interaction. Specifically, stability was equivalent in the two instructional sets when the dancers were performing under low cognitive load (ES = .01). Participants exhibited meaningfully less stability (i.e., increase in SI) in both instructional sets under high cognitive load than they did when under low cognitive load (ES = .39 for "hold steady" instructions; .71 for "don't

wobble” instructions). Finally, and importantly, meaningfully less stability was observed under high cognitive load when participants were performing under “don’t wobble” instructions in comparison to “hold steady instructions” (ES = .29). These meaningful differences suggest that limited statistical power may have been a factor in the failure to detect the hypothesised instructional set by cognitive load interaction.

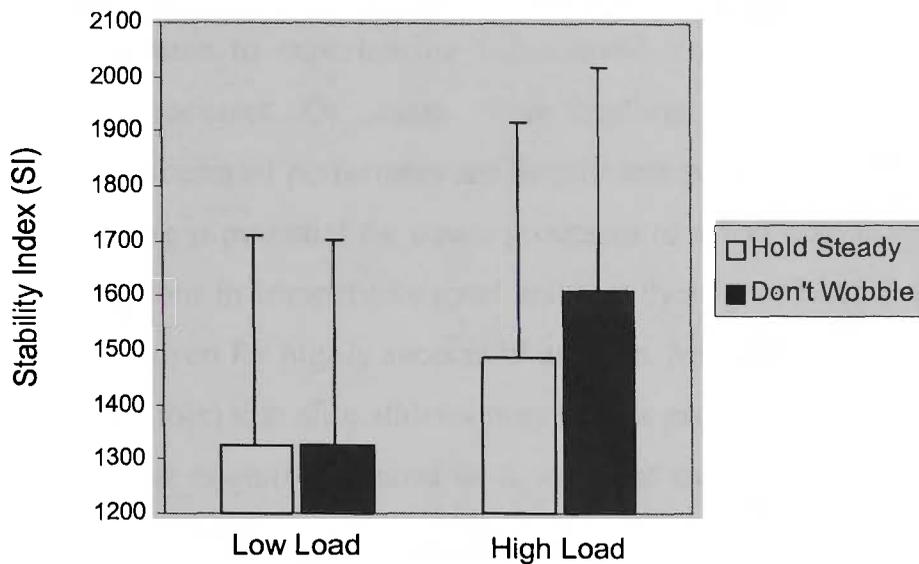


Figure 6.

Stability index means (and standard deviations) as a function of cognitive load and instruction.

Discussion

Ironic effects were observed in the performance of the static balance motor task in this investigation. More unwanted movements occurred when participants were told to try not to wobble than when they were asked simply to hold the wobble board steady. Movement errors were magnified when participants attempted to follow instructions under the imposition of a high cognitive load. Contrary to expectations, however, a significant instruction-by-load interaction was not observed. Nonetheless, examination of the associated pattern of effect sizes suggested the presence of a potentially meaningful (albeit non-significant) interaction as hypothesised. In sum, these findings

are consistent with ironic processing theory and support previous evidence (i.e., Wegner et al., 1998) indicating that trying not to perform simple actions under cognitive load may result in ironic movement errors.

Sentiment minimizing the relevance of ironic processes to athletes, particularly elite athletes, has been expressed in the literature (e.g., Hall, Hardy, & Gammage, 1999; Janelle, 1999). Indeed, as mentioned earlier, Janelle (1999) has suggested that “ironic processes do not occur all (or even most) of the time in highly successful people and athletes” (p. 205). The results of Study Four, however, indicate that even accomplished performers are not immune to experiencing behavioural ironies when attempting to control their thought processes. Of course, these findings do not vitiate Janelle’s contention that highly successful performers are largely untroubled by ironic processes. Rather, they suggest there is potential for ironic processes to affect cognitive, affective, and psychomotor behaviour in competitive sport and that these processes should not be dismissed out of hand—even for highly successful athletes. Moreover, it seems possible (or, at a minimum, plausible) that elite athletes may be less prone to experiencing ironic errors because they exert cognitive control in a way that minimises the initiation of processes that produce ironic errors. Future research is needed to explore this possibility as well as other potential moderating effects that may be attributable to performer expertise. It is also recommended that researchers examining ironic processes in the future record the performance of any secondary tasks (e.g., counting backwards) completed by participants.

Study Four has a number of strengths. First, an objective behavioral index (i.e., SI) with the sensitivity to detect even minor deviations in task performance was employed. The sorts of subtle deviations across conditions observed in this study could easily have been missed in the measurement of cruder behavioral outcomes (e.g., success/failure in basketball free-throw shots). Second, this is one of the few investigations, to this point, to directly examine ironies of action. The majority of studies in this area have focused upon ironic effects on cognition (e.g., Wegner, 1997b; Wegner & Erber, 1992; Wenzlaff & Wegner, 2000; Macrae, et al., 1997) and affect (e.g., Ansfield, et al., 1996; Wegner, et al., 1997; Wegner, Erber & Zanakos, 1993). Third, previous studies examining ironies of action have not employed accomplished performers. By evaluating skilled dancers performing an expertise-relevant task, it was possible to demonstrate that even accomplished performers can experience behavioral ironies.

CHAPTER 6: DISCUSSION

Introduction

The purpose of this thesis was to develop a better understanding of the ways in which elite athletes cope with stress and how mental control strategies such as thought stopping can influence performance. A series of studies, which examined the relationships between coping effectiveness and elite athlete performance, and potential consequences of exerting mental control using Wegner's (1994) ironic cognitive processing theory, were conducted.

Summary and Implications

Study One

Study One examined the relationship between coping effectiveness and elite athlete performance by: (a) identifying the coping strategies employed by New Zealand's athletes before or during their most stressful experience at the 1998 Commonwealth Games; (b) evaluating the relationship between the use of these coping strategies and successful coping; (c) examining the relationship between their coping strategies and expected and unexpected stressors, and (d) evaluating relationships among coping strategy automaticity, coping effectiveness, and athletic performance. New Zealand athletes participating at the 1998 Commonwealth Games were sent questionnaires three weeks before and immediately after the Games. Analyses revealed that athletes employed a variety of strategies to help them cope with their most stressful experience. Stressor expectedness, however, was not related to coping use or performance and coping evaluations. There were significant differences in the way athletes cognitively appraised expected and unexpected stressors. Unexpected stressors were perceived as more threatening than expected stressors. Athletes also indicated a significantly greater tendency to hold back or hesitate from responding or acting in the face of unexpected stressors in comparison to expected stressors. Finally, a modest but significant relationship was observed between coping strategy effectiveness and coping automaticity.

Findings from Study One have implications for sport psychology consultants and coaches working with elite athletes who compete in major international competitions. The athletes in this study appraised unexpected stressors as more threatening than expected

stressors. Thus, athletes, particularly those prone to making threat appraisals, may be well served by having well developed coping strategies for dealing with unexpected stressors or distractions they may encounter at these types of events. As Martens (1987) suggests there may be some merit in athletes and coaches developing coping strategies by progressing through three distinct phases: educational, acquisition and practise. The first phase, awareness seems to be a key (but not sufficient) condition for developing coping skills. The second phase should focus on the process by which athletes learn the different coping strategies. The third and final phase is devoted to practicing and integrating coping strategies into training and actual competition.

Studies Two and Three

Studies Two and Three were conducted to determine (a) whether ironic errors may be associated with efforts to exert mental control that typically occur in sport settings and (b) whether these potential ironic effects could be negated through the use of a task-relevant cue word to refocus ones' thoughts during suppression. Participants were asked to watch a videotape containing a series of clips of Australian Rules Football players, coaches and/or umpires. Study Two revealed that participants were more aware of umpires when instructed not to pay attention to the umpires. Contrary to expectations, ironic effects were not significantly magnified by the combination of high cognitive load and instructions not to pay attention to the umpires. These results were, however, consistent with ironic processing theory contentions. Results from Study Three indicated that enhanced awareness of the target images observed in Study Two could be negated when individuals were given a task-relevant cue word to focus on when suppressing unwanted or negative thoughts.

Study Four

The purpose of Study Four was to examine ironic processing influences on the performance of a static balance task among participants with task-relevant expertise. Sixteen full-time dancers performed a static balance task on a wobble board. Dancers who performed the task under high cognitive load exhibited less stability compared with those who performed under no cognitive load. A significant within-subjects main effect was also observed for instructional set with more unwanted movements occurring when participants attempted to avoid such movements than when instructed to hold the wobble board steady. Contrary to expectations, however, a significant instruction-by-load interaction was not observed. Nonetheless, examination of the associated patten of effect sizes suggested the presence of a potentially meaningful (albeit non-significant) interaction as hypothesised.

Collectively, these findings suggest that ironic processes can affect motor performance and, contrary to sentiment in the extant literature, that even highly accomplished performers may experience ironic errors when performing an expertise-relevant motor task.

Recommendations for Future Research

It is the purpose of this section to provide suggested recommendations for researchers interested in stress, coping and mental control in sport. Areas requiring further study and application are outlined below.

1. More research is needed on the way in which athletes appraise stressful situations and the effect cognitive appraisals have on the coping behaviours and outcomes. Results from Study One revealed significant differences in the way athletes appraise expected and unexpected stressors. Although no differences in coping strategy use were observed as a consequence of the expectedness of the stressor, further examination of the implications of these differing appraisals is warranted.
2. Longitudinal studies that examine athlete's coping strategies across time are needed. Such studies may provide information on developmental patterns in the acquisition of coping skills and shed light on intra-individual consistency of coping across time.
3. Intervention studies that examine cause and effect between coping strategies and performance are urgently needed. For example, teaching athletes a variety of coping skills and then examining the effectiveness of these coping strategies on performance (Hardy et al., 1996). Intervention studies that investigate the extent to which coping strategies can be taught to athletes are also required as the results of Study One suggested a relationship between coping strategy effectiveness and automaticity.
4. More research is needed on the relationship between automaticity of coping responses and coping effectiveness. Results from Study One support researchers such as Finch (1993) and Gould, Eklund, and Jackson (1993) who have suggested athletes who had practiced and learnt their coping strategies to the extent where they were able to employ them upon demand, coped with stress more effectively. Reliable and valid methods of assessing the degree to which coping strategies are learnt or automatised also need to be

developed (Hardy et al., 1996).

5. Researchers should examine whether there are individual differences in the tendency to suppress unwanted and/or intrusive thoughts. Results from Study One revealed that high trait anxious athletes were more likely to use thought suppression to help them cope with stress and anxiety than low trait anxious athletes. These findings are consistent with researchers who have shown that an individuals' tendency to suppress unwanted thoughts was positively correlated with self-reported measures of trait anxiety (Muris et al., 1996; Wegner & Zankos, 1994).
6. There is a need for future research to empirically evaluate the utility and limitations of thought control strategies advocated by sport psychologists and how they might be enhanced through the application of other self-regulation strategies. For instance, sport psychologists have advocated the use of a variety of different types of cue words (e.g., task-relevant statements, mood words, positive self-statements) (Rushall, 1984; Rushall, Hall, Roux, Sasseville, & Rushall, 1989). The implications of application of different types of cue words in combination with thought suppression may be interesting. More specifically, the effectiveness and consequences of using, for example, instructional (e.g., task-relevant) or emotive (e.g., mood setting or self-affirmations) cue words during thought suppression has both theoretical and practical significance and merits empirical examination.
7. Researchers should also investigate factors that may mediate the effectiveness of self-regulation via thought control strategies. It may be that the valance and relevance of the thought being suppressed, variations in how thought suppression is induced and various individual differences have important implications for thought suppression effectiveness (Wenzlaff & Wegner, 2000). The evidence in areas outside of sport in these areas is equivocal at the moment. For example, a number of researchers (e.g., Davis & Clark, 1998; Petrie, Booth, & Pennebaker, 1998) have shown that that emotional material is more difficult to suppress than neutral information. In contrast, Rutledge, Hollenberg, and Hancock (1993) and Kelly and Kahn (1994) found no evidence of ironic effects in participants who suppressed personally relevant intrusive thoughts (e.g., thoughts about an upcoming test in psychology). Sport competition may

involve stressors of an emotional and personally relevant nature. The potential utility of thought suppression for managing these sorts of stressors has not been empirically established and therefore merits further investigation.

8. The cognitive load manipulation employed in Study Four was successful but reverse counting tasks have very limited ecological validity. Future investigations should seek ecologically valid cognitive loads or stressors in their evaluations of ironic processing theory hypotheses. A variety of situational (e.g., spectators, event importance, etc.) and personal factors (e.g., personal goals, fear of failure, etc.) associated with pre-competitive and competitive stress could be employed as more realistic contextual features in evaluating such hypotheses.
9. The performance of a simple wobble board task in a laboratory setting, while directly relevant to participant expertise (Study Four), clearly limits the generalisability of inferences from these findings. Future research is therefore needed to establish whether the observed ironies of action emerge in similar sport-specific tasks in field settings. For example, it may be interesting to examine ironic processing hypotheses among gymnasts and their balance beam performance in competitive settings.
10. Results from Study Four also suggest that even highly skilled performers may be vulnerable to ironies of action when performing an expertise-relevant motor task. Certainly this does not imply that competitive sport is replete with outcomes resulting from ironic processing influences or that there are no other relevant psychological influences on performance. Nevertheless, the possibility exists that ironic errors can and do occur in competitive sport to some degree. Thus, future researchers should investigate the circumstances in which ironic effects will likely occur before and during competition and issues influencing the likelihood that athletes (especially elite) will experience these effects.
11. Ironic effects may also be associated with contextual features of the competitive environment. For example, Orlick (1986) has suggested that athletes might use a feature of the competitive environment (e.g., the scoreboard) to refocus when they experience negative or unwanted thoughts. Initially, this may help athletes to refocus and to cope

with their unwanted thoughts. It may, however, also carry ironic risks. Specifically, Wegner et al. (1991) have shown that these sorts of environmental features may later become reminders of negative thoughts when thought suppression is discontinued.

12. Well-controlled intervention studies that examine the accumulated impact of repeated suppression attempts are also needed. This is important because:

The idea that mental control might become automatic and so resist ironic errors has implications as well for the general effectiveness of mental control attempts. It might be that people who practice thought suppression often enough, for example, develop such skilled and automatic operating processes that they become quite capable of effective suppression and suffer few intrusions from the ironic monitoring process (Wegner, 1994, p. 49).

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APPENDIX A: QUESTIONNAIRES

PROJECT KL98
1998 COMMONWEALTH GAMES, KUALA LUMPUR

**PRE - GAMES
QUESTIONNAIRE**



THE UNIVERSITY OF
WESTERN AUSTRALIA
A Leading University

PROJECT KL98

1998 COMMONWEALTH GAMES, KUALA LUMPUR

PROJECT INFORMATION

Thank you for participating in Project KL98. Sport Science New Zealand, in conjunction with, The Peak Performance Research Unit at The University of Western Australia, is conducting this important research to learn how elite athletes deal with the stress and anxiety they encounter at a major competition such as the 1998 Commonwealth Games.

Every New Zealand athlete competing at the 1998 Commonwealth Games will be asked to fill out 2 questionnaires, one of which will be completed 3 weeks before the Games and the other immediately after the Games. From the information collected we hope to be able to identify the coping strategies used by the athletes and the sources, or causes of stress which influenced their performances. We then plan to use the findings to assist New Zealand athletes competing in major international events in the future (e.g., 2000 Sydney Olympics).

The following questionnaire will take about 40 minutes to complete. You will be asked a number of general questions as well as specific questions relating to your training and competition. Please answer all questions as honestly as you can. There are no right or wrong answers. Once you have completed the questionnaire please check through each page to make sure you did not miss any questions. We will assume that any questions you leave blank are because you **choose** not to answer them, not because you missed them out.

All information you give in this questionnaire is confidential. You will be identified by an ID number not your name in our computer records. After completing the questionnaire, please put it in the self-addressed envelope and return it immediately to your Manager/Coach or post it to the Peak Performance Research Unit at The University of Western Australia.

