Sources of stress, coping strategies, perfectionism, self-confidence, and stress management effectiveness, as a function of age and gender

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Sources of Stress, Coping Strategies, Perfectionism, Self-Confidence, and Stress Management Effectiveness, as a Function of Age and Gender

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by

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(BAppSc Sports Studies)

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Special thanks go out to Mark Anshel for giving me his time, support, and invaluable advice. Thanks also to Rae Willsmore and the Illawarra Academy of Sport coaches and athletes who gave up their time and effort to help me with my data collection. Without these people's assistance this thesis would not have been possible.
This thesis is dedicated to the memory of the late Jean Goyen, a wonderful grandmother and friend. I wish you could have been here to see me finally finish this.
The general purpose of this thesis was to examine the coping process following stressful events in competitive sport as a function of age and sex. An additional aim was to test the effectiveness of a stress management program for female adolescent team sport athletes. The thesis was comprised of two studies. In Study 1 the sources of intense stress in sport and typical coping responses to stressors of 37 male adult, 28 female adult, 39 male adolescent, and 35 female adolescent athletes (19-45 yrs, M = 26.65 yrs) was investigated. This study also attempted to ascertain the extent to which two dispositions, perfectionism (Multidimensional Perfectionism Scale) and self-confidence (Trait Sport Confidence Inventory) predicted subjects' age and gender group membership. Results indicated significant differences between ages (p<0.01) and gender (p<0.02) for sources of competitive stress. In particular, males and adults experienced the highest intensity of stress after personal performance stressors, such as errors and losing, whilst females were more intensely stressed by social evaluation. The overall adolescent group was significantly affected by the actions of others (e.g., coach and parents hassling or criticising). Significant age and gender differences in the coping strategies used to manage stress were also found. These responses were dependent on the type of stressor encountered. In terms of personal dispositions, females had significantly lower trait self-confidence than males (p<0.0001), however, no measurable sex difference existed for overall perfectionism. Finally, there was a significant age difference in perfectionism (p<0.009) but not for trait self-confidence. In Study 2, the effectiveness of a stress management program in reducing the intensity of acute stress experienced by adolescent female athletes and improving their coping skills was examined. Subjects were assigned to one of three groups. One group received a four-session stress management program based on the highest intensity
stressors, typical coping strategies, and personal dispositions perfectionism and self-confidence of female adolescents athletes, as ascertained in Study 1. A second (placebo) group attended three sport psychology sessions on sport-related topics, but did not receive stress management training. A third (control) group received no intervention. Dependent variables, obtained from interviews conducted prior to and immediately after the intervention, included the types of strategies employed after specific situations, coping strategy effectiveness, and level of stress intensity experienced after specific stressful events. The final dependent variable was a stress score ascertained by the Stress/Arousal Adjective Checklist. Analyses based on pre- and post-intervention comparisons revealed that the stress management program was markedly successful in changing the subject's overall coping responses and in reducing the intensity of overall perceived acute stress experienced during sport competition. The effectiveness of coping strategies used in specific stressful situations was not, however, increased significantly in the experimental group. The results of this thesis revealed that significant age and gender differences occurred in the sources of stress, typical coping responses, and personal disposition of self-confidence. Furthermore, the thesis established that the preferred coping strategies of different age and gender groups were linked to different sources of stress. The findings also lent support to the need for generating stress management programs that are based on specific group characteristics for improving the effectiveness of coping strategies for managing stress in sport.
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Chapter 1

INTRODUCTION

Significance of the Study

For athletes of all ages and skill levels, competitive sport is a potentially stressful event. Athletes are continually striving to perform at peak levels in a public arena while being socially evaluated by coaches, parents, and significant others. Furthermore, athletes are subjected to stressors arising from sources such as the environment, their opposition, and officials. These and other events that commonly occur during sport frequently result in athletes experiencing the emotional, cognitive, and somatic responses that are associated with acute stress.

People are affected differently by various sources of stress. A stressor that causes one individual to experience intense stress may cause another individual to feel no stress at all. Stressors that typically cause intense stress in specific groups, or to individuals with certain dispositions towards stress, need to be identified so that attention can be focused on appropriate coping techniques. There is also a need to identify the typical coping styles and strategies of athletes in order to help them to cope more effectively with stress, particularly that experienced during competition.

A better understanding of competitive stress and its effects on athletes and athletic performance is of particular importance in adolescent sport. Sport serves important developmental functions for children and adolescents. These athletes need to be provided with a quality sporting experience so that they are more likely to continue their involvement in sport and other forms of physical activity over their lifetime, and to gain the benefits it can provide. Adolescence has, however, been identified as being the greatest period of withdrawal from sport. According to Barnett, Smoll, and
Smith (1992), between 22 and 59% of athletes, discontinue their involvement during this time. Often, sport dropout is the result of the athletes experiencing an imbalance between the demands of the sporting situation (i.e., perceived sources of stress) and their coping responses. If this imbalance becomes too great, an activity that was previously fun can lose its enjoyment and withdrawal from the sport may occur.

Adolescents differ from adults in levels of development and ways of thinking and are, therefore, likely to differ in the ways that they are affected by stress and the ways that they respond to stress. An identification of the coping processes of adolescents is needed to gain a better understanding of their approaches to coping. Increased knowledge about the coping styles of adolescent athletes can then be used to predict their coping tendencies, improve their coping techniques, and decrease the intensity of acute stress experienced during sporting competition. These decreases may then lead to the smaller attrition rate that is desired in youth sport. Despite extensive investigation into stress in the general psychology literature, the area of coping with acute stress in youth sport has been greatly neglected by researchers.

There have been limitations in much of the coping research, particularly in the area of stress management. Past programs have been criticized by researchers such as Anshel (1990) and Suinn (1987) for: (1) viewing the individual as a passive recipient of stress, rather than consciously attending and responding to sources of stress, (2) not providing a set sequence of techniques that a person can use in particular situations, and 3) ignoring the athletes' responses immediately following exposure to a stressor. In particular, acute stress and athletes' immediate responses to stressors during a contest have been greatly neglected in past research. In one rare study in this area, Anshel (1990) developed a stress management program (COPE) that was proposed to help individuals cope effectively with acute stress during competition. Although support has been found for this model (e.g., Anshel, 1990; Anshel, Brown, & Brown, 1993) COPE is also limited as it is based on specific groups of athletes (college, elite).
and age groups (i.e., adults), who have different needs, expectations and coping styles as compared to adolescents. Differences between age groups therefore need to be identified and specific programs for each developed. The present thesis is designed to examine these differences and to create a stress management program that is tailored specifically for adolescents based on their needs and preferences. One aspect of the coping process that also needs further study is the influence of selected psychological dispositions. One such disposition is perfectionism.

To date only one study has examined perfectionism in sport (e.g., Frost & Henderson, 1991). Perfectionistic individuals have high expectations, aim for high standards of performance, and are overly critical of their own behaviour. They are also overly concerned with meeting other peoples' standards and often exhibit a fear of negative evaluation, whilst wanting to avoid the disapproval of others. Their expectations, fears, and behaviours have been positively associated with anxiety, and may also result in athletes' experiencing greater intensities of acute stress on more frequent occasions than athletes who display low perfectionistic thinking (Frost & Henderson, 1991). As a result of self-induced pressure, the sporting enjoyment of perfectionistic athletes often diminishes, performance can suffer and eventual withdrawal may occur (Bunker & Williams, 1986). Hence, there is a need to examine this personal disposition in relation to acute stressors and coping responses in sport.