THANK YOU FOR YOUR HELP

ID # **SECTION 1: GENERAL DETAILS**Today's Date: day month year

Name: _____

1. What is your sex? male female
2. What is your age? years
3. What is your date of birth? day month year
4. Number of years participating in sport: years
5. Number of years competed at national level: years

6. How many international competitions have you competed in? (as at 8 September 1998):

none 01 02 03-05 06-10 11-15 16-20 21 or more

7. How many of these were major international competitions? (i.e., Olympics, World Championships, Commonwealth Games):

none 01 02 03 04 05 06-10 11 or more

8. Which sport have you qualified for? (tick one answer only)

- | | | | |
|------------|-----------------------------|-----------------------|-----------------------------|
| Athletics | <input type="checkbox"/> 01 | Netball | <input type="checkbox"/> 10 |
| Badminton | <input type="checkbox"/> 02 | Synchronised Swimming | <input type="checkbox"/> 11 |
| Boxing | <input type="checkbox"/> 03 | Sevens Rugby | <input type="checkbox"/> 12 |
| Cricket | <input type="checkbox"/> 04 | Shooting | <input type="checkbox"/> 13 |
| Cycling | <input type="checkbox"/> 05 | Squash | <input type="checkbox"/> 14 |
| Diving | <input type="checkbox"/> 06 | Swimming | <input type="checkbox"/> 15 |
| Gymnastics | <input type="checkbox"/> 07 | Ten Pin Bowling | <input type="checkbox"/> 16 |
| Hockey | <input type="checkbox"/> 08 | Weightlifting | <input type="checkbox"/> 17 |
| Lawn Bowls | <input type="checkbox"/> 09 | | |

SECTION 2: PERFORMANCE STRATEGIES

This section measures performance strategies used by **elite** athletes in various sport situations. Because individual athletes are very different in their approach to their sport, we expect the responses to be different. We want to stress, therefore that there are no right or wrong answers. All that is required is for you to be open and honest in your responses.

Throughout this section, several terms are used which may have different meanings for different sports. Because of this, these terms are defined below with specific sport examples where appropriate. Please keep these definitions in mind when responding to items with these terms.

SKILL: A specific element of your sport performance. For example, a penalty stroke in hockey, or a drop shot in squash.

PERFORMANCE: Your execution of specific sport skills during training and competition.

ROUTINE: A set of behaviours that are performed regularly in preparation for your performance in sport. For example, going through specific stretches while listening to a song on your walkman, prior to every performance.

WORKOUT: A structured practice session to work on various elements of your sport.

VISUALISATION/IMAGERY/REHEARSAL: These terms refer to the act of picturing in your mind some aspect of your performance. For example, seeing and feeling yourself execute a specific skill perfectly.

Each of the following items describes a specific situation that you may encounter in your training and competition. Please rate how frequently these situations apply to you by ticking the appropriate box:

	Never	Rarely	Sometimes	Often	Always	
1. I set realistic but challenging goals for practice	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	44
2. During practice I visualise successful past performances	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	45
3. My attention wanders while I am training	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	46
4. I practise using relaxation training at workouts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	47
5. I practise a way to relax	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	48
6. During competition I set specific goals for myself	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	49
7. When the pressure is on at competitions, I know how to relax	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	50
8. I perform at competitions without consciously thinking about it	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	51
9. I rehearse my performance in my mind before practice	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	52

	Never	Rarely	Sometimes	Often	Always	
10. I can raise my energy levels at competitions when necessary	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	53
11. During competition I have thoughts of failure	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	54
12. I use practice time to work on my relaxation technique	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	55
13. I manage my self-talk effectively during practice	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	56
14. I am able to relax if I get too nervous at a competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	57
15. I visualise my competition going exactly the way I want it to go	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	58
16. I am able to control distracting thoughts when I am training	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	59
17. I get frustrated and emotionally upset when practice does not go well	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	60
18. I have specific cue words or phrases that I say to myself to help my performance during competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	61
19. I evaluate whether I achieve my competition goals	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	62
20. During practice, my movements and skills just seem to flow naturally from one to another	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	63
21. When I make a mistake in competition, I have trouble getting my concentration back on track	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	64
22. When I need to, I can relax myself at competitions to get ready to perform	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	65
23. I set very specific goals for competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	66
24. I relax myself at practice to get ready	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	67
25. I psych myself up at competitions to get ready to perform	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	68
26. At practice, I can allow the whole skill or movement to happen naturally without concentrating on each part of the skill	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	69
27. During competition I perform on 'automatic pilot'	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	70
28. When something upsets me during a competition, my performance suffers	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	71
29. I say things to myself to help my competitive performance	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	72
30. At competitions, I rehearse the feel of my performance in my imagination	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	73
31. I practice a way to energise myself	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	74
32. I manage my self-talk effectively during competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	75
33. I set goals to help me use practice time effectively	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	76
34. I have trouble energising myself if I feel sluggish during practice	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	77

	Never	Rarely	Sometimes	Often	Always	
35. When things are going poorly in practice, I stay in control of myself emotionally	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	78
36. I do what needs to be done to get psyched up for competitions	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	79
37. During competition, I don't think about performing much - I just let it happen	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	80
38. At practice, when I visualise my performance, I imagine what it will feel like	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	81
39. I find it difficult to relax when I am too tense at competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	82
40. I set personal performance goals for a competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	85
41. I motivate myself to train through positive self-talk	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	86
42. During practice sessions I just seem to be able to flow	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	87
43. I practise energising myself during training sessions	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	88
44. I have trouble maintaining my concentration during long practices	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	89
45. I talk positively to myself to get the most out of practice	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	90
46. I can increase my energy to just the right level for competitions	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	91
47. I have very specific goals for practice	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	92
48. During competition, I play/perform instinctively with little conscious effort	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	93
49. I imagine my competitive routine before I do a competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	94
50. I don't set goals for practice, I just go out and do it	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	95
51. I rehearse my performance in my mind at competitions	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	96
52. I have trouble controlling my emotions when things are not going well at practice	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	97
53. When I perform poorly in practice I lose my focus	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	98
54. My emotions keep me from performing my best at competitions	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	99
55. My emotions get out of control under the pressure of competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	100
56. At practice, when I visualise my performance, I imagine watching myself as if on video replay	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	101

SECTION 3: REACTIONS TO COMPETITION

Please read the following statements and then tick the box to the right of each statement that indicates how you **usually** feel prior to, or during competition. Some athletes feel they should not admit to feelings of nervousness or worry, but such reactions are quite common, even among elite athletes. To help us better understand reactions to competition, we ask you to share your **true reactions** with us.

	Not At All	Some-what	Moderately So	Very Much So	
1. I feel nervous	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	102
2. During competition, I find myself thinking about unrelated things	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	103
3. I have self-doubts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	104
4. My body feels tense	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	105
5. I am concerned that I may not do as well in competition as I could	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	106
6. My mind wanders during sport competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	107
7. While performing, I often do not pay attention to what's going on	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	108
8. I feel tense in my stomach	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	109
9. Thoughts of doing poorly interfere with my concentration during competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	110
10. I am concerned about choking under pressure	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	111
11. My heart races	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	112
12. I feel my stomach sinking	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	113
13. I'm concerned about performing poorly	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	114
14. I have lapses in concentration during competition because of nervousness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	115
15. I sometimes find myself trembling before or during a competitive event	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	116
16. I'm worried about reaching my goal	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	117
17. My body feels tight	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	118
18. I'm concerned that others will be disappointed with my performance	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	119
19. My stomach gets upset before or during competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	120
20. I'm concerned I won't be able to concentrate	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	121
21. My heart pounds before competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	122

SECTION 4: SURVEY OF ATHLETIC EXPERIENCES

Please read the following statements carefully and recall as accurately as possible how **often** you experience the same thing. Tick the appropriate box.

	Almost Never	Sometimes	Often	Almost Always	
1. I remain positive and enthusiastic during competition, no matter how badly things are going	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	123
2. I tend to play better under pressure because I think more clearly	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	124
3. I get the most out of my talent and skills	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	125
4. When things are going badly, I tell myself to keep calm, and this works for me	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	126
5. The more pressure there is during a game, the more I enjoy it	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	127
6. I feel confident that I will play well	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	128
7. When I feel myself getting too tense, I can quickly relax my body and calm myself	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	129
8. To me, pressure situations are challenges that I welcome	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	130
9. I am confident I can achieve my performance goal(s)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	131
10. I maintain emotional control no matter how things are going for me	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	132
11. I make fewer mistakes when the pressure's on because I concentrate better	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	133
12. I am confident I will perform successfully	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	134

SECTION 5: PERCEIVED CONTROL

When I am **under stress** during competition I **usually** feel my performance(s) are: (please tick)

not manageable by me	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	manageable by me	135
something I cannot regulate	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	something I can regulate	136
something over which I have no power	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	something over which I have power	137

Please read the statements below and indicate whether the following thoughts or images occur in your mind when you compete in sport. Tick the appropriate box.

When I am competing in sport:

5. There are things I prefer not to think about

strongly disagree ₁ ₂ ₃ ₄ ₅ strongly agree 141

6. I sometimes wonder why I have the thoughts I do

strongly disagree ₁ ₂ ₃ ₄ ₅ strongly agree 142

7. I have thoughts I cannot stop

strongly disagree ₁ ₂ ₃ ₄ ₅ strongly agree 143

8. There are images that come to mind that I cannot erase

strongly disagree ₁ ₂ ₃ ₄ ₅ strongly agree 144

9. My thoughts frequently return to one idea

strongly disagree ₁ ₂ ₃ ₄ ₅ strongly agree 145

10. I wish I could stop thinking of certain things

strongly disagree ₁ ₂ ₃ ₄ ₅ strongly agree 146

11. My mind sometimes races so fast I wish I could stop it

strongly disagree ₁ ₂ ₃ ₄ ₅ strongly agree 147

12. I always try to put problems out of mind

strongly disagree ₁ ₂ ₃ ₄ ₅ strongly agree 148

13. There are thoughts that keep jumping into my head

strongly disagree ₁ ₂ ₃ ₄ ₅ strongly agree 149

14. I try to keep unwanted thoughts from intruding on my mind

strongly disagree ₁ ₂ ₃ ₄ ₅ strongly agree 150

When I am competing in sport:

15. There are things I try not to think about

strongly disagree

₁ ₂ ₃ ₄ ₅

strongly agree 151

16. I sometimes wish I could stop thinking

strongly disagree

₁ ₂ ₃ ₄ ₅

strongly agree 152

17. I often do things to distract myself from my thoughts

strongly disagree

₁ ₂ ₃ ₄ ₅

strongly agree 153

18. I have thoughts that I try to avoid

strongly disagree

₁ ₂ ₃ ₄ ₅

strongly agree 154

19. There are many thoughts that I have that I don't tell anyone

strongly disagree

₁ ₂ ₃ ₄ ₅

strongly agree 155

SECTION 8: SOURCES OF STRESS

1. How important is it to you, to perform well at the 1998 Commonwealth Games?

not important

₁ ₂ ₃ ₄ ₅ ₆ ₇ ₈ ₉

very important 156

2. Why are the Commonwealth Games important or not important to you?

PROJECT KL98

1998 COMMONWEALTH GAMES, KUALA LUMPUR

POST - GAMES QUESTIONNAIRE



THE UNIVERSITY OF
WESTERN AUSTRALIA
A Leading University

PROJECT KL98

1998 COMMONWEALTH GAMES, KUALA LUMPUR

PROJECT INFORMATION

Thank you for participating in Project KL98. We appreciate the time and effort required to complete the Pre-Games questionnaire we sent you before the Commonwealth Games.

The following questionnaire will take about 60 minutes to complete. You will be asked about your general impressions of the 1998 Commonwealth Games as well as specific questions that ask you to reflect on your experiences during the Games. These questions are included so that we can learn more about your performances and how you dealt with the stress and anxiety you encountered at the 1998 Commonwealth Games. Please answer all questions as honestly as you can. There are no right or wrong answers. Once you have completed the questionnaire please check through each page to make sure you did not miss any questions. We will assume that any questions you leave blank are because you **choose** not to answer them, not because you missed them out.

All information you give in this questionnaire is confidential. You will be identified by an ID number not your name in our computer records. After completing the questionnaire, please put it in the self-addressed envelope and return it to your Manager/Coach as you depart/leave the plane or post it to the Peak Performance Research Unit at The University of Western Australia.

THANK YOU FOR YOUR HELP

ID #

3

SECTION 1: GENERAL DETAILSToday's Date: day month year

9

Name: _____

Contact Address: _____

Phone: _____

Fax: _____ Email: _____

3. What is your sex? male female

10

4. What is your age? years

12

8. What is your date of birth? day month year

18

9. Number of years participating in sport: years

20

10. Number of years competed at national level: years

22

SECTION 2: PERFORMANCE

1. Did you compete at the 1998 Commonwealth Games?

yes 1 no 2 (go to section 7, question 1)

23

2. If yes, please list the event you competed in at the 1998 Commonwealth Games (e.g., Women's Road Race, Netball, Men's 400m Freestyle).

Event: _____

3. Read the following questions carefully and choose the correct response based on the event you identified in question 2.

The squad or team performed up to their expectations:

disagree 1 2 3 4 5 agree 24

I personally was able to perform as well as I wanted:

disagree 1 2 3 4 5 agree 25

I did not reach my personal performance goal(s):

disagree 1 2 3 4 5 agree 26

I was able to achieve my personal performance objectives:

disagree 1 2 3 4 5 agree 27

4. Did you achieve a personal best in this event?

n/a 0 yes 1 no 2 28

5. Was there a Commonwealth Games standard/qualifying time for this event?

yes 1 no 2 (go to question 7) 29

6. Did you **equal or better** the Commonwealth Games standard/qualifying time at these games?

yes 1 no 2 30

7. Did you and/or your team win a medal in this event?

yes 1 no 2 (go to question 9) 31

8. If yes, was it?

bronze 1 silver 2 gold 3 32

9. What was your final position or ranking? (e.g, Eliminated 2nd round , placed 14th out of 64):

SECTION 2: COPING WITH STRESS

Think back to your performance(s) at the 1998 Commonwealth Games. Overall, how well did you cope with the stress and anxiety you encountered during the 1998 Commonwealth Games? Tick the appropriate box from the scale below to represent the degree to which you coped with the stress and anxiety you encountered.

didn't cope at all well 1 2 3 4 5 6 7 8 9 coped very well 63

6. If you didn't feel 100% ready; what was missing, what might have helped; what might you have done differently?

Physical: _____

Technical: _____

Mental: _____

7. Briefly describe what you were thinking about, or saying to yourself **immediately before** your most important match/game/event:

8. Briefly describe what you were paying attention to or were focused on **immediately before** your most important match/game/event:

9. Briefly describe what you were thinking about, or saying to yourself **during** your most important match/game/event:

10. Briefly describe how you were feeling **during** your most important match/game/event:

11. Briefly describe what you were paying attention to or were focused on **during** your most important match/game/event:

12. Was there anything that you consciously tried to **avoid** thinking about during your most important match/game/event?

yes 1 no 2 (go to question 14)

68

13. If yes, please describe or list these factors:

14. Tick the box on the following scale to represent the degree to which you felt your mind wandered during your most important match/game/event.

not at all 1 2 3 4 5 6 7 8 9 very much

69

15. Tick the box on the following scale to represent the degree to which you were focused on the appropriate task-relevant thoughts during your most important match/game/event.

completely task-irrelevant thoughts 1 2 3 4 5 6 7 8 9 completely task-relevant thoughts

70

Please indicate approximately how often each of the following thoughts occurred to you during your most important match/game/event by ticking the appropriate box.

During my most important match/game/event:	Never	Rarely	Sometimes	Often	Always	
16. I wondered what my teammates or coach might think of me	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	71
17. I thought about things unrelated to the match/game/event	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	72
18. I thought about a previous poor performance	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	73
19. I thought about how important the match/game/event was	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	74
20. I thought about something that had happened in the past	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	75
21. I thought about winning or the outcome	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	76
22. I thought about something that might occur in the future	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	77
23. I thought about the pressure I was experiencing	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	78
24. I thought about how incompetent the official(s) were	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	79
25. I thought about previous mistakes or errors	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	80

26. During my most important match/game/event:

my performance required conscious effort	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	my performance was automatic	81
I was thinking a great deal during my performance	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	I did not have to think during my performance	82
I tried to make things happen	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	I let things happen	83
I made a conscious effort to concentrate	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	I made no conscious effort to concentrate	84

6. If your most stressful experience was "expected", please describe briefly what you and/or your team had done to prepare or plan for this eventuality.