Self-confidence is another disposition that has been found to be linked to poor sporting performance. Low self-confidence has been shown to be present in many athletes who hold unrealistic outcome goals. When these goals are not achieved, or when an acute stressor that threatens the achievement of the goals is experienced during a game, acute stress often results and the feelings of low self-confidence may be reinforced. This in turn can reduce an athletes' enjoyment and facilitate withdrawal from the sport. In contrast, athletes who are confident tend to focus on successfully mastering a task rather than worrying about poor performances or the negative
consequences of possible failure. One possible result of focusing on the task rather than worrying may be that athletes will cope more effectively with stress that arises during competition. Athletes who have low self-confidence and are overly concerned about performing poorly may in fact focus more on their concerns than on employing appropriate coping strategies to deal with stress. Although investigations (Vealey, 1986, 1988) have suggested that these trends exist, the possible links between self-confidence, acute stress and coping have not been addressed in past research.

Apparently no investigations have examined both perfectionism and self-confidence in relation to stress, despite the conceptual link between the two dispositions and the coping process. Athletes who believe they should consistently perform "perfectly" often blame themselves for every defeat or for their "poor" performances. This may reduce their self-confidence, promote a fear of failure, and cause them to experience more intense and frequent rates of acute stress than more confident athletes. As a result of self-induced pressure and the consequent stress experienced, their enjoyment is likely to be diminished, resulting in poorer performance and perhaps withdrawal from the sport.

In recent years there has been an increase in non-sport research on coping in adolescence (e.g., Frydenberg & Lewis, 1994; Phelps & Jarvis, 1994). However, very little attention has been given to examining the differences in the coping processes of adults and adolescents. Hence, there is a need to determine any age differences in the stress and coping processes in sport, with implications for developing stress management skills and programs.

Another area that has received minimal attention by researchers in the area of stress and coping in sport has been gender. To date there has been little research examining gender differences and stress in sport. Researchers in the general psychology literature have identified differences in circumstances that may cause stress in males
and females, but have failed to examine how and why different types of stressors elicit intense stress in males and females (e.g., Aneshensel & Pearlin, 1987). Hence, there is a need to understand why there are gender differences in sources of intense acute stress.

Research in the area of gender and coping has also received minimal attention in the literature, however, researchers have demonstrated some differences in the coping styles of males and females (e.g., Belle, 1987; Madden, Kirkby & McDonald, 1989; Miller, 1987; Ptacek, Smith, & Dodge, 1994). Non-sport psychology research has presented equivocal results. For example, Frydenberg & Lewis (1991) found no gender differences in the level of problem-solving coping. This was in contrast to previous literature (Folkman & Lazarus, 1980; Patterson & McCubbin, 1987; Stone & Neale, 1984) in which males utilised problem-focused coping more frequently than females, who preferred to employ emotion-focused responses. Also, some studies have indicated that people prefer to use certain strategies in preference to others regardless of the situation (e.g., Siddle, Adams, & Cady, 1969), whilst others have reported a more variable use of coping responses by individuals (Folkman & Lazarus, 1980; Stern & Zevon, 1990). These discrepancies between studies indicate a need to further examine the influence of gender on the coping process, particularly among athletes. The research that has been conducted on coping and gender has also been focused almost solely on participants in non-sporting settings, and on coping with chronic rather than acute stress. In light of these limitations, identifying the sources of acute stress, stress intensity levels, and coping strategies of male and female athletes to deal with this stress appears warranted.

Thus, Study 1 investigated sources of acute stress and coping styles of male and female adolescent athletes, in contrast to older, more mature competitors. Furthermore, the role of selected personal dispositions as predictors of the coping process was also examined. Study 2 was undertaken to develop a stress management
program tailored specifically for adolescent athletes based on the measures obtained in Study 1 (i.e., intensity of acute stressors and coping strategies). It was hypothesised that if adolescent athletes were taught stress management techniques which focused on their specific needs, the frequency and intensity of stress responses to acute stressors would be lessened. The primary implication of this study was that effective stress reduction would result in less frequent withdrawal of adolescent athletes from sport.

**Purpose of the Study**

Although stress and coping have been studied extensively in the general psychology literature, relatively little attention has been given to these areas by researchers in sport psychology. This is particularly true with respect to adolescent age athletes. Thus, adolescent stress and coping in sport was the main focus of this thesis. A secondary focus involved comparing adolescent and adult athletes to determine differences between the age groups in the sources of acute stress, and selected psychological dispositions that may describe and predict the use of coping strategies. Comparisons between males and females were also conducted to gain further insight into the coping process as a function of gender.

The present studies were undertaken because of a need to overcome shortcomings of past research. These limitations include an apparent absence of research examining the areas of acute stress, coping, self-confidence, and perfectionism in adolescent athletes, and a failure provide an insight into the associations between these factors. The implications for determining the strength of their relationships include implementing appropriate and effective intervention programs aimed at alleviating stress, preventing withdrawal from sport, and helping athletes to attain optimal performance.
The main purposes of the Study 1 were: (1) to examine the use of coping strategies following different acute stress conditions; (2) to investigate the extent to which preferred coping strategies were linked to the personal dispositions of perfectionism and self-confidence and to different types of acute stress sources; and (3) to examine differences in sources of acute stress and preferred coping styles as a function of age (adults and adolescents) and gender.

The purpose of Study 2 was to examine the effectiveness of a stress management program that was developed for adolescent female athletes from the first study in reducing or eliminating intense acute stress experienced during competition. The study drew heavily from models that have been presented and tested in past sport psychology literature, with a particular focus on Meichenbaum's (1985) Stress Inoculation Training program (SIT) and Anshel's (1990) COPE model for coping with acute stress in sport.

The second study focused specifically on stress management effectiveness for adolescent female athletes and examined a program that was developed for this group based on data obtained in Study 1. This included sources of intense acute stress, the subject's typical coping strategies, and selected psychological dispositions (perfectionism and trait self-confidence) that commonly influence their responses to acute stress.

**Hypotheses**

In the present study the following directional hypotheses were tested:

1. The intensity of stress occurring as a result of selected stressors will differ significantly among groups:
a) Males and females will differ significantly in stress sources and levels of stress intensity.

b) Adolescent and adult athletes will differ significantly in stress sources and levels of stress intensity.

Gender differences in stress intensity levels and sources of stress have been indicated in general psychology literature (e.g., Belle, 1987). However, there have been no investigations concerned with gender differences in acute stress sources in sport. Thus, past literature that examined males and females separately were used as a guide to predict gender differences (e.g., Cohn, 1990; Scanlan & Passer, 1978; Scanlan & Passer, 1984) in the present study. Specifically, it was expected that males would experience the most intense stress in reaction to stressors related to performing poorly and making mistakes, whilst females would be more intensely stressed by sources based on social factors (e.g., significant others, evaluation).

Although there have been a number of studies conducted on sources of stress in adolescents in both general and sport psychology literature, adolescent and adult differences in stress sources have not been examined. Thus, findings from the separate studies on each age group were used as the basis of the predictions about sources of stress in the present study. Cohn (1990) and Scanlan & Passer (1989) found that the sources of intense stress reported most frequently by adolescent athletes involved losing, making mistakes or performing poorly, and social evaluation (e.g., worrying about how their parents, coach or teammates thought, or things that they said). It was expected that these types of sources would also elicit intense stress in the adolescents questioned in Study 1. It was predicted that adults would also experience intense stress after performing poorly or making errors, but would not be as affected as the younger athletes by the social stressors, particularly those related to the parents and the coach. It was believed that whilst these significant others play an
important and influential role in adolescent athlete's sporting endeavours (Scanlan & Lewthwaite, 1984) their role is minimal when most athletes are adults.

2. Groups will differ significantly in their use of coping strategies in response to stress:

   a) Males and females will differ significantly in their use of coping strategies.

   b) There will be significant differences in the coping strategies typically employed by adolescent and adult athletes.

The general psychology literature (e.g., Frydenberg & Lewis, 1991; Stone & Neale, 1984) has reported differences in the ways that males and females cope with various stressors. Some of the patterns that have emerged when examining gender differences are that: 1) females employ more emotion-focused coping strategies than males (Frydenberg & Lewis, 1991; Ptacek et al., 1994; Ptacek, Smith, & Zanas, 1992); 2) females tend to utilise more social support as a means of coping with stress than males (Ptacek et al., 1992; Stone & Neale, 1984); and 3) males use more "direct action" to the problem, that is, problem-focused coping, than females (Folkman & Lazarus, 1980; Frydenberg & Lewis, 1991). Although there has been very little investigation into gender differences and coping in competitive sport, particularly in response to acute stress, the results of past studies have suggested the direction for future predictions. Thus, it was expected that gender differences documented in other achievement situations would also be present among sports competitors.

To date there have only been a limited number of reliable and valid measures used to assess the coping strategies of adolescents (e.g., Adolescent Coping Checklist,
Frydenberg, 1993). Folkman et al. (1986), however, found significant age differences in the types of coping strategies typically selected in response to stress. Irion and Blanchard-Fields (1987), in their cross-sectional study, found support for the "growth hypothesis", which suggests that older adults become "...more affective copers and distort reality less frequently than younger adults" (p. 502). They indicated that adolescents used more hostile reaction, escape-avoidance, distancing, and self-blame strategies than adults. Compas (1987) also suggested that an individual's developmental level, specifically their level of formal operational thinking, influences the choice of strategies. Furthermore, Spivak and Shure (1985) indicated that interpersonal cognitive problem solving skills may differ in their significance as a function of age, and therefore, cause differences in the use of problem-focused coping strategies. In light of these findings, it was predicted that there would be significant differences in the most frequently utilised coping strategies of adults and adolescents in the present study.

3a i). Trait self-confidence (SC-trait) will be a significant predictor of gender.

Studies on gender and self-confidence have shown that females tend to doubt their performance capabilities if a task is considered to be "sex-role inappropriate", if it is a task that is socially comparative or if clear performance feedback is not present (Corbin, 1981; Feather & Simon, 1973; Lenney, 1977). All of these factors, which are likely to be present in many sporting situations, may contribute to a lack of self-confidence in females (Corbin, 1981).

Comparisons between males and females on self-confidence (e.g, Corbin, 1981) have found that females experience lower confidence levels than males, even when a task is neutral in orientation. Thus, it was predicted in the present study that males and females would demonstrate significant differences in self-confidence, as measured by
the SC-Trait Inventory (Vealey, 1986). Specifically, it was expected that females would display significantly lower trait self-confidence than males.

3a ii) Trait self-confidence (SC-trait) will be a significant predictor of gender (male and female) stress intensity and coping responses.

Although no clear links have been identified between self-confidence and stress, researchers such as Carver and Scheier (1994) suggested that confidence, as opposed to doubt (about one's ability) was an important aspect of the phenomenology of a stressful transaction. In the present study it was predicted that trait self-confidence would differ significantly as a function of gender, and that there would be differences between males and females in stress intensity and coping responses. Because of the expected gender differences for these variables, and the belief that there is an association between stress and confidence, it was expected that stress intensity and coping will be predicted by SC-trait scores.

3b i) Perfectionism will be a significant predictor of gender (males vs. females)

There has been little investigation into possible gender differences in levels of perfectionism. It has, however, been predicted that perfectionism would be correlated with factors such as evaluation anxiety, social anxiety and apprehension (Burns, 1980; Frost & Marten, 1990). Perfectionism, similar to self-confidence, is a construct concerned with self-evaluation and a match between performance and a standard. Perfectionists also blame themselves for every mistake and defeat. This often results in a reduction in self-confidence (Bunker & Williams, 1986). In light of these associations between the dispositions it is expected that perfectionism and trait self-confidence will be predictors of gender. Because of the expected association between

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perfectionism and confidence and the documented fact that females experience lower self-confidence than males it was predicted that females will have higher scores on aspects of perfectionism than males.

3b ii) Perfectionism will be a significant predictor of gender for stress intensity and coping responses.

Frost and Henderson (1991) found that perfectionism was positively associated with anxiety in competitive sport. This provided support for their hypothesis that perfectionists view evaluated performance as an opportunity to fail, and feel threatened in those situations. Feelings of threat often result in the perfectionistic athlete experiencing stress. As it has been predicted that perfectionism will differ significantly as a function of gender, and that there will be differences between males and females in stress intensity it is expected that this intensity will be able to be predicted by perfectionism scores.

Because perfectionism may be responsible, at least in part, for the selection of coping responses, with perfectionistic athletes reacting badly to errors, problems or challenges, it was also expected that participants recording high scores on perfectionism measures would employ different coping responses to those with low perfectionism scores.

STUDY 2:

1a). Participants in the stress management training (experimental) group will have lower stress scores on the SACL after experiencing a four week stress management intervention, as compared to the placebo and control (no-treatment) groups.
This hypothesis was predicted on the basis of past literature on the application and effectiveness of various stress management programs in sport (e.g., Anshel, 1990; Anshel, Brown, & Brown, 1993; Mace & Carrol, 1985; Suinn, 1987). These studies have provided some evidence for the effective use of stress management programs to reduce or at least minimise stress experienced in sport settings.

Previous researchers have used established stress management programs in their investigations, and, therefore, have failed to design the programs with consideration for individual differences. It was thus predicted that the use of a specific program based on past, effective stress management programs, but tailored to the requirements of the target group participating in the study would be more effective in reducing levels of acute stress than a general program.

1b). Participants in the stress management (experimental) group will differ in their responses to interview questions about stress and coping after a four week stress management intervention than the placebo and control groups:

i) Participants in the experimental group will report a larger number of differences in the types of coping strategies used between the pre- and post-interviews than participants in the control and placebo groups.