7. In general, was your most stressful experience something:

That you found negative and/or threatening?

not threatening 1 2 3 4 5 6 7 8 9 very threatening 87

That you found positive and/or challenging?

not challenging 1 2 3 4 5 6 7 8 9 very challenging 88

That you could change or do something about?

could not change 1 2 3 4 5 6 7 8 9 could change 89

That needed to be accepted or gotten used to?

not accepted 1 2 3 4 5 6 7 8 9 accepted 90

That you needed to know more about before you could act?

did not need to know more about 1 2 3 4 5 6 7 8 9 did need to know more about 91

In which you had to hold yourself back from what you wanted to do?

did not hold back 1 2 3 4 5 6 7 8 9 did hold back 92

That you could manage or do something about?

not manageable by me 1 2 3 4 5 6 7 8 9 manageable by me 93

That could be regulated?

something I could not regulate 1 2 3 4 5 6 7 8 9 something I could regulate 94

In general, was your most stressful experience something:

That you felt you had power over?

something over which I had no power 1 2 3 4 5 6 7 8 9 something over which I had power 95

8. Did your most stressful experience affect your level(s) of concentration during your most important match/game/event? Tick the box on the following scale to represent the degree to which you felt your level of concentration was affected.

concentration not affected 1 2 3 4 5 6 7 8 9 concentration affected 96

9. Please briefly describe how your concentration levels were affected or were not affected.

10. How did you deal with your most stressful experience? Did you use any strategies during your most important match/game/event to help you maintain your concentration and to refocus?

yes 1 no 2 (go to question 12) 97

11. If yes, please describe or list these strategies:

12. Did you use any specific thoughts, cuewords, mood words or positive self-statements during your most important match/game/event to help you maintain your concentration and to refocus?

yes 1 no 2 (go to question 14) 98

13. If yes, please describe or list these thoughts, cuewords etc:

14. In general, how effective were the strategies you identified in questions 10-13 in helping you to maintain your concentration and to refocus?

0% effective 100% effective

0 10 20 30 40 50 60 70 80 90 100
 99

15. How easy was it for you to maintain your concentration and refocus during your most important match/game/event? Please tick the appropriate box from the scale below, to represent the degree to which you felt maintaining your concentration and refocusing were easy.

maintaining my concentration and refocusing were hard 1 2 3 4 5 6 7 8 9 maintaining my concentration and refocusing were easy
100

SECTION 6: COPING STRATEGIES

How did you cope with your **most stressful experience**? Please indicate how much you used each of the following coping strategies by ticking the appropriate box.

	Used not at	Used moderately	Used a great deal			
1. I asked people who had similar experiences what they did or would do	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	101
2. I talked to someone about how I felt	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	102
3. I admitted to myself that I couldn't deal with the situation and stopped trying	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	103
4. I blamed myself for the situation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	104
5. I made a plan of action	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	105
6. I focused on dealing with the problem, and where necessary let other things slide	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	106
7. I felt a lot of emotional distress, and I found myself expressing those feelings a lot	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	107
8. I kidded around about the problem	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	108
9. I tried to increase the quality of my efforts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	109
10. I daydreamed about a situation that was less stressful	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	110
11. I concentrated my efforts on doing something about it	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	111
12. I acted as though it hadn't really happened	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	112
13. I looked for something good in what had happened	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	113

	Used not at		Used moderately		Used a great deal	
14. I tried to learn to live with what had happened	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	114
15. I tried to distract myself by thinking of something else	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	115
16. I tried to put it out of my mind	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	116
17. I talked to someone to find out more about the situation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	117
18. I got sympathy and understanding from someone	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	118
19. I reduced the amount of effort I put into solving the problem	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	119
20. I criticised or lectured myself	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	120
21. I thought hard about what steps to take to manage the situation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	121
22. I kept myself from getting distracted by other thoughts or activities	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	122
23. I got upset and let my emotions out	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	123
24. I made fun of the situation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	124
25. I put more effort into my play	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	125
26. I had fantasies or wishes about how things might turn out	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	126
27. I did what had to be done, one step at a time	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	127
28. I refused to believe that it had happened	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	128
29. I tried to see it in a different light, to make it seem more positive	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	129
30. I accepted that it had happened and that it couldn't be changed	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	130
31. I daydreamed about things other than this	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	131
32. I tried to stop thinking about it	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	132
33. I tried to get advice from someone about what to do	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	133
34. I talked about my feelings with someone	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	134
35. I gave up trying to get what I wanted	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	135
36. I decided the situation was my fault	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	136
37. I thought about how I could best handle the situation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	137
38. I stopped doing other things in order to concentrate on this	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	138

	Used not at		Used moderately		Used a great deal	
39. I got upset and lost my cool	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	139
40. I made jokes about the problem	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	140
41. I tried to improve my effort	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	141
42. I wished the situation would go away or somehow be over	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	142
43. I took additional action to try to get rid of the problem	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	143
44. I pretended it hadn't really happened	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	144
45. I tried to learn something from the experience	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	145
46. I got used to the idea that things had happened	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	146
47. I avoided it by thinking about other things	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	147
48. I tried not to think about what had happened	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	148
49. I talked to someone who could do something concrete about the problem	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	149
50. I tried to get emotional support from my coach or teammates	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	150
51. I stopped trying to reach my goal(s)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	151
52. I took responsibility for what had happened	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	152
53. I tried to come up with a strategy about what to do	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	153
54. I tried hard to prevent other things from interfering with my efforts at dealing with this	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	154
55. I let my feelings out	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	155
56. I laughed about the situation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	156
57. I worked harder	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	157
58. I wished I could change what had happened	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	158
59. I took direct action to get around the problem	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	159
60. I said to myself, "This can't be happening"	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	160
61. I tried to grow as a person as a result of the experience	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	161
62. I accepted the fact that it had happened	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	162
63. I thought about something unrelated to the problem	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	163
64. I tried to keep it from intruding on my mind	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	164

65. Overall, how effective were the above coping strategies. Please tick the appropriate box from the scale below to represent the degree to which the coping strategies you used were effective.

0% effective

100% effective

0
 10
 20
 30
 40
 50
 60
 70
 80
 90
 100

165

66. In general, during my most stressful experience:

my coping required effort

1
 2
 3
 4
 5
 6
 7
 8
 9

my coping was automatic

166

I thought a great deal about my coping strategies

1
 2
 3
 4
 5
 6
 7
 8
 9

I didn't have to think about my coping strategies

167

I made a deliberate effort to cope

1
 2
 3
 4
 5
 6
 7
 8
 9

I made no conscious effort to cope

168

SECTION 7: SOURCES OF STRESS

Please read the following statements and then tick the box to the right of each statement that indicates how you **felt** during the 1998 Commonwealth Games. Some athletes feel they should not admit to feelings of nervousness or worry, but such reactions are quite common, even among elite athletes. To help us learn more about the major sources or causes of stress you encountered during the 1998 Commonwealth Games, we ask you to share your **true reactions** with us.

During the 1998 Commonwealth Games:	Never	Rarely	Sometimes	Often	Always	
1. I worried about my lack of experience	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	169
2. I worried about the level of competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	170
3. I worried about bad calls by officials	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	171
4. I worried about what my coach(es) would think or say	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	172
5. I worried about the heat	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	173
6. I worried about the sleeping arrangements	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	174
7. I worried about the type of playing surface (e.g., track/court/ pool/range, etc).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	175
8. I worried about the food	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	176
9. I worried about the clothing I was using	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	177
10. I worried about team management	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	178
11. I worried about my lack of sponsorship	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	179
12. I worried about my sporting career	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	180
13. I worried about getting hurt or injured	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	181
14. I worried about the importance of the competition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	182
15. I worried about what my teammates would think or say	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	183
16. I worried about the humidity	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	184
17. I worried about the smog	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	185
18. I worried about my financial situation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	186
19. I worried about my health	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	187
20. I worried about our accommodation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	188
21. I worried about the traffic	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	189
22. I worried about the equipment I was using	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	190

	Never	Rarely	Sometimes	Often	Always	
During the 1998 Commonwealth Games:						
23. I worried about what my parents would think or say	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	191
24. I worried about the temperature	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	192
25. I worried about my future	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	193
26. I worried about the noise pollution	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	194
27. I worried about interpersonal problems within the squad/team	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	195
28. I worried about the drinking water	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	196
29. I worried about what the media would think or say	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	197
30. I worried about the condition of the playing surface (e.g., track/court/pool/range, etc).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	198
31. I worried about the competition venue	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	199
32. I worried about the timing of my event	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	200
33. I worried about the weather conditions	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	201
34. I worried about what my spouse/family would think or say	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	202
35. I worried about conditions in the village	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	203
36. I worried about my roommate(s)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	204
37. I worried about the transport arrangements	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	205
38. I worried about the rain	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	206
39. I worried about my sponsorship commitments	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	207
40. I worried about my career outside of sport	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	208

During the 1998 Commonwealth Games I worried that other people would perceive me as:

	Never	Rarely	Sometimes	Often	Always	
41. appearing to not live up to my expectations	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	209
42. appearing exhausted	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	210
43. appearing flabby	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	211
44. appearing untalented	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	212
45. appearing unable to handle the pressure	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	213
46. appearing fatigued	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	214
47. appearing physically untuned	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	215
48. appearing athletically incompetent	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	216
49. appearing to not perform up to my potential	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	217
50. appearing tired	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	218
51. appearing ugly or unpleasant in my uniform	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	219
52. appearing unathletic	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	220
53. appearing not physically and mentally ready	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	221
54. appearing lethargic	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	222
55. appearing physically unattractive	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	223
56. appearing underskilled	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	224
57. appearing to lose composure	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	225
58. appearing unenergised	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	226
59. appearing too small or too big for my uniform	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	227
60. appearing not to perform or execute perfectly	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	228
61. appearing distressed	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	229

SECTION 8: OTHER STRESSFUL EXPERIENCES

1. Did you encounter any other stressful experiences that affected how you performed during your most important match/game/event?

yes 1 no 2 (go to section 9, question 1)

230

2. If yes, please describe briefly the stressful experience and indicate when it occurred and whether it was "expected" or "unexpected":

Stressful experience 1: _____

Timing of occurrence: _____

expected 1 unexpected 2

231

Stressful experience 2: _____

Timing of occurrence: _____

expected 1 unexpected 2

232

Stressful experience 3: _____

Timing of occurrence: _____

expected 1 unexpected 2

233

Stressful experience 4: _____

Timing of occurrence: _____

expected 1 unexpected 2

234

SECTION 9: RECOMMENDATIONS

1. Do you have any advice or recommendations for athletes worried about competing at a major international competition such as the Commonwealth Games or Olympics?

2. Do you have any advice or recommendations for young athletes yet to compete in a major international competition?

3. Is there anything the New Zealand Olympic Committee or your National Sporting Organisation could do, to help you deal or cope with the pressures of competing at future international competitions?

yes 1 no 2 (go to question 5)

4. If yes, please describe or list these factors below:

Visual Awareness QuestionnaireGroup ID #

Name: _____

Gender: male female Age: years

You are about to watch a videotape of Australian Rules Football. You will then be asked to complete a brief questionnaire about what you have just seen. You will respond to the questions using the following format:

Question: On any given day, how often do you listen to the radio? If your answer is 75% then draw a mark on the line as shown below:

0%  100%

Now please do a practise question.

1. What percentage of the day (24 hours) do you spend sleeping?

0%  100%

Please answer the following questions. It is important you do not merely guess but rather use your memory from the footage you have just seen to recall the answer.

There were 60 clips in the video. **In what percentage of the clips:**

1. was a coach or member of the support staff (e.g., runner, physiotherapist) present?



2. did you observe a player intentionally harm another player (e.g., dangerous play, punch)?



3. was an umpire (i.e., field umpire, boundary umpire, goal umpire) present?



4. What action did one of the AFL coaches make with his hand when he walked onto the field at halftime? _____

5. One of the clips showed a player who had just left the field talking on a phone. What colour was the phone? _____

6. How would you rate your knowledge of Australian Rules Football? (please tick one only)

not knowledgable 1 2 3 4 5 6 7 8 9 very knowledgable

7. How would you rate your attention during the video? (please tick one only)

was not paying attention 1 2 3 4 5 6 7 8 9 was paying attention

8. How distracting did you find the background noise? (please tick one only)

not distracting 1 2 3 4 5 6 7 8 9 very distracting

APPENDIX B: LETTERSNew Zealand Olympic Committee

20 July 1998

Dear

Re: Support for Research Project on 1998 Commonwealth Games

The Peak Performance Research Unit at The University of Western Australia, in conjunction with Sport Science New Zealand is interested in learning how New Zealand athletes deal with the stress and anxiety they encounter at a major competition such as the 1998 Commonwealth Games (see attached "Performing Under Pressure: Coping Strategies of New Zealand Athletes at the 1998 Commonwealth Games").

As you can appreciate the ultimate success of this study is dependent upon us gaining the support and compliance from key organisations and/or individuals associated with the athletes and the Games (i.e., the New Zealand Olympic Committee, and the National Sporting Organisations, along with their Section Managers at the Games). As such we would be extremely grateful if you could read the attached proposal and indicate via fax ASAP whether the New Zealand Olympic Committee is willing to support this research project. Please note that we are not asking for financial assistance as the Research & Development Selection Committee of Sport Science New Zealand have agreed to fund this project provided we (a) have full co-operation from the NZOC, the NSO'S and their section managers, and (b) receive replies from 75% of the athletes surveyed in Phase 1 (all Games athletes); and 90% or more of the athletes surveyed in Phase 2 (all athletes returning a Phase 1 questionnaire).

Yours sincerely,

Jeremy Dugdale
Principal Researcher

Bob Eklund
Co-Researcher

Sandy Gordon
Co-Researcher

National Sporting Organisations

28 July 1998

Dear

Re: Support for Research Project on 1998 Commonwealth Games

The Peak Performance Research Unit at The University of Western Australia, in conjunction with Sport Science New Zealand, is interested in learning how New Zealand athletes deal with the stress and anxiety they encounter at the 1998 Commonwealth Games (see attached "Performing Under Pressure: Coping Strategies of New Zealand Athletes at the 1998 Commonwealth Games").

The New Zealand Olympic Committee have put their full support behind this project and the R & D Selection Committee of Sport Science New Zealand have agreed to fund this project provided we (a) have full co-operation from NSO'S and their section managers, and (b) receive replies from 75% of the athletes surveyed in Phase 1 (all Games athletes); and 90% or more of the athletes surveyed in Phase 2 (all athletes returning a Phase 1 questionnaire).

As you can appreciate, the ultimate success of this study is dependent upon us gaining the support and compliance from key organisations and/or individuals associated with the athletes and the Games (i.e., the National Sporting Organisations, along with their Section Managers at the Games). As such we would be extremely grateful if you could read the attached proposal and indicate via fax ASAP whether [National Sporting Organisation] is (a) willing to support this research project and (b) assist in the distribution of the Pre- and Post-Game Questionnaires to those athletes who will be competing at the Games.

Yours sincerely,

Jeremy Dugdale
Principal Researcher

Bob Eklund
Co-Researcher

Sandy Gordon
Co-Researcher

Coaches/Section Managers Pre-Games

17 August 1998

Dear

Re: Project KL98

Please find enclosed:

1. an Information Pack for each athlete;
2. guidelines for administering the "Pre-Games Questionnaire";
3. a two page summary of the project;
4. a copy of the questionnaire for your interest.

After each athlete has completed the "Pre-Games Questionnaire" it should be sealed in the stamped self-addressed envelope (white) along with the signed "Consent Form". Please collect these sealed self-addressed envelopes from your athletes and return them to the Peak Performance Research Unit at The University of Western Australia.

We are very grateful for your co-operation and assistance. Quality administration of this questionnaire is vital, if this project is to assist in the preparation of New Zealand athletes in the future.

Yours sincerely,

Jeremy Dugdale
Principal Researcher

Bob Eklund
Co-Researcher

Sandy Gordon
Co-Researcher

Coaches/Section Managers Post-Games

12 September 1998

Dear

Re: Project KL98

Please find enclosed:

5. an Information Pack for each athlete;
6. guidelines for administering the "Post-Games Questionnaire";
7. a copy of the questionnaire for your interest.