It was expected that there would be more differences in the types of coping strategies employed by the experimental group because they would be exposed to a variety of techniques that they had not previously encountered. The stress management program was designed to increase their coping repertoire, whilst focusing on their needs and requirements. Stress arises when an imbalance occurs between the demands of the situation and an athlete's perceived resources (Lazarus & Folkman, 1984). It was expected that exposing the participants to such a program would increase their coping resources. As participants in the control and placebo groups were not exposed to any
new coping techniques it was expected that they would not exhibit any changes in the strategies they used in the period between the pre- and post- interviews.

ii) **Participants in the experimental group will report significantly greater improvements in the effectiveness of coping strategies after the four-week stress management intervention than participants in the control and placebo groups.**

Researchers, including Anshel (1990), Crocker, Alderman, and Smith (1988), and Smith (1980), found that various stress management programs taught athletes to effectively manage stress. It was expected that teaching participants to cope with acute stress, and teaching them which strategies are most appropriate to use in certain situations, would result in more effective coping. The evidence of this outcome would be based on reductions in stress intensity. The athletes in the control and placebo groups who did not receive a stress management intervention they were not expected to display any marked changes in the effectiveness of the coping strategies they used (i.e. 'effectiveness' scores in the interviews will not differ significantly between the pre- and post-interviews).

iii) **Participants in the experimental group will report significantly greater reductions in perceived stress intensity after the four week stress management intervention than participants in the placebo and control groups.**

This hypothesis was based on past literature that found support for the use of stress management programs to improve coping skills and reduce stress (e.g., Anshel, et al., 1993; Crocker et al., 1988; Smith, 1980). It was believed that participants in the experimental group would increase their coping resources and improve their coping effectiveness after exposure to the four week stress management intervention. It was
expected that one result of these coping improvements would be a decrease in the perceived intensity of acute stress occurring during a game.

**Definitions of Terms**

**Acute stress:** An individuals' emotional, somatic and cognitive reactions that immediately follow their exposure to a stimulus they perceive as threatening. This definition differs from chronic stress which is traditionally defined as persistent feelings such as threat and anxiety resulting from exposure to an ongoing stressor that lasts for weeks, months, or years.

**Adolescent:** A male or female aged between 13 and 18 years.

**Coping:** The cognitive and behavioural strategies used by individuals to manage situational demands that are perceived as exceeding the capabilities and resources of the person.

**Coping Strategies:** Conscious approaches used to mediate between situations that are perceived as stressful and emotions, somatic responses and performance.

**Coping style:** Combinations of cognitions and behaviours that characterise a person's typical responses to stressful conditions either across different situations or over time within a given situation.

**Emotion-focused coping response:** A conscious response that is aimed at reducing or managing the emotional distress that is associated with the stressful event.

**Perfectionism:** The setting of excessively high standards of performance and the associated tendency to be overly critical when evaluating one's own behaviour.
**Problem-focused coping response:** A reaction that involves efforts that are intended to act on the stressor. This type of response includes attempts to change the troubled person-environment relationship by focusing on problem solving or doing something to alter the source of stress.

**Stressor:** Any event or situation that causes a person to feel threatened in some way and to subsequently experience feelings of stress.

**Trait sport-confidence (SC - Trait):** The belief or degree of certainty individuals usually possess about their ability to be successful in sport.

**Assumptions**

In the present study it was assumed that:

1. All participants possessed the ability to read, understand and complete all questionnaires. This assumption is based on the content validity check in which three 14 year-old participants successfully and accurately completed the questionnaires as a means of assessing their appropriateness for this younger age group (13 years is the youngest possible age to be examined in the present investigation).

2. Participants answered items in questionnaires honestly.

3. Participants utilised the coping techniques taught to them in the stress management program during games during the intervention period to help to reduce or minimise the intensity of acute stress they experienced.
4. A reduction in stress scores (SACL) from pre- to post-tests, and changes in responses to the pre- and post-interviews (e.g., increases in the number of coping strategies employed and increased coping effectiveness), would be the result of participants employing the coping skills they learned in the stress management program.

**Delimitations of the Study**

1. This study examined the personal dispositions of trait self-confidence and perfectionism in the belief that these would influence stress intensity and the coping strategies used by the participants in response to acute stressors. There are numerous other dispositions that may also influence coping responses and stress intensity, however, these were not considered in this investigation.

2. Rather than investigating both individual and team sports, the selection of sports to be examined in the study was restricted to team sports.

3. The sample used in Study 2 was restricted to one organisation in New South Wales, Australia, and therefore cannot be generalised to other samples.

**Limitations of the Study**

1. Although the surveys in Study 1 were selected because of their appropriateness for examination of the chosen variables in this study, they possessed inherent limitations. For example, although the Multidimensional Perfectionism Scale (MPS) is a reliable and valid measure of perfectionism it was not constructed for athletes. In addition, neither the MPS, or Vealey's Trait - Sport Confidence Inventory had not been validated for Australians.
2. Although participants were specifically asked to answer all self-report questions honestly in Study 1, it can be expected that a minority of the participants did not do so. Typically, in studies involving the administration of questionnaires it has been suggested that factors such as repression, lack of self-disclosure, and social desirability often influence responses, particularly on anxiety and stress inventories.

3. Although an attempt was made to control the pre-test conditions concerning stress management in Study 2 it was not possible to eliminate all stressors occurring outside the sporting environment. External stressors such as family, school, or social problems that were stressful for the participants, may have affected the ways that participants were affected by acute stressors experienced during sport competition. As a result, the stress scores in both the pre- and post-tests, and the responses given in the interviews may, to some extent, have been inadvertently affected by these uncontrollable factors.

4. The results of this study do not represent athletes in all team sports and should not be generalised to sports not included in this investigation. Also, the findings from this study cannot be generalised to other age groups.
REVIEW OF LITERATURE

Stress - A Brief Overview

Stress is a topic that has become a major concern in today's society. People are continually exposed to stressors that cause them to experience symptoms such as anxiety, tension, fatigue, and exhaustion. These symptoms, in turn, affect many different aspects of peoples' lives. The types of situations that provoke stress and the associated reactions to it vary amongst individuals. Stress does not depend solely on aspects of an individual or of the environment, but rather is the result of the perceived interplay between the two (Smith, 1986a). The key determinants of stress, therefore, are the individuals' subjective appraisal of both the situation and of their ability to respond to it effectively.

Stress arises when an individual is confronted with demands that impinge on their cognitive processes (Lazarus & Folkman, 1984). When this occurs, their appraisal of the situation and their ability to cope results in a greater awareness of some deviation from normal functioning. Stress may result when individuals perceive that their well-being is under threat, being challenged, or being harmed in some way. This type of appraisal is associated with a desire for resolution and usually provides motivation and direction for coping (Dewe, Cox, & Ferguson, 1993).

Another antecedent of stress is a person's expectations of the consequences of failure to successfully meet the demands of the situation. According to Cox (1978), something must be at stake for a situation to give rise to stress. If situational demands are ignored by the individual, or are fulfilled inadequately without any "serious" consequences, the demands will not be viewed as threatening. As a result stress will
not be experienced, even if the demands are known to exceed the person's response capabilities.

In past literature, two types of stress have been distinguished, chronic and acute. Chronic stress results from an individual being exposed to one or more stressors that continue to arise frequently over a period of time. This type of stressor can cause an individual to experience persistent unpleasant feelings that last from a few minutes to weeks, months, or years. Examples of chronic stressors that commonly occur in sport are meeting the expectations of a coach or parent, attempts to fulfil personal goals, and anxiety about success and failure. If a person is exposed to chronic stress the result may be a reduction in motivation to participate in sport, performance decrements, burnout, and possible withdrawal from sport altogether (Smith, 1986a).

Acute stress is more temporary, usually occurs within a few minutes of an encounter with a stressor and lasts for only a short period of time. In addition to the numerous types of chronic stressors that athletes may be exposed to during sport, there are a large variety of acute sources that may also elicit stress. Anshel (1990) identified some of the acute stressors that may arise in a sporting environment. Examples include pain, experiencing an injury, making a physical and mental performance error, reacting to the sudden success of an opponent, contending with the poor judgement of an official, and receiving unpleasant input from observers, coaches, opponents or teammates. These types of stressors can cause an athlete to feel threatened and, as a consequence, experience acute stress within a short period of time after exposure to them. According to Anshel (1990), acute stress can be inherently debilitating to immediate subsequent performance if the individual has no skills to deal effectively with the stressor. Being subjected to acute stress during a competitive event can negatively effect a number of cognitive and psycho-physiological processes, including concentration, attentional focus, arousal, and muscular tension (Lazarus & Folkman, 1984; Smith, 1980). Smith (1986) also reported that failure to cope constructively
with acute stress associated with athletic competition can result in ineffective cognitive processing, energy reduction, performance decrements, and other debilitating outcomes that are highly undesirable in a sporting situation.

**Stress in Sport**

Sport is one area in which acute stressors arise frequently and cause various cognitive, emotional, and somatic responses. Sporting competition has the potential to be extremely stressful because of the demands often placed on athletes to be successful. Furthermore, during competition athletes are often evaluated in a public arena whilst facing any number of potentially stressful situations. This type of situation can cause athletes to perceive an imbalance between the performance demands of competition and their ability to deal successfully with these demands. This imbalance, combined with the expected consequences of failure may result in feelings of personal threat and stress.

**Sources of Stress**

Not all athletes experience similar levels of stress intensity during athletic competition, and athletes differ on the competitive situations that induce stress. Therefore, it is important to identify the factors that lead to feelings of inadequacy, threat, and stress when examining the coping process. Sources of stress in competitive sport have been well documented in past literature, with a number of situations recurring as dominant sources of stress in the majority of the research. For example, Gould, Horn, and Spreeman (1983) assessed perceived sources of stress in junior elite wrestlers. A sample of 458 wrestlers (13-19 yrs) were required to rate the frequency with which they usually experienced various sources of stress. The results of this study, consistent with an earlier study on stress in youth athletes from various sports (Pierce & Stratton, 1981), were that the major sources of stress were trying to
perform up to one's ability, improving on one's last performance, not performing well, and losing. The study by Gould et al. also revealed that there was no single source or combination of stress sources that were experienced frequently by all athletes. This indicated that large individual differences exist in the sources of stress in athletes.

Scanlan and Lewthwaite (1984) also examined sources of stress in youth athletes. They specifically examined the influence and stability of individual and situational factors on the competitive stress experienced by athletes on pre- and post-match Competitive State Anxiety Inventory (CSAI) questionnaires. The most significant findings of this study were that competitive trait anxiety and personal performance expectancies were influential predictors of prematch stress. Additionally, win-loss record and the amount of fun experienced whilst competing were the most salient predictors of post-match stress.

Scanlan and Passer (1978) investigated sources of competitive stress in male youth athletes (11-12 years) by assessing potential stress factors at preseason, pregame and postgame periods. They found that factors such as the win/loss record of a game, the amount of fun experienced during the competition, and the perceived importance of a game win all significantly influenced post-game stress. The athlete's perceptions of the adequacy of their response in meeting the competitive demands of the sporting situation were also related to stress experienced.

Scanlan and Passer (1984) conducted another investigation on sources of stress in sport that focused on 10-12 year old female athletes. A number of factors believed to be related to competitive stress, including competitive trait anxiety, self-esteem, and state anxiety, were assessed during preseason, midseason, pregame, and postgame periods. The Spielberger State Anxiety Inventory for Children (STAI-C) was used to assess pre- and post-game competitive stress. The study identified some consistent findings with regard to sources of competitive stress. Factors such as losing, the
amount of fun experienced, performing well (and up to personal standards), and parental pressure, were all rated as sources that caused frequent and intense stress in the athletes. It was also found that fun, or satisfaction, and competitive stress were related. One possible result of this relationship is that satisfaction is a factor that could influence the impact of the success-failure variable. The fact that both studies conducted by Scanlan and Passer (1978, 1984) yielded similar results suggested that the sources of competitive stress that are most commonly experienced by both young male and female athletes are similar. A review of the two studies indicated that for both males and females intrapersonal factors such as high competitive trait anxiety, low self-esteem, and high basal state anxiety were primarily related to pre-game competitive stress. The only finding that indicated sex differences was that self- or personal performance expectancies accounted for different amounts of pregame stress with this factor only accounting for 2% of the boys pre-game stress variance, but being a significant predictor of stress in the female athletes.

Most of the research about the types of stressors experienced by athletes has indicated similar results. The most prevailing sources of stress in adolescent sport in the majority of the literature (e.g., Gould et al., 1983; Pierce & Stratton, 1981, Scanlan & Lewthwaite, 1984; Scanlan & Passer, 1978, 1984) have been not playing well, making mistakes, social evaluation (from coaches, parents and/or peers), and losing. A number of other, less significant stressors that still affect some athletes have been identified. These include not having fun, trying to perform up to personal standards, playing in poor weather, and feeling pain/injury. Despite the identification of common stressors by these researchers, most studies indicated that there were large individual differences in perceived sources of stress. It was indicated, in general, that no single stressor or combination of stressors is experienced frequently by all athletes. Some stressors cause intense stress in a large number of athletes, but there are usually some groups that do not consider the same sources to be stressful.
The majority of the studies examining sources of stress in sport have only examined pre-game and/or post-game stress and have failed to investigate the sources of stress that arise during a game. These past studies have also focused on chronic stressors, with little attention given to acute stress. Cohn (1990) overcame some of these limitations by using guided interviews to ascertain the most frequent sources of stress in high school golfers, as well as possible causes of burnout in golf. The interviews were designed to elicit information about pre- and post-match stress. The guided interviews included questions that elicited information on sources of competitive stress, the demands and costs of competing and practicing, sport-related personal struggles (on and off-the field), and relationships with significant others. The most frequently indicated sources of stress identified in this study were: (a) trying to perform up to personal standards, (b) playing difficult shots, (c) performing in front of a crowd, (d) practicing less than desired, (e) playing in poor weather, and (f) striving to meet parental expectations. These stressors are comparable to those reported by youths in other sports. The results differed to past studies, however, because of the inclusion of acute stressors in this investigation.

The influence of significant others on the perceptions and stress levels of youth athletes is an issue that has also received attention previous studies. For example, Gould, Horn, and Spreeman (1983) identified social evaluation, which loaded heavily on items dealing with a concern about evaluation by significant others, as a major source of stress in junior wrestlers. Scanlan and Lewthwaite (1984) also found that perceived parental pressure to participate in sport was related to acute stress reactions before competing. Social evaluation inherent in youth sport is often gained from significant adult influences, such as parents and coaches, and through players' comparisons of themselves with team-mates and opponents. If an individual feels a sense of personal inadequacy in successfully meeting the demands of the situation, their self-esteem may be threatened and stress may result. Such inadequacies may occur in sport because competition typically involves frequent evaluation. Adults play
a central role in conveying and interpreting information about situations and individuals to young athletes. It is, therefore, apparent that parents and coaches play a very influential role in the shaping of athletes' sport-related perceptions, including the perception of threat.

The ways that an athlete deals with and responds to stressors can impact immediately on the individual and the competitive situation. Failure to cope with and respond constructively to acute stress may result in problems such as ineffective cognitive processing, energy reduction, and lessened performance standards (Smith, 1986a). Being able to cope effectively with acute stress is of particular importance when in a situation that involves rapid decision-making and responding. If an athlete is affected by an acute stressor to the extent that he/she is unable to regain their composure, re-establish their psychological readiness for performance, or regain their optimal levels of arousal and concentration, sport performance will be inhibited. If, however, the athlete is able to consciously reduce, tolerate or eliminate the perceived threat posed by a stressful condition through the use of coping strategies that have been practiced and mastered, performance is less likely to suffer.