After each athlete has completed the "Post-Games Questionnaire" it should be sealed in the stamped self-addressed envelope. Please collect these envelopes from your athletes and return them to the Peak Performance Research Unit at The University of Western Australia.

We are very grateful for your co-operation and assistance. Quality administration of this questionnaire is vital, if this project is to assist in the preparation of New Zealand athletes in the future.

Yours sincerely,

Jeremy Dugdale
Principal Researcher

Bob Eklund
Co-Researcher

Sandy Gordon
Co-Researcher

Athletes Pre-Games

10 August 1998

Dear

Re: Project KL98

Sport Science New Zealand, in conjunction with The Peak Performance Research Unit at The University of Western Australia, is interested in learning how New Zealand athletes deal with the stress and anxiety they encounter at the 1998 Commonwealth Games. Support for this project has also been given by [National Sporting Organisation] and the New Zealand Olympic Committee.

As you can appreciate, the ultimate success of this study is dependent upon the support and co-operation of people like yourself. As such we would be extremely grateful if you could complete the "Pre-Games Questionnaire" and "Consent Form" and then place them in the self-addressed envelope and either return it immediately to your Manager/Coach or post it to the Peak Performance Research Unit at The University of Western Australia.

Yours sincerely,

Jeremy Dugdale
Principal Researcher

Bob Eklund
Co-Researcher

Sandy Gordon
Co-Researcher

Athletes Post-Games

12 September 1998

Dear

Re: Project KL98

Please find enclosed a "Post-Games Questionnaire". This questionnaire is an important component of the study we are conducting on how New Zealand athletes deal with the stress and anxiety they encounter at the 1998 Commonwealth Games. As such we would be extremely grateful if you could complete the enclosed "Post-Games Questionnaire" and then place it in the self-addressed envelope and either return it immediately to your Manager/Coach or post it to the Peak Performance Research Unit at The University of Western Australia.

Yours sincerely,

Jeremy Dugdale
Principal Researcher

Bob Eklund
Co-Researcher

Sandy Gordon
Co-Researcher

APPENDIX C: RESEARCH PROPOSAL

Performing Under Pressure: New Zealand Athletes at the 1998 Commonwealth Games

Summary

Recent peak performance research has suggested that an athletes' ability to cope with the stress and anxiety encountered at major international sporting events (e.g., Commonwealth Games, Olympics) was a very important factor in determining whether or not they actually achieved a peak performance as these types of events have the potential to be extremely stressful. Unfortunately, very little is known about the relationship between coping strategies and coping outcomes, especially peak performance. The aim of the present study is to address this issue by (a) identifying the coping strategies employed by New Zealand's athletes during the 1998 Commonwealth Games; and (b) identifying the antecedents or sources of stress (i.e., the organisational and occupational stressors) which influence their performances. Questionnaires will be sent to all New Zealand athletes (n= 218) competing at the 1998 Commonwealth Games 3 weeks before the games begin (Phase 1) and then immediately after the games have ended (Phase 2). The results of this investigation will be used to assist New Zealand athletes preparing for and competing in future international events (e.g., 2000 Sydney Olympics).

Purpose

To investigate the relationship between coping strategies and performance in elite athletes. Important sub-issues related to this general question include: determining whether classes of coping behaviours are related to coping outcomes; and examining whether athletes who are classified as effective copers, in comparison to ineffective copers (a) use different coping strategies; (b) employ a larger number of strategies; (c) are more flexible (versus rigid) in their use of coping strategies; (d) use more adaptive (versus maladaptive) strategies; (e) have their strategies better learnt or more automated.

Rational

The problem.

Recent peak performance research has shown that elite athletes must deal with all types of stressors, ranging from injury and travel demands to their own and others' high expectations, in order to perform successfully. Researchers have also suggested that an athlete's ability to cope with the stress and anxiety encountered at major international sporting events (e.g., Commonwealth Games, Olympics) was a very important factor in determining whether or not they achieved a peak performance as these types of events have the potential to be extremely stressful. Therefore, elite athletes competing at major international competitions must not only possess psychological skills and strategies which facilitate peak performance but also develop coping strategies which enable them to deal with the various types of adversity which either prevents peak performance or disrupts them during a peak performance.

A good example of this was New Zealand Team performances at the 1996 Olympics. New Zealand finished 26th out of 197 countries, yet "only a handful of the athletes surpassed their personal bests while many of the cyclists, rowers and sailors also performed below expectations" (Otago Daily Times, September 27, 1996, p. 30). In support of this, an American study found that only 20% of the wrestlers on the United States Olympic team achieved their all-time best performance during the 1988 Olympics, with only one of the wrestlers achieving a personal best performance during the match he regarded as his most important. Unfortunately statistics such as these raise more questions than they answer. For example, "Why did many of the New Zealand athletes at the 1996 Atlanta Olympics not only (a) fail to perform up to their own and other's high expectations, but (b) also fail to achieve a PB or as in some cases, fail to equal or surpass the Olympic qualifying standards they had previously achieved?"

According to researchers one possible explanation is the contribution of mental factors rather than physical or technical factors. For example, of the three major readiness factors identified by Canadian athletes at the 1984 Olympics (i.e., mental, physical and technical), only mental readiness significantly predicted the athletes' final Olympic ranking. A number of the most successful athletes (i.e., Olympic medallists) at the 1984 Olympics also indicated that they had their technical and physical skills honed to perfection four years before becoming world champions, but that it was not until they had learnt how to hold their best focus in important competitions that their dreams became a reality. Researchers have also reported that once an athlete had the ability to focus fully on the task at hand, distraction control (i.e., the ability to maintain or regain a positive perspective or effective focus when faced with potential distractions, setbacks, stress, and/or adversity) was the single most important onsite mental factor affecting the consistency of high level performance. Therefore, the possibility exists that New Zealand's subpar performances at the 1996 Olympics (i.e., failure to achieve a PB and/or equal or better previously attained qualifying standards) caused by the athletes inability to deal with the adversity and stress they encountered whilst preparing and/or competing at the Olympics.

The aim of the proposed study is to address this issue by (a) focusing on the self-reported coping strategies employed by New Zealand's athletes during the 1998 Commonwealth Games and (b) identifying the antecedents or sources of stress (i.e., the organisational and occupational stressors) which influence their performances. For example, readiness and performance problems, competition organisation and officiating problems; interpersonal and management problems within the team; poor accommodation or facilities, transport problems; and financial and time pressures.

What is known.

Coping is a complex, multidimensional process; a wide variety of coping strategies are used by athletes, including both problem- and emotion-focused coping strategies, and both adaptive and maladaptive ones; increased anxiety is associated with increased coping efforts; different coping strategies are used to deal with different sources of stress; coping efforts are associated with variations in athletic performance; having coping strategies so well learnt that they can be executed in automatic fashion is associated with superior performance; some athletes use maladaptive coping strategies when experiencing slumps; and, athletes may need quite a long time to learn how to cope with adversity and stress.

The gap.

Area of coping in sport still relatively new. Few researchers have examined coping in and of itself. For example, very few researchers have examined the distinguishing characteristics of those athletes who cope most effectively with stress and adversity (before and during a major international competition). Researchers have also failed to investigate how serious a problem organisational stress in international sport and/or identify the major organisational factors affecting different sports.

Benefits.

It is anticipated that the results of this investigation will assist NZ athletes preparing for and competing in future international events (e.g., 1999 World Track and Field Championships, 2000 Sydney Olympics).

Methods

Data collection procedures.

Phase 1 - Questionnaires will be sent to every New Zealand athlete 3 weeks before the Commonwealth Games begin (i.e., late August). It is anticipated that the Pre-Games Questionnaire will take between 40-45 minutes to complete.

Phase 2 - Questionnaires will be distributed to all athletes immediately after the Commonwealth Games have ended (i.e., as they leave Kuala Lumpur). It is anticipated that the Post-Games Questionnaire will take between 50-60 minutes to complete.

APPENDIX D: ADMINISTRATION OF QUESTIONNAIRES

Pre-Games Questionnaire

1. If possible the questionnaire should be administered to the athletes while they are seated at separate desks/tables in a quiet comfortable room in which they will not be disturbed. A good time to administer the questionnaire would be after the athletes have eaten and are well rested. Once the athletes are seated please read the following statement:

“Sport Science New Zealand, in conjunction with The Peak Performance Research Unit at The University of Western Australia, is conducting important research to learn how elite athletes deal with the stress and anxiety they encounter at a major competition such as the 1998 Commonwealth Games.

Every New Zealand athlete competing at the 1998 Commonwealth Games has been asked to fill out 2 questionnaires, one before the Games and the other immediately after the Games have finished. From the information collected the researchers hope to be able to identify the coping strategies used by New Zealand athletes and major causes of stress they encountered while at the Games. This information will then be used to assist New Zealand athletes competing in major international events in the future (e.g., 1999 World Track and Field Championships, 1999 World Netball Championships, 2000 Sydney Olympics). It is important, therefore, that you complete this questionnaire responsibly and answer the questions honestly. All the information you give in this questionnaire is confidential. The researchers will identify you by an ID number, rather than your name, in their computer records. Please make sure the questionnaire is sealed in the envelope provided before you return it to me”.

2. Hand the Information Packs to the athletes.
3. Ask them to sign the Consent Form using the pen provided. They may now proceed to complete the Pre-Games Questionnaire. Remind them that there are no right or wrong answers and that all information given in this questionnaire is confidential. They should also be aware that the questionnaire will take approximately 40 minutes to complete. Please also ask them to leave the room quietly to avoid disturbing others.
4. Ask them to check through each page, when they think they have finished, to make sure they did not miss any questions and to place the completed questionnaire and signed “Consent Form” in the stamped self-addressed envelope (white). The cover letter and Information Sheet do not need to be included.
5. Collect these sealed self-addressed envelopes from your athletes and return them to the Peak Performance Research Unit at The University of Western Australia.
6. We are very grateful for your co-operation and assistance. Quality administration of this questionnaire is vital, if this project is to assist in the preparation of New Zealand athletes in the future.

Post-Games Questionnaire

1. If possible the questionnaire should be given to the athletes on the plane as they leave Kuala Lumpur, but before the in-flight meal and/or the in-flight movie(s) begin. A good time to administer the questionnaire would be immediately after take-off when the seat belt sign is OFF. If necessary please read the following statement:

“Sport Science New Zealand, in conjunction with The Peak Performance Research Unit at The University of Western Australia, is conducting important research to learn how elite athletes deal with the stress and anxiety they encounter at a major competition such as the 1998 Commonwealth Games.

Every New Zealand athlete competing at the 1998 Commonwealth Games has been asked to fill out 2 questionnaires, one before the Games and the other immediately after the Games have finished. From the information collected the researchers hope to be able to identify the coping strategies used by New Zealand athletes and major causes of stress they encountered while at the Games. This information will then be used to assist New Zealand athletes competing in major international events in the future (e.g., 1999 World Track and Field Championships, 1999 World Netball Championships, 2000 Sydney Olympics). It is important, therefore, that you complete this questionnaire responsibly and answer the questions honestly. All the information you give in this questionnaire is confidential. The researchers will identify you by an ID number, rather than your name, in their computer records. Please make sure the questionnaire is sealed in the envelope provided before you return it to me”.

2. Hand the Information Packs to the athletes.
3. Ask them to sign the Consent Form using the pen provided. They may now proceed to complete the Post-Games Questionnaire. Remind them that there are no right or wrong answers and that all information given in this questionnaire is confidential. They should also be aware that the questionnaire will take approximately 60 minutes to complete.
4. Ask them to check through each page, when they think they have finished, to make sure they did not miss any questions and to place the completed in the stamped self-addressed envelope The cover letter does not need to be included.
5. Collect these sealed self-addressed envelopes from your athletes before they leave the plane and return them to the Peak Performance Research Unit at The University of Western Australia.
6. We are very grateful for your co-operation and assistance. Quality administration of this questionnaire is vital, if this project is to assist in the preparation of New Zealand athletes in the future.

APPENDIX E: INFORMATION SHEETS

Performing Under Pressure: New Zealand Athletes at the 1998 Commonwealth Games

Purpose of Research

The aims of this research project are:

- (a) to identify the coping strategies employed by New Zealand athletes during the 1998 Commonwealth Games.
- (b) to identify the antecedents or sources of stress (i.e., the organisational and occupational stressors) which influence their performances.

Methods

As a New Zealand athlete competing at the 1998 Commonwealth Games in Kuala Lumpur you are invited to participate in a research project being conducted by Sport Science New Zealand, and the Peak Performance Research Unit at The University of Western Australia. If you agreed to participate in this project you will be required to complete 2 questionnaires, one 2-3 weeks before the Games and the other immediately after the Games have finished. You will be asked about your general impressions of the 1998 Commonwealth Games as well as specific questions that ask you to reflect on your experiences during the Games. These questions are included so that we can learn more about your performances and how you dealt with the stress and anxiety you encountered during the 1998 Commonwealth Games.

At all times the Researchers will keep your responses in the strictest confidence. All documentation relating to this project will also be kept in a locked filing cabinet that is only accessible to the Principal and Co-Researchers.

Time Commitments

You will be required to complete 2 questionnaires, the first, 2-3 weeks before the Games and the second, immediately after the Games have finished. It is anticipated that each questionnaire will take you between 40-60 minutes to complete. You will then return the questionnaires to the Principal Researcher via a stamped self-addressed envelope.

Benefits

It is anticipated that the results of this investigation will assist New Zealand athletes preparing for and competing in future international events (e.g., 2000 Sydney Olympics).

Your Rights as a Participant

You are free to withdraw consent to further participation in this project without prejudice.

Visual Awareness

The aim of this study is to examine your memory for what you are shown on video. Jeremy Dugdale is carrying out this research as a part of his PhD degree requirements.

Participation in this study involves watching a videotape of Australian Rules Football and then answering a brief questionnaire about what you have just seen. Total time required is approximately 15 minutes.

As a participant in this study, you have the right to discontinue your participation at any time, without prejudice.

The information you provide is confidential and measures have been taken to ensure your anonymity. Although information gathered from this study may be published in scientific journals, your name or other identifying information will not be used.

Informed Consent

I _____ (name of participant) have read the information sheet and any questions I have asked have been answered to my satisfaction. I agree to participate in this activity, realising that I may withdraw at any time without prejudice.

I understand that all information provided is treated as strictly confidential and will not be released by the investigator unless required to so by law.

I agree that research data gathered for the study may be published provided my name or other identifying information is not used.

Participant

Date

The Human Research Ethics Committee at the University of Western Australia requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the researcher or, alternatively to the Secretary, Human Research Ethics Committee, Registrar's Office, University of Western Australia, Nedlands, WA 6907 (telephone number 9380-3703). All study participants will be provided with a copy of the Information Sheet and Consent Form for their personal records.

An Examination of the Role of Ironic Cognitive Processing on the Performance of a Motor Task

Purpose of Research

The aim of this investigation is to determine if the ability to maintain balance on a wobble board will be undermined when participants consciously focus upon trying not to lose their balance relative to when they consciously focus upon trying to maintain balance.

Methods

Prior to testing, you will be asked to practice maintaining balance on a “wobble board” (a balance training device used in rehabilitation) for 10 minutes a day for three days. During the testing session you will be required to stand on a wobble board on a force plate while performing a series of mental tasks. Centre of pressure data will be collected using Labview™. The dependent variable in the study will be a Stability Index calculated from the objective measure of the change in centre of pressure. Twenty trials (20 seconds each) will be performed in 4 blocks (2 cognitive load conditions by 2 cognitive instruction conditions) of five to evaluate the effects of “do” versus “don’t” instructions under high and low cognitive load conditions.

Time Commitments

You will be required to do wobble board training for 10 minutes a day (three days) and participate in one testing session (120 minutes).

Benefits

Previous research has shown that wobble board training improves knee and ankle stability, overall balance and increases body awareness. Feedback will also be provided to you concerning the results of this study and any practical implications of this information.

Your Rights as a Participant

You are free to withdraw consent to further participation in this study without prejudice.

APPENDIX F: CONSENT FORMS

Performing Under Pressure: New Zealand Athletes at the 1998 Commonwealth Games

I _____ (name of participant) have read the information sheet and understand what my participation will involve. I agree to participate in this project, realising that I may withdraw at any time without prejudice.

I understand that all information provided is treated as strictly confidential and will not be released by the Principal Researcher unless required to so by law.

I agree that research data gathered for the study may be published provided my name or other identifying information is not used.

Participant

Date

The Committee for Human Rights at the University of Western Australia requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the Principal Researcher or, alternatively to the Secretary, Committee for Human Rights, Registrar's Office, University of Western Australia, Nedlands, Western Australia 6907, Australia (Phone +61 8 9380 3703). All study participants will be provided with a copy of the Information sheet for their personal records.

An Examination of the Role of Ironic Cognitive Processing
on the Performance of a Motor Task

I _____ (name of participant) have read the information sheet provided and any questions I have asked have been answered to my satisfaction. I agree to participate in this activity, realising that I may withdraw at any time without prejudice.

I understand that all information provided is treated as strictly confidential and will not be released by the investigator unless required to so by law.

I agree that research data gathered for the study may be published provided my name or other identifying information is not used.

Participant

Date

Investigator

Date

The Human Research Ethics Committee at the University of Western Australia requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the researcher or, alternatively to the Secretary, Human Research Ethics Committee, Registrar's Office, University of Western Australia, Nedlands, WA 6907 (telephone number 9380-3703). All study participants will be provided with a copy of the Information Sheet and Consent Form for their personal records.

APPENDIX G: IMPORTANCE OF COMMONWEALTH GAMES

- Stepping stone to achieving the goals in sport I have set myself.
- Representing NZ. Want to do NZ proud.
- High profile event. I think I can win a medal. This is important as it justifies my continuation in the sport to the detriment of a career outside athletics.
- Because I want to see how well I do under pressure.
- When you are performing well you enjoy playing much more than when you are not performing. I really want to enjoy myself and rise to the challenge.
- A chance for our sport to be noticed in NZ. It's a competition that we can compete very well in.
- The Games are important to me as I am returning to the international arena from several years off. Also to prepare me for the next two years competitions (i.e., World Championships, Olympics). Personally the challenge to perform to my best at the highest level is the test I want to pass.
- A lot of hard work has gone into this and anything less than a good performance would be a letdown. The amount of work put in is in direct proportion to the importance of the event. For me, it is the beginning of my athletics career and the development of my character.
- Important because they are a goal I set myself. I also want to cement my ranking in the Commonwealth.
- I will be able to gauge my performance against my peers.
- Focus of my year. Success of my season will be determined by this result. High media profile in NZ. Respect gained by peers from a successful result.
- The games are not important to me. It's my personal best that's important. To have fun and relax. Just being there is cool.
- Important to show my skills that I have practised on the Commonwealth stage.
- Every [game/match/event] you learn something. I think I have been a student for long enough and know "its time to cash the cheques my mouth has been writing".
- Because, I worked so hard to get there. It was my goal. It's an honour to be a representative for my country. Gives me the opportunity to win gold. Develop my self. Opportunity to learn from.
- It's important to me because it will probably be the biggest sporting competition in my life.
- They are important to me because I've dreamed about representing NZ at such a prestigious event. Now I have qualified I want to bring home a medal to remember it.
- It's been my major goals since I made a major commitment to [my sport] 8 years ago. It's my first major international. Want to make a mark to establish myself in the team.
- For as long as I can remember representing my country at the Games has been a dream. The completion of the dream is a gold medal. Another of my goal will be reached.
- Because I am very proud to be representing my sport and NZ.
- Because after years of hard work I have been given the chance to really prove myself and show the abilities I know I have. I am very proud to be representing our great country.
- It is important to me because I have committed myself to represent not only myself, but my family, my club, and my country. I have also pledged to do the very best that I can. It has taken me 10 years to earn this privilege and I will follow through and endeavour to win a medal.
- They are important to me because it is more realistic to do well there than at the Olympics. It is also a major event in our sport in NZ.
- First NZ team. Possibility our best ever chance of a gold medal. Once in a lifetime opportunity. Big profile to NZ public.
- Because in the team event we have a chance of a medal. But in order to get one, we must all play to the best of our ability (i.e., a team effort). I would hate to let the team down.
- The 'playing field' is very even. A medal is a realistic goal.
- They are important because it lifts the profile of my sport. I know its a competition I can compete my best at and get a medal.
- Because it would be great to win a medal.
- To further enhance my position in the team. Because it is an honour to represent NZ at such an event.
- It's a huge privilege and an honour to be selected to play for my country in such an event. There's a huge amount of tradition involved. I think I owe it to friends, family, teammates, supporters and all those who have competed and who are competing at the Games.
- It's another opportunity for me to enhance my own career and cement my place in the NZ team.
- Because every personal achievement is a stepping stone in the right direction. Success builds success.
- It is early season for us. We want to build to the world cup in early 1999.
- Trying to cement a permanent place and push for other tours.
- Have a chance to become part of history. Chance at winning a medal. May only happen once in my life/career. Make others proud of me.
- Once in a lifetime opportunity to represent NZ in Games. For future selections. To use the opportunity to learn from others and meet a variety of other athletes.
- KL is a stepping stone in terms of realising my Olympic dream. My performance in KL will determine my development and improvement internationally. It will also be a good opportunity to realise my true potential.
- Income. Future income. Fulfilling goals. Enjoying the whole experience.
- Stepping stone to Sydney. Prove critics wrong. Prove I can do it. Finally some coverage back home. Non-travelling family can finally see what I do.
- They are important because I am young and if I perform then it will help backup what I want to do in the future. It is also important to family and friends. If I fail then I will also know that I gave it my best shot and it won't affect me at all in future plans.
- I have always thought that events such as the Commonwealth Games are a very prestigious thing to be a part of and to perform well at them is very special. They are a launching pad in terms of what 1999 and 2000 have in store for us. Opportunities will arise as a result of doing well at the Games.

- Have admired athletes performing at the Games since I was a kid. Big deal to most New Zealanders. First big international event. Make my family proud.
- This challenge has been my biggest sporting dream. I have been looking towards reaching it for 4 years.
- Because apart from the World Championships this will be my biggest competition ever! I have been training 9 years for these next couple of weeks. The extra publicity and huge build up NZ does for the Commonwealth Games makes me quite nervous but I really want to do well and show everyone back in NZ how good I am.
- Being a reserve means that you do not necessarily know when you will be on the field. It's a worry and a challenge.
- Because if I get an opportunity to take the field I want to perform to my best.
- I have an expectation of myself to try and perform as well as possible and achieve the team goals which were discussed prior to the Games.
- To win a gold medal is the ultimate dream. It is what I have committed a large part of my life towards. It is about challenge, achievement, and success.
- Very important. We have a huge opportunity to perform well and show the nation (and ourselves) what we are capable of. It is really important to me not only because of all the time and effort and time I have put into [my sport] but because I want to achieve something special. To be part of a winning team is a dream and a major contributor to that is very important.
- Have the ability to win the tournament. Continue improvement from World Cup. Show NZ public [our sport] is good. Improve my game and become a key player. Want to be the best.
- To play well and enjoy them as it is an amazing opportunity to represent NZ, especially in the public eye. I want to cement my place in NZ team. I want to show the people and selectors back home that I deserve to be here.
- Personal success. I got bad media (trashed) after the World Cup and I want to prove to myself and the critics that I'm the best [players position] in NZ and can foot it with the best in the world. It is also very important for me to have fun and enjoy the Commonwealth Games. I wanted to quit after World Cup – it had been a long season I stopped enjoying my sport. I want to regain the passion for my sport so it's important that I enjoy the Commonwealth Games. It's also important as a team, because we are good enough to do very well. It will be a disappointment if we don't achieve our goals.
- It is a major tournament and one that has never been closer for us to do well in. It could ultimately increase our profile of [our sport] in NZ and therefore to do well is important. Personal satisfaction - in all my years of playing nothing would be sweeter than winning a medal.
- Because I want to prove that I deserve to be competing to myself and others. I want to establish my position for future competition pressures of expectations of media, friends, sports, administrators.
- Representing my country. Testing my skills at international level. Personal satisfaction. Justify the commitment (training).
- Because it has been a life-time goal to go to an Olympics or Commonwealth Games. They are also very important due to the coverage we will get.
- More international competition. Opportunity to improve on disappointing World Cup.
- As a competitive athlete I always strive to perform well. May determine whether or not I continue playing at the national level. Lifting the profile of the game.
- It was important to perform well because the team did not perform in the World Cup. We have to do well here so we can maintain our funding and so I can keep my place in the team. It is also important for other nations to find out how good I am, and highlight to the New Zealand public that we are a good side.
- It will measure my performance as an athlete and how I cope at this level physically and mentally in a Commonwealth Games environment.
- Because it is an honour to represent your country. [Our sport] is making history - being the first time in the Commonwealth Games. Going to the Commonwealth Games is a honour and a dream come true.
- Chance to play well for my country and cement a place in the team for 1999.
- The opportunity to be a part of something unique in a full strength NZ team.
- An amazing opportunity to compete on World stage. Chance to win gold medal. Chance to compete against and beat Australia.
- Because its our first year in the Commonwealth Games. Its important that we set our standards in this and show how a skillful the game is and leave with the knowledge that we have left a positive impression in KL and to other countries. It is also important that we are recognised as a professional and winning team. It has also because it's been a childhood dream to attend one.
- They are the biggest challenge in my sport that I have ever had. Many people have contributed to my preparation and support and I wish to do well for them. I may not have this opportunity again. I want to prove to myself that all my preparation and hard work will bring a reward.
- Lots of reasons, but mainly because it has been a goal for a long time. Having made the team I would also like to achieve my performance goals.
- A gold medal will make all the time, money, effort, and family sacrifices worth while.
- Because it is the first time [our sport] has been included and I want to be part of it. I want to prove to myself that I am the best and I win when it matters most.
- They may be my last. I want to be the top NZ woman. Personal expectations.
- Because I enjoy the challenge of international competition and it's something I never dreamed of doing 20 years ago. At my age I wish I had started earlier but I am still prepared to give it 10/10 for as long as possible.
- Personal pride at achieving a goal I myself set two years ago. A chance to do something few people get to do.
- I like a challenge and I want to perform well to prove myself I can [perform] well under pressure. I've worked hard and I want to enjoy it.
- If you perform well at the Games it will open opportunities up for me. I want to perform well so that I know I'm good enough to be there.
- It's the only goal this year I have yet to achieve. Once in a life-time opportunity.

Note. Repeating raw data have been removed.

APPENDIX H: MOST IMPORTANT PERFORMANCE

Reasons Why Performance Was the Most Important

- The winner was guaranteed a medal.
- Trained specifically for it. Wanted to do well for my teammates.
- Only event.
- First race.
- Straight final. Had no other rounds.
- To get into the final.
- It was basically our final. They were considered the best team there.
- Quality opposition.
- A must win game.
- Decided gold silver or playoff for bronze.
- Chance to win gold.
- We had to get in the top 5 teams.
- Best chance at a medal.
- Because we needed to win it to be first in pool play.
- If we won we would have a chance of a medal. If we lost we were out of the medal race.
- It meant the difference between winning a medal or coming fourth.
- Hadn't played Australia for about 2 years. They're the current world champions and I wanted to have a go at them and see where we were compared to the best in the world.
- Because it depends on our placing to what funding we get after the Games.
- They're world champions. We had a good chance to perform/beat them. We wanted gold. We haven't played them for just under 2 years. One of our major team goals for the year.
- Needed to win to gain momentum. Was frustrating drawing 3-3.
- This was our first game up at the Games. In order to be semi-final contenders this was a game in which we needed a result. Expecting Australia to be the best team in our pool, we couldn't lose to anyone.
- First game. Had to win to have a chance at the semi-finals.
- Because it is the only game I played.
- Because it was to win gold.
- Because we were playing off for the gold medal.
- More consistent in this event.
- This is the event I enjoy most and have the best results in other competitions.
- We had to win to go into the quarter-finals.
- Winning this match enabled us to play the semi-final and then the final. We were seeded one.
- Because I need to total to win.
- Because if we had won this game we would have been in medal contention.
- Because it was the final and we haven't beaten Australia for a while.
- Tradition and prestige of Commonwealth Games means it is my most important competition of the year.
- Had to win to make cross pool play.
- Because I had a better chance of a medal in these events.
- Because I won it last games.
- A win here would have set us up with a chance to qualify first or second in our pool.
- Had mixed performances leading up to this match and put a lot of pressure on myself to give a good performance.
- It was the final. We were playing off for gold.
- Because it would give me a place in the quarter finals and it was an opportunity to see how I can compete internationally against a good player.
- Because it was my first match. Makes the competition if I play well first up.
- Because we had a much greater chance of doing well as a team rather than in the individual competition.
- Needed to come 5th to secure funding for next year.
- Needed to win or draw to qualify for the semi-finals.
- It was my favourite and best event.
- If we won we were guaranteed a spot in the semifinals.
- High personal expectations.
- It was the biggest event I've competing in.
- Knew how good they were and we had to win to stay in the hunt for a medal.

Reasons Why Performance Was Stressful

- It was an instant final. There is only one chance to get it right.
- Because it was my first and only race.
- First big competition representing NZ.
- Because of their ranking you know you have to be on top of your game (personally and as a team) to beat them. Any little mistake can and will probably cost you. We've also been beaten more often than not against them. Also you want to beat them so bad you tend to put a bit more pressure on yourself. Funnily, we got so bad it became more stressful when the game was over.

- A chance to make the final.
- Because it was stressful thinking about what would happen if I didn't do well.
- Because I wanted to do well for my country and I.
- Not to make mistakes. To do clean routines and get good marks.
- If we lost I would have felt like a failure because we were good enough to win a medal and a better team than them. We just needed to perform on the day. As captain I hoped we would all perform.
- I felt quite relaxed and knew we could perform at a level where we could win.
- I knew the potential of the team and that we could rise to the occasion.
- Harder opposition. Different style of game. Heat of day (i.e., 38 C and 92 % humidity). Injured players - less subs, meant more workload for others.
- If we won we were playing off for a gold medal. A chance to see how I performed against the best.
- I was injured.
- Wanted to perform well.
- I was relaxed and confident even though it was a must win. Team was dominating the game it was not so stressful.
- Not very stressful because I was really looking toward the game and was confident that I was playing well. This was also less pressure on myself because I was a new member of the side. I also did not start the game.
- Only reason it became a little stressful was a bad umpiring decision which cost us a goal.
- Slightly anxious. Didn't have time to prepare.
- Because it was going to be my only game so I wanted to perform.
- Stressful because it was an important match.
- It was a close, hard physical game and it determined the gold medal.
- Pressure of the final. Wanting to win. Meet expectations.
- Because the score was very close, even with 1 minute to go.
- Because I shot well.
- If we lost we were out.
- Had no real knowledge of competitors.
- Because it was a knockout match against a good team.
- Due to the way we were playing. We were under pressure and made mistakes.
- Because all our training/efforts came down to 6 lifts.
- I suppose it was the fact it was the Commonwealth Games and the whole country was watching. The stress of performance.
- I only have one event so I place much importance on its outcome.
- We were top seeds. We knew we could win medals. Best opportunity ever faced by NZ as the possibility of winning our sports first gold medal ever was very real.
- Inability of partner to perform to expected standard.
- Only person performing at one time. All crowd watching you. Personal pressure to succeed.
- Because I hadn't been performing very well prior to the Games. Other peoples' expectations. Other competitors had been [performing] well.
- When I started [performing] well my stress levels increased.
- Communication difficulties with my teammate made it difficult to maintain confidence. Was playing well but slipping through gaps to finish in the right area without getting the perfect result.
- While I was confident I had the ability to perform well I had let outside influences distract me [during competition]. Therefore I was making some heavy demands on myself in the terms of performance. I was also aware to some degree, of feeling pressure from others expectations.
- I wanted to play well. I was a little nervous at the start of my match.
- Makes following games easier to play if I play well in the first match. Also I hadn't played international [sport] for 5 months.
- I was scared I would muck up and I really wanted to perform very well for my country. I was a little nervous having to perform in such a big crowd but once I got going I really enjoyed competing.
- Needed to win or draw to qualify for the semi-finals.
- Because of all the pressure on you. Knowing that the whole of NZ would see it.
- Team not playing well.
- Once in a lifetime opportunity.
- Personal problems on my mind.
- Reasonably stressed because of the importance of the match and because the team management imposed a stressful environment.