It is important, therefore, to identify the sources of acute stress that have potential deleterious effects on performance during competition. If sources of intense acute stress are established it may be possible to help athletes to focus on techniques that can help an athlete to cope effectively. Thus, any negative consequences caused by exposure to acute stressors that may affect their performance may be minimised.

Coping and Appraisal

An important strategy for fostering both sport success and continued sport participation is to develop skills for coping effectively with acute stress. Coping is defined as "...constantly changing cognitive and behavioural efforts to manage specific
external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p.141). Alternatively, Dewe, Cox, and Ferguson (1993) defined coping as, "the cognitions and behaviours, adopted by the individual following the recognition of a stressful encounter, that are in some way designed to deal with that encounter or its consequences" (Dewe et al., 1993, p.7). This definition identifies a number of themes that are consistent with previously identified coping themes. First, coping should be viewed as relational. That is, it reflects a relationship between a person and the environment. Second, coping is a process, in contrast to the more traditional trait-content oriented approaches (Cox, 1987). Lastly, coping should be viewed as integrative in nature, linking the other components of the stress process (Cox & Ferguson, 1991). A factor that is considered to be one of the starting points of the coping process is an individual's appraisal of the stimulus.

According to Lazarus & Folkman (1984), the key to their model of stress is the role of subjective appraisal, that is, the meaning of an event or situation to an individual. Coping is initiated in response to an appraisal. The two appraisal processes that occur before a coping response is employed are primary and secondary appraisal. Primary appraisal refers to what is at stake. It is the process by which individuals' evaluate the significance of a situation or event and decide whether it is a stressful encounter (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Greun, 1986). There are three types of primary appraisals, that depend on various situational and personal factors. Firstly, an encounter can be viewed as irrelevant, that is, the outcome of the event will have no effect on the person's well-being. The individual may also view the encounter as being benign-positive. In this situation the outcome is construed as preserving or enhancing their well-being. The third type of appraisal that can be made is a stress appraisal, where the person has already sustained damage, anticipates harm or loss, or believes that a situation poses a challenge (Lazarus & Folkman, 1984). It is this third type of appraisal that results in the mobilisation of coping responses.
Secondary appraisal refers to what an individual can do to deal with a situation in which there has been a primary appraisal of harm, loss, threat, or challenge made. It is the evaluation of the coping resources and strategies available to a person in a specific situation. Lazarus and Folkman (1984) explain secondary appraisal as being an evaluative process that takes into account which coping options are available, the likelihood that a given coping option will accomplish what it is supposed to, and the likelihood that one can apply a particular strategy or set of strategies effectively. The amount and intensity of stress that is experienced by an individual and the reactions to it are shaped by the interaction of both primary and secondary appraisals.

Coping is also initiated in response to primary and secondary appraisal. If a situation is appraised as being significant and stressful due to the belief that there is some kind of threat or challenge, and the resources have been evaluated as inadequate, intense stress is likely to occur. For example, if an athlete is competing in an event that they perceive as important (e.g., a game that could determine whether they are selected in a state team) and they are being evaluated by significant others, they may believe that this situation is threatening and experience stress. If they also believe that they are not going to be able to cope effectively with the pressure to perform their best, the stress may intensify. If, however, the person believes that they have adequate resources and can exert some control over the situation, a coping response or series of responses will be employed, and the amount and intensity of stress is likely to be reduced or minimised. In the above situation, the athlete may believe that they can use some stress management skills (e.g., relaxation, focusing, distraction) to cope with the possible threat of the event. They may then feel that they have some control over the situation because they will be able cope with any stress that may arise, and then concentrate on executing the necessary skills.
Self-control and Coping with Acute Stress

Despite some equivocal findings in past literature, self-control is considered to be one of the most fundamental and important issues in coping with acute stress (Anshel, 1990). Successful coping in sport is a function of an athlete's perception of self-control in a situation. Control is considered to be, "...a generalised belief of an individual concerning the extent to which he or she can control outcomes of importance and as a situational appraisal of the possibilities for control in a specific stressful encounter" (Folkman, 1984, p.839). According to Lazarus and Folkman (1984), "...the extent to which people feel confident of their powers of mastery over the environment or, alternatively, feel great vulnerability to harm in a world conceived as dangerous and hostile affects whether an encounter will produce threat or challenge appraisals (p.65)." Thus, if a person believes that they can exert some control over a potentially stressful situation, they will probably appraise it as being challenging, and are likely to implement successful coping responses. If, however, they do not believe that they can shape or influence the situation, the encounter will usually be appraised as threatening, and successful coping is unlikely to occur.

Most of the research on stress and self-control has concluded that perceptions of high controllability over performance outcomes appraised as aversive can be stress-reducing, and that feeling that one has no control usually results in increased stress intensity (Thompson, 1981). Conversely, the lack of perceived self-control may cause feelings of uncertainty. Situations which are perceived as uncertain can reduce confidence and positive expectancies about the outcome, hence increasing perceptions of threat, and stress (Folkman, 1984).

A number of researchers have, however, reported that believing that an event can be controlled does not always lead to a reduction in stress (see Thompson, 1981, for a review). It appears that the effect of self-control on stress depends largely on the
significance of the situation or event to each individual (Johnston & McCabe, 1993; McGrath, 1970, Sells, 1970). An event's importance depends on primary appraisals made about the situation.

Folkman (1984) believed that personal control could have multiple functions in any given stressful encounter for three reasons. Firstly, control can function as an antecedent variable, with beliefs and situational appraisals of control altering the degree to which an event is appraised as threatening, which, in turn, influences coping. Secondly, beliefs about control and appraisals can be influenced by either a single stressful transaction or a series of transactions. Folkman suggested that beliefs about control are reinforced by experience. In this way, control functions as an outcome variable. For example, if an athlete is about to lose an important game, but appraises the situation as challenging, employs effective coping skills, and wins the game, they are likely to experience feelings of control and reinforce the challenge appraisal. If similar situations arise in the future they are likely to make a similar appraisal and believe that they have greater control over the situation.

Lastly, control can also be considered to be a cognitive mediator of a stressful transaction and its adaptational outcome. That is, under different circumstances the perception that one is in control, or not in control, during a stressful encounter can lead to either positive or negative outcomes. People may also appraise an event as being uncontrollable when it can actually be controlled, or vice versa, and this can have a large influence on the stressful encounter and the outcome of the situation. For example, an athlete who appraises a game as being beyond their control (i.e., they don't believe they can win) may not train or prepare for the competition. Thus, potentially effective coping techniques will not be employed, enthusiasm and self-confidence will be low and the athlete will have given themselves even less chance of performing well in that game.
Meichenbaum (1985) reported that stress often occurs because a person’s subjective appraisal of their coping capacities reveals an absence of or an inability to effectively use the appropriate coping strategies. Athletes can increase their perceptions of self-control and efficacy through the effective use of appropriate, mastered coping strategies. Stress management programs designed to eliminate or minimise the negative effects of acute stress need to focus on building personal resources through self-control. The aim of increasing such resources is to: 1) make the athletes feel they have more control over situations they are involved in, 2) appraise a situation as being benign rather than negative, 3) deal effectively with stressors, and 4) subsequently focus on performing successfully rather than worrying about a stressor they cannot control. In one stress management program, the COPE model, (Anshel, 1990), control was a fundamental part which was aimed at increasing individual’s personal resources by teaching them coping techniques and strategies that could be used in potentially stressful encounters.

**Coping Strategies**

There has been a considerable amount of research on coping strategies in general psychology literature (e.g., Folkman & Lazarus, 1985; Spivak & Shure, 1985). Most of these studies examined how people cope with stress in work and educational situations and also investigated the role of coping in reducing the adverse psychological states associated with stress (e.g., Carver, Scheier, & Weintraub, 1989; Compas, 1987; Dewe et al., 1993). The amount of research in the area of stress in sport has increased in the past few years, with a few studies focusing on coping strategies used by elite athletes (e.g., Gould, Eklund & Jackson, 1993a; Gould, Finch, & Jackson, 1993b; Madden, Summers, & Brown, 1990).

Several investigations in the past five years have examined the coping strategies of athletes by using Madden et al’s (1990) adaptation of the Ways of Coping Checklist
For example, Madden, Kirkby and McDonald (1989) examined the use of coping strategies by 21 elite middle-distance runners if they experienced a slump in their competitive form. In this study, coping profiles were determined for international, national, and state level athletes. Comparisons were also made between age groups and gender. The most consistently reported strategies for coping with a performance slump were 'seeking social support', 'increased effort and resolve', and 'problem-focused coping'. Furthermore, the study revealed only a moderate correlation between level of competition and 'Focusing on the Positive' stratagems. The results indicated that as athletes achieved a higher level of competition they used less emotion-focused strategies (e.g., 'I express anger', 'accept sympathy or understanding from someone', or 'take a big chance and do something risky'). A comparison of gender revealed a sex effect for General Emotionality, indicating a higher propensity for emotional responses in females than males. One further finding was that age accounted for over 16% of the variance on the General Problem-focused coping scale. It was therefore concluded by the researchers that age was a moderate predictor of whether elite middle distance runners would use problem-focused, as opposed to emotion-focused coping strategies such as 'concentrating efforts on doing something about the problem', 'coming up with a strategy about what to do', or 'getting advice from someone about how to deal with the problem'. It was suggested that older athletes may have a greater knowledge of the application of problem-focused strategies than younger athletes and therefore utilised them more frequently and effectively.

In another study, Madden, Summers, and Brown (1990) examined the influence of perceived stress on coping in basketball. The data obtained from the WOCS and the Stressful Situations in Basketball Questionnaire (SSBQ) revealed patterns of coping related to low, mid, and high levels of perceived stress. Athletes who reported low levels of stress also indicated that they used fewer coping strategies than the players who experienced high levels of competitive stress. Low-stressed basketball players
reported using less effort and resolve, wishful thinking, general problem-focused coping, and emotionality than athletes reporting higher levels of stress. The finding that effort and resolve were used frequently by high-stressed athletes was explained by the fact that when an athlete experiences a slump in competitive form, strategies commonly believed to contribute to successful performance are usually employed. For instance, effort is described by most athletes as one of the four central attributions used to explain success in sport (Bukowski & Moore, 1980). The frequent use of general problem-focused coping strategies by high-stressed players was explained by the belief that these techniques would bring about a direct change in their performance, and therefore, help to overcome a slump. Examples of the types of problem-focused strategies used by the players were, taking action to deal with a problem, seeking advice from a coach or teammate about the problem, thinking about how they dealt with a similar problem in the past, and focusing efforts on doing something about the problem.

Although previous research on the coping strategies of athletes has provided valuable information about the coping process in sport there are a number of limitations in this research. One of the most important limitations is that in past studies athletes were asked to assess how they would cope with stress in hypothetical situations rather than in a stressful situation that they had actually experienced. An assessment of an actual event is more likely to result in the athletes recalling the ways they actually felt and responded during these situations. The assessment may therefore provide a more accurate description of the types of strategies athletes usually employ as well as the intensity of stress they experience during these types of situations (Gould, Finch, & Jackson, 1993b). There have also been limitations in the use of coping assessment instruments in the past, with an absence of appropriate sport-related measures limiting the understanding and investigation of coping during competition.
In an investigation on coping strategies in sport, Gould, Eklund and Jackson (1993a) conducted interviews with 20 members of the 1988 U.S. Olympic Wrestling Team regarding how they tried to cope with the stress they experienced during the Seoul Olympic Games. Qualitative analyses of the data revealed that the athletes used a variety of coping strategies, which were categorised into one of four general dimensions: thought control, task-focus, emotional control, and behavioural-based strategies. Of these, thought control strategies, defined as efforts by the wrestlers to impose order or constraint on their thought processes, were employed by the highest number of wrestlers (80%). Examples of thought control strategies are blocking distractions, positive thinking, coping thoughts, prayer, and perspective taking. The other three coping dimensions appeared in less of the responses (up to 40%). In support of past findings by Compas (1987) and Folkman and Lazarus (1985), Gould et al. found that the wrestlers utilised a number of strategies, often in combination rather than using single strategies or styles, when responding to a stressor.

Gould et al. (1993b) identified the coping strategies used by national champion figure skaters, and examined the relationship between coping strategies and particular stress sources. An analysis of interview transcripts found that the skaters did not employ only one type of coping strategy or style in all stressful situations. Rather, coping was found to be an ongoing process. Athletes were also found to consistently appraise and reappraise the demands of a situation, and initiated a variety of cognitive and behavioural coping responses, often simultaneously. The skaters reported the use of both emotion-focused responses (e.g., ignoring, negative and positive self-appraisals) and problem-focused strategies (e.g., training hard and smart, systematic relaxation focused on the stressor, and avoiding, changing or alleviating the stressor). The participants were also found to use both adaptive strategies (e.g., anxiety management, rational thinking, and self-talk) and, at times, strategies that were deemed to be maladaptive or dysfunctional (e.g. ignoring, isolation, and anger).
Maladaptive strategies were considered to be, in most situations, potentially destructive and detrimental to the athletes' performance and were, hence, undesirable. For example, in the Gould et al., (1993b) study, some athletes reported that they used maladaptive strategies such as excessive alcohol consumption, walking out of the ice rink, excessive sleep, and anger. An athlete who focuses on the distress or anger that may have resulted from a stressful situation, may impede their performance by being distracted from executing active coping efforts and movement beyond the emotion. Ignoring a stressor and mental disengagement, which may occur when an individual believes that there may be a poor coping outcome, could also be considered maladaptive at times. These strategies can also result in an athlete being distracted from employing an active, problem-focused coping response to deal with a stressor, and may even cause the person to give up any attempts to attain goals with which the stressor is interfering (Carver, Scheier, & Weintraub, 1989).