Note. Repeating raw data have been removed.

APPENDIX I: DEGREE OF READINESS

Physical

- Felt really sick.
- Battling the onslaught of a cold, due to close living quarters. Two of my teammates were sick with colds and chest infections.
- Pulled quad 10 days prior. Also had knee injury during 6 week build-up to Games.
- The heat factor.
- Was competing with a broken jaw.
- Was sick with tummy bug for three days prior to the event.
- Being a bit more energised would have helped.
- I was tired from the previous games and a bit leg weary. Also tired from lack of sleep.
- Because of an intensive 2 weeks of [competition] the body was tired and sore.
- Tired. Third game in 4 days.
- We'd played a double header with only a days rest before the game.
- Heat a problem. Had trouble coping after approx. 20-30 minutes.
- More running/jogging before the Games.
- Had a sinus infection which affected my balance.
- More training and I might have had a better feel for the competition.
- More physio on my right shoulder.
- Two weeks before the event I pulled a ligament in my foot - plantar fascia. Had a cortisone injection. Physical situation out of my control.
- I lost a little too much weight. Felt a little fatigued half way through the competition.
- Felt as prepared as I could possibly be. The sanitarian facilities were unacceptable and due to the amount of fluid I had to drink, I had to use the toilets frequently. This caused health stress.
- Tired. Game times were too close together.
- Still adjusting to climate conditions. Had decided to eliminate under jacket all together just prior to competing. Some doubt about this.
- Had stress fracture.
- Didn't deal with tension early enough. Should have seen physiotherapist earlier - allowing more recovery time before the match.
- I hadn't played many matches in the tournament
- Some fatigue from the teams event and was carrying a minor shoulder injury.
- Don't go up to the stadium where you compete too early. Stay warmed-up and stretch as much as you can before you compete so you are at your peak flexibility on the floor.
- More routine/exercise training.
- Missed a training due to injury.
- I had a slight calf strain and wasn't feeling 100%.
- Felt very tired going into the match.
- Had a virus at the time.

Technical

- Our opponents were some of the best in the world and their technical skills were superior.
- Because of injuries I couldn't do as many technical sessions in my build-up.
- Having just made a minor change to my bowling action I perhaps still think about it to much.
- Out of season.
- Bowling arm swaying.
- More repetition of moves.
- There are always technical improvements to work on.
- More time to analyse the opposition.
- Needed better game plan.
- Didn't quite have opposition worked out and didn't know how to defend them properly.
- Watched opponents play a little more.
- Pretty sharp. Felt like I had good touch. Unsure what I could have done different.
- How do you get 100% ready - there's always something you could have done.
- Unable to practise certain aspects. Always looking to improve.
- Our game plan was not as well defined as should have been.
- Missed a couple of shots at goal during the warm up. Nothing serious to worry about or change.
- Basic technical problems.
- Better coaching.
- As a team, some different strategies.
- Doubt about depth of game plan.
- A problem was picked out during training at the Games although my coach should have noticed it well beforehand.
- Glasses fogging up meant that I mistimed the ball sometimes.
- More training.
- Because of previous injury my technique felt rusty.

- Couldn't [train] because I had a 28 day stand down period.
- Because the [playing surface] and conditions were so different. It was difficult to feel we had the technical manoeuvres needed to get the edge on the countries who were already familiar with these conditions.
- With the change of [playing surface] I had to rethink my delivery.
- Wasn't quite timing the ball as I would have liked. More practice time on that turf needed.
- Couldn't train floor because of stress fracture.
- I'm still learning my sport. I just need more time.
- Hadn't played an international for about 5 months.
- Had trained well but performing skills in matches is different to training.
- I was not playing as well as I wanted and needed to concentrate very hard on the basics to be technically proficient.
- Didn't have the greatest hit up before the match. Should have spent more time working on trapping.
- Tactics going into the game.
- Hadn't played for 10-12 days. Felt a little out of touch.

Mental

- Tried to feel confident but I knew they would be good.
- How much my performance was going to suffer because I was sick.
- Nervous.
- Still building confidence in new processes. Knew this would be the biggest test for them so far.
- Out of season. Lack of match practice.
- Discipline with process.
- My injury was in the back of my mind.
- I gave up early on the last apparatus. I could have done better by thinking more.
- More mental preparation.
- I was worried about whether or not my knee was going to hold, therefore no injury better mental state.
- Needed to relax a bit more, especially the night before.
- Not quite focused on our team
- Too busy worrying about the opposition and not on what I was going to do to help our attack.
- Just a few self-doubts creeping in beforehand, but by the time the game started I was relaxed and ready.
- A little bit 'outcome' focused. A bit worried about having to win (i.e., fear of losing).
- Influence of the other results prayed on my mind. This needed to be eliminated.
- Fear of failure.
- Forget that we are playing Australia. Think of own performance.
- Positive belief. Good feedback. 100% preparation.
- A little bit more belief in ourselves.
- Bit of doubt about performing to potential.
- Focused 100% for the entire event.
- Should stick to game plan.
- I lacked confidence due to my injury. Maybe I needed sport psych help to block this out.
- Was unsure of commitment of my partner to prepare [himself/herself] physically and technically.
- Little bit unprepared for atmosphere of finals. Experience in this situation would have helped.
- Missing was the confidence of having some top competition scores prior to the Games.
- Negative self-talk.
- I was fighting to block out distractions. Needed to have developed and practiced a coping strategy earlier.
- Lacked experience.
- Try to relax a bit more and be much more positive. Think more positive thoughts before I compete and don't be distracted by any of my competitors marks or routines. Try to go out and compete a bit more relaxed. Concentrate on 'now' - not the past.
- Due to my form being emphatic I lacked confidence. Should have seen a sport psychologist.
- A little tired due to competition the day before.
- Was unsure of my role in the game and did not have a clear idea of what the coach wanted to me to do.
- Been more positive and confident in my own ability.
- Felt physically and mentally relaxed.
- 100% team support and confidence in my ability to lead the team - this was missing.
- Got more sleep.

Note. Repeating raw data have been removed.

APPENDIX J: THOUGHTS AND ATTENTIONAL FOCUS

Thoughts Immediately Before Most Important Performance

- Tried to focus on our game plan. Wanted to keep communicating with my partner no matter what the situation.
- Relax. Go out and enjoy.
- Thinking of technical aspects.
- Key technical oriented words (e.g., smooth, hips).
- Before the match I had a real belief that we were going to do it. Our processes had worked really well throughout the Games all be it against weak opposition. We weren't just beating them though as we dished out some hidings. I felt we were building up to a grand finale.
- What I had to do in certain situations.
- Relax. Do what you know.
- The outcome.
- Lets have fun and hit clean routines.
- I said to myself 'just relax and stay calm'. Concentrate. Relax. Steady. Smile. Catch. Hold. Complete. Enjoy. Have fun.
- I've got to do well. I want to do well. I need to do well.
- Staying focused. Mental imagery on routines.
- I was telling myself to just do what I normally do in training and everything will be fine.
- The need to win but focusing on the processes rather than the outcome.
- I won't let their front runners past me. Fast footwork and low body position. Run in front of opposition. Off load early pass.
- Go through my goals. Doing the BASICS well.
- Relax. Enjoy. Keep it simple.
- Dominate my player. Just do the basics well. Having a clear mind.
- Actually I had thought quite a lot about the game. My goals. Must do's. So immediately before I was quite calm. Just focused on starting and enjoying the atmosphere.
- We need to win this game.
- My job on the field and how I was going to carry it out.
- Thinking to myself that when I get on the field I'm going to give it my best and play well. Show that I deserved my place on the field.
- I hope we win.
- Got to perform.
- I was visualising what type of things I was going to do on the field.
- We're going to win.
- Be in the present. Don't think about the outcome. Concentrate on what you're doing at the moment.
- Relax. Just another game. Give it all. Perform well.
- Thinking about what I was going to do in the game and how.
- Thinking about my rhythm and technique.
- Focusing on the task at hand.
- Relax. Stay focused. Positive. I can do it.
- Performing to my best. Not making any mistakes.
- Thinking positively all the way through.
- Thinking about the processes required to perform during the game.
- 15 minutes before I rehearsed my race plan mentally. I then turned off my thinking and continued with my warm-up. Relax.
- The tie was already lost by my game. However, it was important for us to win our match - purely a pride aspect. Had to refocus onto the processes.
- Everything is as ready as it can be. My bullseyes are as good as anyone else's bullseyes. I have shot necessary scores before and can do it again.
- 'Do what you know how to do'. Don't expect more than what you would normally be able to do.
- Keep focused on every shot. If I fire a perfect shot I will get a 10.
- Bowl my bowl. Start hard and maintain pressure – [opposition] will crack.
- I concentrated on my role/responsibilities. I felt confident and believed I was better than my opponent. I had yet to have a consistent match against Australia in the past and wanted to get that perfect performance. I felt strong physically and mentally.
- Just do the basics. Give it 100% effort.
- That I was as prepared as I could be. That I knew I could do it. That the wind was manageable and that I could shoot a good match under these conditions.
- Positive self-talk. Affirmations.
- I want to play well, I didn't want to let myself down after all the hard work and training I'd done to prepare me for this occasion.
- You are currently in your best physical condition ever and you have prepared well for the event. Just go out there and do your best.
- 'Don't think'. Trying to clear the mind. Not getting distracted by anything. Being calm and relaxed.
- I was thinking about beating Australia for the first time in years.
- Training went well. It's time.
- Being cool, calm, competitive and relaxed.
- Tried to focus on performing the tasks/processes required to perform well.
- They were going to win.
- Negative. Unsure about playing well. Distrusted coach.
- Stay calm and patient.

Attentional Focus Immediately Before Most Important Performance

- Our game plan.
- The starting clock.
- Going through the most likely race scenarios and who those scenarios would involve.
- My lane of hurdles.
- I'm a bowler and we batted first so I wasn't involved straight away. I like to sit there watching and just visualise myself doing the job well. Going over the processes before I bowl each ball in my head. If their bowlers bowl well, I watch where they were bowling, what they did and imagine doing better.
- My routines.
- Playing well.
- My balance. The stadium lights. The stadium floor.
- Getting enough water/drink. Relaxing and switching off during the national anthem. What I would say in the huddle.
- My role. Exactly what I was going to do in the first 3-5 mins.
- Focused on getting rid of the tired feeling in my body. Making myself feel fresh and ready.
- Behind the line of the ball. Angles - cut them down. Save straight shot. In control of circle. Communication. Stay on feet.
- Focuses on warm- up. Hitting. Trapping. Lots of positive talk.
- Wasn't focused on anything in particular. Just enjoying the moment and practising my skills.
- Process. Technique. Visualising doing it and doing it properly.
- Warming up properly. Making sure I felt well.
- Limiting errors. Structural play.
- One thing at a time.
- Performing to potential.
- Work tasks - hold, commitment to the trigger.
- Performing well and following my game plan.
- Rhythm and technique.
- Area where you see the target.
- No errors.
- The match. The game plan. The strength/weakness of the opposition.
- How well my teammate was doing.
- The bar and nothing else. All other thoughts blank.
- Team warm-up.
- I try to relax. Take a deep breath. Think positive. Study the green surface, wind, etc. Focus on remembering the extra yard of weight.
- I sit in a chair by myself for 15 minutes before my match replaying in my mind my delivery and visualising myself on the green.
- The game. What I was going to do.
- Focused on giving my best performance.
- Process goals.
- Passive mental set. Not really paying attention to anything.
- Aware of a normal level of anxiety/prematch tension and kept reinforcing my belief in myself and the level of support I had received from others.
- Key technical points in my routine.
- Firing a perfect shot, every shot.
- Role/responsibilities within team.
- My skill level. Specialist requirements and technical skills
- I had visualised what they might do to me (i.e., put my position under pressure) and came up with the answers.
- Physical and mental preparation. Remembering what a perfect shot looks and feels like.
- Task at hand.
- I was warming up on the spot. Watching other matches and getting my gear ready.
- Clean solid performances with minimal execution.
- I was not paying attention to anything I was getting ready to play but not concentrating on anything. I was relaxed. Don't remember thinking or saying anything to myself.
- My routines. I got a little distracted before by other athletes from other countries.
- I was focusing on performing my tasks proficiently and knew that if I did this the team would also.
- That this game could mean a spot in the semi-finals and we had to play extremely well to beat the Australians.
- I was focussing on the stadium and the people around.
- Coaches' instructions.
- Tried to focus on performing the tasks/processes required to perform well.
- The opportunity was there for me to win. All I had to do was keep my head and not make errors.
- Pre-game routine

Thoughts During Most Important Performance

- We can play better than this.
- Nothing. I was on automatic pilot.
- The competitors I was with. Assessing their strengths/weaknesses. Analysing the chances of other competitors regaining contact with our lead group. I've come this far – never give up!

- Open mind – ‘hit my takeoff’.
- Assessment of the situation which can fluctuate.
- Stick, land, catch, prop, etc.
- Catch, compete, smile, hold.
- I was concentrating on the technique and execution of my routines. I was also stressing about how badly I was doing and thinking that I had to do better.
- Before each move I think of what I have to do to make it good.
- Be strong on the ball and give it everything.
- This is our best opportunity to beat Australia in a long time. We can do it. I want it so much.
- Trying to concentrate on game (i.e., following ball around field and talking to players in front).
- Relax. Keep it simple.
- Keep up the good tackles (positive affirmations).
- Focusing on my role and processes to achieve them. Tried to keep a cool head while at the same time thinking about the game.
- Just remain focused on what we were doing. Game plan.
- Thinking about my job on the field and my positioning when I didn’t have the ball. When I have the ball I do things on instinct and don’t consciously think. As the game wore on I was willing myself to keep running.
- Keep talking. Basics.
- I was thinking about how the game was going, and what we had to do.
- Do more. Work harder. Present task.
- Yelling from sideline.
- In the present. Let the ball come. Have confidence.
- Working on my game plan. Trying to work on the positive.
- Self-coaching and assessment. Rhythm and technique.
- Trust your own abilities and you will succeed.
- Keep the pressure on.
- Not making mistakes.
- Game plan.
- Coach instructions.
- Always think positive. Encouraging remarks to your teammates. Keep telling yourself you can do it.
- Trying to remain task focused.
- Every 5 km - split run through a checklist of technique pointers and autocues (e.g., relax, patience, discipline, slave to the distance).
- Always thinking of the process of firing the next shot. As it became apparent that something was not right during the match I was concentrating even more on deliberate firing of each shot.
- Calm down and enjoy the experience. God help me.
- Thousands of things, but I kept refocussing on the shot at hand.
- Be patient - keep playing good weight down the right line. Results will come.
- Never give up. Accept only perfect shots. Maintain concentration and focus. Schedule appropriate rest breaks. Maintain rhythm.
- You’re playing well. Keep going. No mistakes. You can win this. You’re playing well.
- You’re achieving PB’s currently just keep the momentum going and focus on routine.
- Nothing I can’t remember much about the match and don’t remember thinking or saying anything to myself.
- I was trying to think positive thoughts or words which help perform my moves and elements well.
- I was concerned with a couple of errors which I made during the game and was hoping not to make any more errors. Was concentrating on negatives not positives.
- Where did I go wrong. Why did it have to happen now.
- We were getting killed early on and I thought we were in line for a thrashing. I had difficulty with my trapping during the game and I was trying to sort it out.
- Hopefully I’m going to do well.
- Tried to focus on performing the tasks/processes required to perform well.
- That the mood of team wasn’t as good as it should have been.
- I should be winning. This is going the way I planned

Feelings During Most Important Performance

- Felt we were under constant pressure and struggling to execute our game plan because our opponents had too much pace for us.
- Short of breath. Sore legs and lungs.
- Anxious, but quite relaxed. As competition progressed worry levels increased as pain in quads became more intense.
- Nervous.
- Disgraced. Embarrassed, and pissed off.
- Quietly confident.
- In control.
- Apprehensive - lacking courage.
- I was feeling nervous and a little tired.
- Exhausted in the second half.
- Confident and relaxed.
- Further in began getting tired physically.
- Towards the end physical fatigue affected my mental skills and my game fell away.
- Relaxed until they scored a goal in last 7 minutes. Then I was a tad uptight.
- Nervous at the start but as soon as whistle went I felt more relaxed.

- Relaxed.
- Good although it was extremely hot at the time and I took a while to get into my stride. Generally though I felt okay.
- Felt good. Played my best game of the tournament.
- Good - relaxed, anxious when goal was scored.
- Really positive.
- I felt well physically, mentally and technically.
- Focused on each ball. One thing at a time.
- Great - loved the physical side of it. We were truly tested in both physical and mental sense.
- Calm and relaxed. Focused.
- Anxious knowing I was not technically 100% .
- Enjoying the experience but disappointed that I was unwell.
- Physically I was feeling okay. Mentally I was drifting in and out of self-belief.
- Pretty good until last 5 minutes.
- Relaxed and in control of the race.
- During later stages some resentment at my partner's inability to participate fully. During early stages some despair at results being achieved and not knowing why. Some anger at irregular intervals between phases - poor running of event. During later stages some feelings of hopelessness at my position after realising the enormity of my mistake with my [equipment].
- Nervous and stressful but quietly confident I could handle it.
- Frustrated.
- Extremely confident once the game wore on. I had a strong desire to make this match the best possible international performance I have had. This desire increased as the match continued.
- My event has 5 rounds over 2 days. In the last 4 rounds I was focused, in control, and in the zone.
- Focused, surprised at how well I was doing.
- Great sense of achievement and satisfaction. Quietly relaxed but focused. Very happy going through the events as I was breaking personal bests on the events and competing at my best.
- That this was going to be a fun match because I've never played against South Africa.
- Quite nervous at the beginning but I really started to enjoy myself once I get started.
- Was concentrating on negatives not positives.
- What did I do wrong.
- Tired and frustrated at the way we were playing.
- Jittery.
- Tense and nervous.
- Physically and mentally tired.
- Disappointed at how my team was performing.
- Frustrated. Jumbled up thoughts.

Attentional Focus During Most Important Performance

- Trying to get into the match.
- The wheel in front of me or the track in front of me (if I was on the front).
- Being relaxed. Knowledge that I had done everything that was possible in my preparation leading up to these Games.
- How has this happened? Brace yourself for the shit that's going to hit the fan. Be better tomorrow and make sure we at least get a medal out of this.
- My role as a batsman.
- Playing well, bowling right channel.
- My routines.
- What I was doing.
- My equipment and the moves to follow.
- My moves in my routine. Listening to the music so I am in time.
- The ball. Putting pressure on opposition. Leading into space for the ball.
- My opposite number - their strengths and weaknesses. The vulnerability of their defence and where to capitalise and take advantage of that vulnerability. Scoring goals.
- Keeping my frontrunner I was marking out of the game and cover defending. Involved a lot of communication to players in front and reading lines/gaps in the field that had to be closed up.
- The game in front of me. What my opposition was doing (i.e., the player I was marking). Where and when to cover. Passing options.
- Basics. Trapping the ball and making a good pass. Be calm when on the ball.
- Doing my own job on the field and having the confidence in others around me.
- Focused on what was happening around me on the field.
- Technique.
- What the opposition and my defence were doing.
- I was trying to stay focused on what was happening and what we wanted to happen.
- The game.
- The opposition/opponent.
- In the present. Don't think about the score. Let the ball go.
- Each ball. What was going to beat opponent.
- Winning. My own performance.
- Focused on my routine.

- Rhythm and technique.
- Seeing the target.
- Applying pressure.
- Game plan.
- The strengths and weaknesses of the opposition. Our strengths. Where we were winning our points.
- The bar.
- Coaches instructions. Game plan.
- Totally focused on out-leading my opposition, Everything felt really good.
- The game and my performance.
- Positive - what I will do in the game for different situations.
- Process and performance goals.
- My focus was always on good performances and execution as distinct from the results. It was important to me to keep trying for the best possible outcome despite feelings described above.
- Having the sights centred on the target when firing the trigger.
- Playing line and length.
- Extremely confident once the game wore on I had a strong desire to make this match the best possible international performance I have had. This desire increased as the match continued.
- Keeping my head down. Seeing the target.
- The process. What I had to do. The heat. The tactics. What the opposition was doing.
- Key words. Remaining focused on the task.
- How to beat my opponent and not make unforced errors.
- I was focused on the game. What was happening. Trying to pick/guess what was going to happen.. Reading the game and getting into position in accordance with that.
- I was focused on my routines and myself and no one else or other competitors.
- Was concentrating on negatives not positives.
- Trapping the ball and trying to get away from my marker.
- Focus on the opponent.
- Eliminating errors. Performing basics well.
- Doing my job for the team.

Note. Repeating raw data have been removed.

APPENDIX K: ANTICIPATED SOURCES OF STRESS

- First big competition. Concerns if I can reach my expectations. Injury worries. Competing without personal coach there.
- Repeat of last year's World Championship non-performances.
- The waiting time before entering the competition arena (i.e., warming up and then sitting down for an hour before competition in the "checking in" area).
- Getting only two warm-up throws in the competition arena before the competition begins. Time lapse between initial warm-up and when the competition begins is too lengthy.
- Not achieving the goals I set myself.
- Environmental conditions (e.g., heat, humidity, pollution). Hygiene of food, water. Not achieving my best performance I am capable of.
- Just worried how I will perform with the whole of NZ watching.
- I am concerned that we as a team have not had enough Pre-Games competition as it is out of season for us and the conditions will be very different both temperature wise and speed of the [playing surface].
- What the heat will be like and whether I can acclimatise properly to enable me to perform 100%.
- I just really want to do my best [performance] and [perform] like I did at the World Championships in 1998. I know I can do it but my biggest problem is I don't believe in myself and I am terrified of failing and embarrassing myself. I am also very worried about not being able to [perform] well in the heat.
- Mainly the pace that the [playing surface] will be running at. In comparison to our own conditions which we consider to be heavy in NZ, there is no comparison. It is a whole new ball game. Sanitation was very much a concern. Food. Malaysian food is Ok for a while - miss wholesome foods, especially salads and fruits.
- Performing to the best of my ability. Being able to handle the pressure. Not wanting to let the team down. Not wanting to let friends and family down.
- Getting too nervous before and during a match. Getting distracted by all the hype and famous people. Feeling under pressure with a large crowd watching.
- Ability to adjust to the conditions. Playing for my country for the first time in a major competition. Failure to make an impact at the Games may result in a lack of opportunities.
- Traffic and time taken from the village to venue.
- Late (very late notice) change of event. No recovery cause of heat. Mental confidence.
- Pressure from back home that if we don't win at least a silver medal we have failed.
- Distance to stadium from village. Games back to back at beginning and end of tournament. Competing in heat and humidity. These are concerns - but I believe I can overcome them and not let it bug me - just different to environment we are used to.
- Not performing to my capabilities. Playing mediocre like I did at World Cup. Losing and not winning a medal. Not being relaxed enough to play well. Hitting penalty corners flat into goal. Lasting well in the heat and not hitting the wall too early.
- That I may not fulfil my own goals. That I may not fulfil other people's expectations.
- I do have a fear of losing a game that we shouldn't. I'm confident that if we perform as well as we can then we are one of the top two teams in the Commonwealth. I suppose I have a fear of us not achieving that result.
- The humidity - although we are quite experienced as a whole in hot climates. The village - the smooth running of transportation and noise in our former blocks.
- Not playing up to my own standards. The team not playing as well as it can. Losing confidence in my playing abilities. Not being picked in the starting line-up.
- If we do not do well what will the public reaction be. Will we maintain our relatively low level of funding
- Having only been named in the team two weeks before departing - making the team appears to have been more of a focus over the last few months as opposed to aiming towards performing maximally at Commonwealth Games. It is also the first time living in a village with other sports.
- Unwanted concerns interfering with my performance. The media being too pushy.
- Keeping well. Staying focused. Remembering why I am here. Not coming home to a broken relationship.
- Overt officialdom. Unbending officials who see all rules as black and white while not taking into account circumstances that may arise.
- If I don't perform I will face a lot criticism from the media and [athlete's National Sporting Organisation], as we are all under a lot of pressure to perform in Kuala Lumpur due to poor results over the last couple of years.
- Uncomfortable beds and pillows.
- Heat effects on my 'fitting' with [equipment]. Walking up the bloody hill to the range.
- Preparation is not going too well at present so I am a little worried about being able to meet the goals I have set. I have also been asked to consider competing in a match I have not trained in for so I am worried if I agree to do this the impact will have on other matches. And also worried that if I don't agree whether this will also impact detrimentally on other matches. I am endeavouring to make this decision today so I can get on with dealing with it before arriving.
- Managing the heat and humidity factor to be able to maintain concentration despite inevitable discomfort. Managing emotions during final stages of competition.
- Going into a competition that I really have little knowledge about.
- I think I will be more nervous at the Commonwealth Games than I was at the World Championships because the nation puts so much emphasis on the Commonwealth Games. I just really want to do well and show everyone I can do it.
- Not achieving my personal goals.
- It is six days away from competition and I still have no idea whether I will be competing at the Games. I cannot focus on anything at the moment because I am attempting to juggle various aspects of my life, instead of being able to put everything else aside and concentrating solely on [my sport]. I believe this is definitely not conducive to me for top performance. Time will tell.

Note. Repeating raw data have been removed.

APPENDIX L: MOST STRESSFUL EXPERIENCE

Effect on Performance

- Worrying about how I felt.
- Teammates becoming ill with colds, etc. Realising an entire [sporting] programme may lose funding if there was not a result produced. More importantly, the financial debts I have endured due to a lack of personal funding prior to the event and whether disproportionate funding would continue post event, regardless of outcome.
- Psychologically, I think I was a little intimidated.
- Was not able to accelerate off my run up.
- I basically lost concern. The outcome was inevitable and I was struggling to comprehend how this had/was happening! Whatever I did well or not was not going to matter so it was hard to get myself up to the level required.
- A little bit with fitness.
- In some ways it was better but it made me more nervous.
- Weak and tired. Had sore tummy sometimes.
- We knew the Indians were going to crowd their defence circle and place great pressure in this area so we had planned for this and talked about the situation at half time.
- Couldn't run properly. Was worried whether I'd be able to continue to play the rest of the Commonwealth Games
- Certainty didn't try any less but it maybe rattled the team.
- I tried to force the game a little, and do too much.
- It helped lift my performance, as I knew we then had more work to do to come from behind.
- It helped me concentrate.
- Hung up on the umpires a bit.
- Practised shooting closer so I shot more 10s. Calm and relaxed. Focused.
- I lost some confidence.
- I missed more targets in the final than the whole competition.
- I knew I carried an injury.
- Less strength.
- Performances were affected slightly by me having to rush to prepare. Some distracting thoughts as a result. However, over riding problem was accuracy of [equipment].
- I dropped a point towards the end due to the stress.
- It made more focused and enabled me to record the highest score over the last 100 targets.
- My focus during the routine was on getting the [move], not on doing a good routine.
- Became very conservative and did not try all the skills which I have.
- I didn't put it out of my mind and it affected the rest of my performance.
- Jerky movements rather than smooth.
- On rare occasions - having to eliminate any negative thoughts. Could not think about the thing that I was going to do next.
- Confidence not as good as it should have been.
- Became too tense and tended not to focus on the next ball. Was worried about the previous deliveries.
- Was not 100% focused. Was not completely and utterly happy with myself.
- Anger involved in build up. Played over half game out of position. Distrust of coach.

Effect on Concentration

- I like the pressure. If there was not any pressure I would not have put enough importance on it to worry about.
- When I should have been relaxing I was more worried about my leg.
- We were doing so badly we couldn't win so I just kept asking myself 'how has this happened' then I'd click back and go through my processes without really being concerned with the outcome of the ball I bowled.
- The nerves were gone once I commenced the game.
- Because I was concentrating on other things such as stress.
- Blocked it out and focussed on routines.
- Started to worry about this particular move and did not concentrate on my other moves as much.
- It made me more determined. I found it easier to keep concentration levels high.
- Just had to go hard and attack, fight back and score for NZ to even game.
- Unable to focus solely on the game. Worried whether I'd be able to play for long at all.
- Became a bit uptight and said some negative things.
- I tried to take over too much responsibility for the result and therefore did not carry out the game plan.
- Intensified.
- Negative feelings.
- Slightly frustrating.
- Effected by trying too hard.
- I knew I started bad and it would be an uphill struggle from there on.
- Some of my bad shots were due to trying too hard and holding my [equipment] too long when I would normally stop a short time to help refocus.
- I was concentrating harder than I had before but not on the right thing.
- Affected due to injury.

- Anxiety seemed to go once I began to warm up.
- I just forgot about it I can adjust quickly.
- My concentration was not affected because I was there to enjoy and have fun.
- Concentration between shots was affected. Concentration on firing each shot was increased.
- Just did same as previous competitions.
- Because I was nervous and had a high pulse rate it was a bit distracting.
- Not an issue at all once I started playing.
- Waiting had been experienced before. It was no big deal once we knew the pattern - length of time which events occurred. (i.e., leave room - walk to the bus - bus to ground- wait - warm up match). Waiting gave me time to gather my thoughts and go over my processes.
- It enabled me to become more focused.
- It was a catalyst.
- Felt a little apprehensive about performing well.
- I dealt with the things that had happened and put them aside in order to focus on the individual match.
- Just went with the flow (e.g., key words, remaining focused on the task etc).
- I was conscious that one end I found hard but I didn't let this affect my concentration much. Once I was able to keep the [object] in the court I became more confident.
- I was very focused and did not let myself get distracted.
- I was worrying about the single move and not focussing or concentrating on the whole routines.
- Became very conservative and was very concerned about making more errors.
- It made me think more about the final outcome rather than performing each [move/routine] successfully.
- Affected at first but; then once I was in competition it did not affect me.
- I was not dealing with the present/next ball.
- My mind would drift onto outside things instead of concentrating on the game at hand.

Note. Repeating raw data have been removed.

APPENDIX M: MAINTAINING CONCENTRATION

Strategies

- Realised that the matches I was watching were totally out of my control. Focus on my match and then the outcome should be Ok.
- Instead of being scared, I used it to get pumped up and aggressive.
- Relaxing muscles. Using relaxation and imagery.
- Key phrases/words.
- Prepared thoughts.
- Refocussed on what I could control.
- Visualising, relaxing and breathing.
- Keep saying to myself, "I can perform to perfection", "it's not impossible", "concentrate", "try and enjoy it".
- Positive self-talk, goal setting.
- Dump it. Positive thoughts. Stay in present.
- Kept warming-up. Stretching. Thinking about what I'd do if I got on the field.
- Positive talk to team. 'We can do this'. Run harder (if possible).
- Concentrate on the processes.
- Imagery.
- Task goals.
- Went back to the basics. Used centring and tried to bring back some confidence.
- Yes but I used the wrong ones.
- Strategies I use - let problems bounce off me. Imagine invisible bubble (where problems don't penetrate the bubble). Slow relaxed breathing.
- I thought about the need to perform well in the absence of my coaching partner - this reinforced my belief in myself.
- Because I did not know the cause of the problem I needed to be sure to execute each shot as perfectly as possible. This helped me to concentrate on technique.
- Relaxation. Breathing. Imagery.
- I know I can still shoot well in these situations and I just work on one shot at a time.
- Recognised the problem. Used a phrase to positively reinforce the task.
- Centring.
- Focusing on the task.
- Talked to sport psychologist. Focused on good matches. Used another match in between to refocus and regain some confidence. Visualised shooting good shots.
- Remained focused and knew that we'd get there eventually. Used key words (e.g., remaining focused on the task, etc).
- I just tried deep breathing and refocusing. Try to stay positive and focused on pushing out negative thoughts.
- Sometimes I used visualisation techniques. I imagined my perfect routine, error free and the feeling of that routine.
- Positive. Change negative thoughts into positive thoughts. Block out anything that upsets me. Put it behind me and move on.
- Positive thoughts. Focus on technique.
- Keep thinking while you are in the ring. Take deep breath on the breaks and listen to the coach.
- Concentrated on the processes.
- Self-talk.
- Just tried to clear my thoughts. I thought about how much I wanted to win the match.
- Relaxed. Looked at new position(s) I was going to play and how I was going to play them well.

Thoughts or Cue Words

- Look forward. Attack the [object].
- Smooth start. Change. On wheel, relax. On front - strong last quarter. Change (...so on). Finish.
- Aggressive. Fast. Quick.
- Technical cue words to aid my [routines] (e.g., smooth, hips, tail)
- Soft hands. Watch the ball. Keep it simple. If it's to be its up to me.
- Relax. Stay tall.
- I have a routine that activates my concentration levels up and down. Simply taping my bat 3 times on my foot is my trigger to get ready and a final affirmation to watch the ball.
- Relax, tight, stretch out.
- Catch, stick, land etc.
- Smile. Have fun. You can do it.
- Stay sharp. Relax. Make something happen.
- Fast feet. Low and strong.
- Stay in the game. 100% concentration. 70 minutes.
- Take it easy. Relax - if I tensed up or thought about how painful it was.
- Low, strong, tight.
- Relax, recharge, ruthless.
- Thoughts about overcoming my physical condition (e.g., running).
- Usual routine. Talking to myself about performing techniques and visualise performing technique.
- In the present. Let the ball go.

- Just positive, motivating and calming thoughts.
- Hold and squeeze.
- Used my routine cue words (e.g., relax, sight picture, trigger release).
- I use a cue word at the start of my shooting for each shot and pictured a good shot in my mind between shots.
- See the target properly and shoot the target properly.
- Fire up.
- Refocus. Stay positive.
- Enjoy. Make the most of it.
- Technique key words (e.g., posture, backward circling hips in the direction of travel). Cue words (e.g., patience , relax, strong and efficient, slave to the distance, relax to go faster).
- Thoughts of self-reliance. Confidence. Contribution to team result. Thoughts of not giving up despite situation I was in. Self-satisfaction at having done the best I could.
- Perfect shot - focused, sights centred, rifle still, and good trigger release.
- Head down. See the target. Attack.
- Used different task-relevant cue-words for each game.
- This shot will be a perfect shot. Nail it. 10.9, 10.9, 10.9, 10.9.
- Key task words (e.g., on task, tight, drive, cut, direct, pick up).
- If I made an error - I would use self-talk (e.g., Ok don't worry, no mistakes, you can do it).
- I imagined my perfect routine. Error free and the feeling of that routine. I also using previous best performances as encouragement.
- Kept telling myself to relax and calm down, that the plane would not crash. Spoke to some teammates to get my mind off the thoughts I was having.
- It depended on the move (e.g., a lollypop leap - kick back leg up).
- Technique specific thoughts (e.g., smooth trigger).
- Power. Speed. Explode. Come on. Get hard.
- Just do it.
- One chance at this. Relax. Stay aggressive.
- Same as always.

Note. Repeating raw data have been removed.

APPENDIX N: THOUGHT PROCESSES

Try To Think About

- Every 5km running through technique pointers and auto cues. Technique (e.g., posture, backward circling hips, complete foot roll in arms in direction of travel. Auto cues (e.g., slave to the distance, strong and efficient, relax, patience and discipline).
- Confident alive feeling so that I actually enjoy the competition and then I do well.
- Maintaining control of my own performance. Staying alert. Hanging tough.
- Positive reinforcements. Key words that trigger explosiveness, etc.
- Technique (e.g., left shoulder down, fast across the circle, left leg down into position quick, explode).
- Visualise my serve. Try to relax in between points. Say key words to help my performance (e.g., forward feet 'come on')
- My own game. What I'm going to focus on in a match. Positives to think about (e.g, moving well, consistency, accuracy, attacking, etc). Tactics - how will I play a particular person, their weaknesses. Staying positive on court. Relaxing.
- Winning - no other possible outcome. The sacrifices I have made. The people that have helped me here.
- Doing the basics. Not worrying about outside factors.
- Whatever process goals I have for day. Tactics versus opposition. My job. My game plan. The team plan. My goals. What I have to do to fit into and achieve these. What I can do to improve things for the team and myself.
- The next ball. Relax. Stay in the zone. You are in control - let the bowler come to you.
- When batting - watching the ball. When bowling - keeping my section - correct upright, etc.
- Staying calm. Staying tall when bowling. Think where I want the ball to go and visualise.
- I think of my lap calls, breathing and the reasons why I want to win/succeed.
- When it gets hard (you are pushing yourself to the maximum, you can start loose control of your rhythm. When this happens I think circles. As circles is what your feet should be making when going fast. This always smooths my style and generates more power because of it.
- I always think about key words during my competition effort. These are also recalled in a specific order.
- Storming through the final part of my ride. Knowing what I am capable of. I am here for a reason. Look down on my NZ strip.
- Relaxing on the wheel. Smooth turns at the front. Smooth changed. Strong last quarter of each lap. Nice smooth line on the poleline.
- Different aspects/parts of the race (e.g., start - 'explosive' smooth and strong, lap1 - acceleration, line, breathing, lap 2 - rhythm, breathing, 'lift', lap 3 - 'lift', 'smooth', 'tight').
- I try to just think about what my coach has said and how a good [move] felt. So I go through such a little sequence to help me feel prepared before I do each [move] (e.g., doing actions and saying key words in my head).
- Key words (e.g., 'madge' when trap penalty corners). Positive affirmations (e.g., I will trap the ball, I will hit the ball flat).
- The process, not outcome. Try to calm myself (i.e., centring).
- Game plan. Staying sharp. Making something happen when I get the ball.
- Simplify down to doing the basic skills well and going from there. Playing with confidence. Tactical - what the opposition is doing what I need to do to counter it.
- Key words at set plays to help me focus (e.g., for [set plays] I'll think of my key words "low, watch the ball right on"). What my opposition player is trying to do and how to beat them. Our game plan.
- My goals. Key words. Don't think too much! Just relax and do what comes naturally
- I focus on my goals for the game and make an effort to achieve them. I am also aware of what the team plan is and what we are trying to achieve.
- Doing the BASICS well - which I run through at the start of half/halves and when I loose concentration. B - get behind line of ball; A - cut down the angles; S - save the straight shot; I - in control; C - communication; S- stay on feet.
- Key words. Strategies. What opposition is doing. How I can perform my function better.
- The processes/skill that I need to perform/do well in order to have a good performance.
- Performing basic skills with no very low error rate. Personal role in team plan/tactics.
- Concentration. Self-motivation. Gauge conditions, weather, wind, green surface. Detect the opponents weaknesses and strengths as soon as possible. Play with skill and conviction. Show determination.
- Winning the game I'm playing.
- Concentrate on playing slowly as I am a person who does everything naturally at pace.
- Winning. The opposition. Giving my best. Staying positive. Having fun.
- The present not the future.
- Don't focus on the score but what I'm doing there and then (in the present).
- What I'm doing at that point and time. Trying to do a particular skill to the best of my ability. Winning. Playing well. Certain skill/goal related areas I've talked about with the coach before the game.
- Sometime during competition my thoughts or feelings towards my game just wanders somewhere else. I start worrying about how I'm gonna play the game. I also sometimes worry about the spectators that have come to watch.
- Always be positive. Never drop my head if something goes wrong.
- Performing tasks - specific ones related to my being on the field. Attack scenarios, defence scenarios - focusing on these tasks specifically. How doing these effectively help my performances and the teams.
- I run a specific 'program' or 'routine' to ensure I keep repeating the process (e.g., 1 get into position; 2 imagine seeing the target and feeling what it is like to break it; 3 catch words before mounting the gun - 'head down' 'see the target').
- I try to think about the next target being hit and seeing it break. Positive thought.
- Position. Breathing. Sight picture. Trigger control. Shot release. Follow through. Rhythm.
- Shot routine. Relaxing between shots. What is needed to get a 10.
- Positive words or phrases to block out other thoughts if they are negative.
- When I am racing I mentally work through a race plan. Sometimes when I have rehearsed if enough before - and it will just happen like being on autopilot. Other times I will ensure I perform certain race tactics which will work for me.

- Focus on basics. Clear mind. Tell myself to relax. Explode on the bar. Speed.
- I actually think about my goals frequently during a game with emphasis on achieving them.

Try Not To Think About

- Distractions. Things not important to my game. Who is watching my game. What I look like. Technique.
- The game ahead of me if I win.
- Comparisons to other athletes. TV cameras. Sideline crowds. Distractions.
- Other competitors' performances.
- The attributes of my opponent.
- Try not to think of losing or doing badly.
- I try not to think negatively. I try to 'cut' or 'stop' negative thoughts as they appear.
- Relationships. Equipment braking. Failure. Feeling shitty in my warm up.
- I try to avoid thinking about my opponent and try to concentrate instead on how I am going.
- My competitors. My self-doubts. How hard the race is going to be.
- Failures. Unwanted baggage (i.e., negative thoughts).
- Quality of opposition.
- That I'm not good enough.
- The thought of failure, the opposition and how I'm going to play.
- Try to avoid thinking about failure.
- I try to avoid thinking of missing, stuffing up a [move]. However, this sometimes still comes into my head. I also try to avoid thinking about or watching others and getting intimidated by them.
- Negative thoughts about aspects of performance (e.g., if I felt I did something wrong/badly - acknowledge it then dump it so don't keep thinking about it). Try to replace with positive thoughts.
- Any niggles/injuries. How I'm feeling and performing. More important to just let it happen.
- The outcome/result. That the opposition is good. That the opposition might score.
- Try to avoid thinking about the end result.
- Anything other than what is happening on the field.
- Negative self-talk (doubts in my ability).
- Being outplayed.
- Letting mistakes and negative thoughts enter my mind that may hinder my performance.
- Failure.
- The last bad thing I have done.
- Try to avoid negative thoughts. Try not to think about making errors.
- Doubt. Negative words. Negative aspects (e.g., referee, teammates, opposition).
- What will happen if we lose.
- Not making basic errors (e.g., mistapping the ball).
- Any distractions. Things that need doing (e.g., family obligations that possibly need attention, etc).
- Past performances, particularly if I didn't play well.
- The score when actually playing - only think about it at critical times for tactical decisions.
- A bad bowl or result.
- Failure. Pleasing others before me.
- Negative thoughts. Anything other than the task at hand.
- The past or the future. Just try to remain in the present.
- The score or how other people will think I'm playing.
- Not performing well.
- Being negative.
- The outcome of the game/tournament.
- If I think about shooting anything less than a 10 (e.g., a 9 or worse) I consciously try to override this.
- Losing.
- Negative thoughts.
- Worried about my performance. Worried about people that come and watch me play, especially if the selectors are there. Some are just personal thoughts or ideas that can easily be dealt with..
- How other people are shooting. What scores are already posted. Bad shots.
- Results. Other competitors.
- Other people and their expectations.
- I avoid negativity. If the person shooting before me misses a target then I consider it a challenge to break mine. I do not consider his target as a loss (negative) I think advantage!
- The end result. What everyone else is doing. Anything other than the next target.
- Failure. Doing things wrong or not perfectly.
- I always get rid of self-doubts and negative thoughts from my mind with a positive mental attitude. I avoid worrying about my opponents unless in some circumstances it would enhance my performance. I avoid thinking about anything apart from my race and my plan.
- Lifts I have missed or bad competitions.

Note. Repeating raw data have been removed.

APPENDIX O: SCRIPT

Group

Name: _____

Age: _____

Number of years involved in dance:

 years

Number of years in full-time dance training:

 years

Condition 1 do/low

Trial 1 <input type="checkbox"/>		Instructions: When I say begin, try to hold the wobble board as steady as possible. Your task is to keep the wobble board as steady as possible. The trial will last 20 seconds.
Trial 2 <input type="checkbox"/>		
Trial 3 <input type="checkbox"/>		
Trial 4 <input type="checkbox"/>		
Trial 5 <input type="checkbox"/>		

Condition 2 don't/low

Trial 1 <input type="checkbox"/>		Instructions: When I say begin, try not to let the wobble board wobble. Whatever you do, do not let the wobble board wobble. The trial will last 20 seconds.
Trial 2 <input type="checkbox"/>		
Trial 3 <input type="checkbox"/>		
Trial 4 <input type="checkbox"/>		
Trial 5 <input type="checkbox"/>		

Condition 3 do/high

Trial 1 <input type="checkbox"/>	1000 - 7 =	Instructions: When I say begin, try to hold the wobble board as steady as possible. Your task is to keep the wobble board as steady as possible. The trial will last 20 seconds. Also, you are to count backward in your head from 1000 by sevens (that is, 1000, 993, 986 and so on). At the end of the trial, I will ask you the last number you reached, so remember that number after I say stop.
Trial 2 <input type="checkbox"/>	- 7 =	
Trial 3 <input type="checkbox"/>	- 7 =	
Trial 4 <input type="checkbox"/>	- 7 =	
Trial 5 <input type="checkbox"/>	- 7 =	

Condition 4 don't/high

Trial 1 <input type="checkbox"/>	1000 - 7 =	Instructions: When I say begin, try not to let the wobble board wobble. Whatever you do, do not let the wobble board wobble. The trial will last 20 seconds. Also, you are to count backward in your head from 1000 by sevens (that is, 1000, 993, 986 and so on). At the end of the trial, I will ask you the last number you reached, so remember that number after I say stop.
Trial 2 <input type="checkbox"/>	- 7 =	
Trial 3 <input type="checkbox"/>	- 7 =	
Trial 4 <input type="checkbox"/>	- 7 =	
Trial 5 <input type="checkbox"/>	- 7 =	

APPENDIX P: PUBLICATIONS/PAPERS DERIVED FROM THIS THESIS

- Dugdale, J.R., & Eklund, R.C. (2003). Ironic processing and static balance performance in high-expertise performers. Manuscript accepted and slated for 2003 publication in Research Quarterly for Exercise and Sport.
- Dugdale, J.R., & Eklund, R.C. (2002). Do not pay any attention to the umpires: Thought suppression and task-relevant focusing strategies. Journal of Sport and Exercise Psychology, 24, 306-319.
- Dugdale, J.R., Eklund, R.C. & Gordon S. (2002). Expected and unexpected stressors in major international competition: Appraisal, coping, and performance. The Sport Psychologist, 16, 20-33.
- Eklund, R.C., & Dugdale, J.R. (2002). Ironic processing, task-relevant expertise and static balance performance. Poster session presented at American College of Sports Medicine Annual Meeting, St. Louis, April 19-26, 2002.
- Dugdale, J.R., & Eklund, R.C. (2000). Coping with stress: Considerations for coaches and athletes. The New Zealand Coach, 8(3), 28-29.
- Dugdale, J.R., & Eklund, R.C. (2000). Competing at major international competitions: Lessons learned from the 1998 Commonwealth Games. The New Zealand Coach, 8(4), 24-26.
- Eklund, R.C., & Dugdale, J.R. (2000). Simulation training. The New Zealand Coach, 9(1), 16-17.
- Dugdale, J.R., Eklund, R.C., & Gordon, S. (1999). Cognitive appraisal of expected and unexpected stressors at the 1998 Commonwealth Games. Poster session presented at Fifth IOC World Congress on Sport Sciences, Sydney, October 31- November 5, 1999.
- Eklund, R.C., Dugdale, J.R., & Gordon, S. (1999). Self-presentation and the perception of threat at the 1998 Commonwealth Games. Poster session presented at Fifth IOC World Congress on Sport Sciences, Sydney, October 31- November 5, 1999.
- Dugdale, J.R., Eklund, R.C., & Gordon, S. (1999). Coping, coping effectiveness, and performance: New Zealand athletes at the 1998 Commonwealth Games. Poster

session presented at Association for the Advancement of Applied Sport Psychology Conference, Banff, Canada, September 22-26, 1999.

Dugdale, J.R., & Eklund, R.C., & Gordon, S. (1999). Final report—“Performing under pressure: New Zealand athletes at the 1998 Commonwealth Games”. The University of Western Australia, Perth. (Final report to Sport Science New Zealand).

Dugdale, J.R., & Eklund, R.C., & Gordon, S. (1999). Athlete and coach summary report—“Performing under pressure: New Zealand athletes at the 1998 Commonwealth Games”. The University of Western Australia, Perth. (Athlete and coach summary report to Sport Science New Zealand).

Dugdale, J.R., & Eklund, R.C., & Gordon, S. (1998). Interim progress report—“Performing under pressure: New Zealand athletes at the 1998 Commonwealth Games”. The University of Western Australia, Perth. (Interim progress report to Sport Science New Zealand).