Another important finding by Gould et al., (1993b) was the link between the sources of stress encountered by athletes and the coping strategies they employ to alleviate these stressors. The researchers found that the type of strategies that were implemented depended on the specific stressors encountered. For example, when there were demands placed on the physical resources of the athletes the strategies that were used most frequently were rational thinking and self-talk. When the skaters were faced with psychological demands they implemented coping strategies such as precompetitive mental preparation, anxiety management and positive focus. Expectations and pressure to perform elicited coping responses such as adopting a positive focus, training hard and smart, rational thinking, and self-talk. Although some of the strategies used by the athletes to cope with each stress source were similar, the responses given by the highest percentages of participants for each stressor differed.
The investigation by Gould et al. (1993b) did possess a number of limitations that need to be addressed. The first was that only a small number of elite athletes were examined in the study. Results cannot, therefore be generalised to less skilled athletes. The study also did not include an assessment of the effectiveness of the coping strategies identified by subjects in reducing competitive stress and facilitating performance. Although this was not the focus of the investigation it could have provided more valuable insight into the coping strategies employed during competitive sport and clarify whether a strategy is adaptive or maladaptive.

Gould et al., (1993a) indicated a need for the education and psychological support of athletes who use potentially destructive maladaptive strategies. Learning appropriate and effective coping techniques through their involvement in a stress management program may also help to reduce the use of these responses and have a positive effect on the athlete's performances and feelings about their involvement in the sport. The information gained about the links between stressors and coping responses could be useful when developing and implementing stress management programs. The gathering of such information, and subsequent development of a stress management program are the basis of the present thesis. It appears that further investigation into this area is warranted.

**Coping Styles**

When examining stress in a sporting context it is useful to establish not only the individual techniques that athletes use to deal with a stressful situation, but also their styles, or tendencies, of coping that reflect their typical use of coping strategies. Coping styles are "methods of coping that characterise individuals' reactions to stress either across different situations or over time within a given situation" (Compas, 1987, p. 394). Styles are trait-like combinations of cognitions and behaviours expressed and/or described somewhat independently of the situation (Dewe, Cox, & Ferguson,
An individual's or group's style may reflect a person's tendency to respond in a particular way under a specific set of circumstances. The responses may also reflect the ways of coping preferred by individuals or specific groups because they are consistent with their personal values, beliefs, and goals (Compas, 1987). Coping strategies, as opposed to styles, are the cognitive or behavioural responses employed during the course of a particular stressful episode, (i.e., what the person actually does in a particular situation). Strategies, unlike an individual's style, often vary across time and context and can depend on the stressors encountered.

Roth and Cohen (1986) proposed a dichotomy of coping styles. They believed that some stressors are best handled by the use of an approach coping response and others via an avoidance response. It was suggested that using strategies from either an approach or an avoidance style would allow an athlete to cope with acute stress by helping them to regain their composure, establish psychological readiness to respond to subsequent stimuli, and to maintain optimal arousal and concentration. An approach strategy is most appropriate in situations where the individual must confront the stressor to cope with acute stress, when the situation is able to be controlled by the person, or when outcome measures are long-term. According to Roth and Cohen approach strategies facilitate improved performance through enhancing perceived control and perceived efficacy. The person's perceived capability for coping is increased when the discrepancy between the demand and the response capability is reduced.

In some instances, however, it is more appropriate to use an avoidance coping response and ignore or dissociate from the stressor (Roth & Cohen, 1986). This style is particularly useful when an athlete is in a situation where emotional resources are limited (e.g., having low self-confidence or low self-esteem), when the situation is appraised as stressful, and when the demand is perceived as being beyond the athletes' control (Johnston & McCabe, 1993). In such an event the avoider withdraws from the
situation. The demand is further reappraised as irrelevant, ignored by the athlete both psychologically and physically, and as a result, stress is minimised.

Roth and Cohen (1986) identified a number of advantages to both approach and avoidance orientations. They believed that there were many benefits to using an approach style. The first of these benefits was that in any situation where there is a possibility of affecting the nature of a threat, appropriate action is contingent on approach strategies. They also identified the fact that assimilation and resolution of threat and trauma into an integrated self-structure is only possible with approach coping. There are also significant potential costs of an approach orientation. Firstly, approach coping in response to threatening conditions can result in increased distress. For example, if an athlete believes that they have been penalised unfairly in a game and they approach the umpire and argue with them to try to change the situation, a further penalty may occur (e.g., player may be sent off the field) and stress will be increased. Second, non-productive and time-consuming worry may occur when an individual continues their attempts to approach the situation when there is little or no chance of changing the situation.

The costs of approach coping are not as numerous as those associated with avoidance coping. Avoidance coping responses can interfere with appropriate action when it may actually be possible to affect the threat and reduce the stress through approach responses. Avoidant strategies may also cause emotional numbness and unwanted intrusions of threatening material. Finally, there may be a lack of awareness of the relationship between symptoms and trauma that could result in the individual experiencing further stress or trauma. That is, if an individual is unaware of the cause of the stress and they use avoidance strategies to cope with a situation in which the symptoms must be attended to before effective coping can occur, stress will not be relieved. For example, if an athlete experiences a pain when competing but does not know why it is occurring they may use avoidance strategies such as ignoring the
stressor and continuing the game. If the source of the pain is an injury in a muscle or ligament that needs to be attended to, this avoidance could result in further injury to the area and more pain (i.e., further stress and trauma).

The use of avoidance techniques are not all negative, however. One benefit of avoidance strategies is stress reduction due to a gradual recognition of threat. Individuals can avoid the stress as much as they like but can also increase their exposure to the stressor each time it occurs. If they become aware of when the threat occurs they will be more likely to be able to prepare to cope effectively with this stressor. Partial, tentative, or minimal use of avoidance may also lead to increased hope and courage. Finally, through the use of avoidance strategies, individuals could achieve a sense of mastery over unpleasant emotions associated with the threat.

Based on the costs and benefits of approach and avoidance Roth and Cohen (1986) proposed an "ideal" case of coping with stress that showed how this coping process may operate at maximum effectiveness:

In this ideal case, both models of coping with stress would be operative, with the benefits of each realised and the costs of each minimised. Thus, adaptive coping efforts would be mobilised and maintained, and there would be a gradual assimilation and resolution of threat or trauma. Although there would be psychological retreats from threatening material, these would not be so consistent or complete as to be costly, and although there would undoubtedly be a significant amount of distress experienced in response to the threat or trauma, this would be time limited due to a successful working-through process (p. 818).

These coping style models represent the "best case scenario", providing a standard against which one can evaluate probable examples of effective coping in an
environment where resources are limited. The difficulty of resolving a situation in
which an individual is faced with threat is that resolution depends on both individual
and situational factors as well as the resources available to the person. These
resources include personal factors such as tolerance for anxiety, and sources of
support in the environment. The unavailability or limitation of such resources can
often cause an individual's coping attempts to be less effective than the "ideal"
example presented above. For example, an athlete who is continually making the
same performance error may not have the knowledge to improve their technique. If
they usually rely on their coach for advice on performance feedback and the coach is
not available, the technique may not improve and attempts to cope effectively with the
stress resulting from the errors is likely to continue, or even worsen.

There has been very minimal research conducted on the approach-avoidance
dichotomy in relation to coping with stress in sport. The studies that have
investigated this model have yielded some results that have supported it's use. For
example, Anshel (1990) utilised both approach and avoidance strategies for coping in
his COPE model of stress management. He found that some individuals prefer to
avoid anxiety arousing situations whilst others prefer to approach them in order to
reduce or minimise the threat and stress experienced. It was also explained that the
concepts of approach and avoidance are not mutually exclusive. Also, individuals can
experience rapid alternations between the two styles. Individuals may use an
approach strategy in a situation they believe they should be dealing directly with and
then use an avoidance strategy when faced with a subsequent stressor they feel they
should ignore. One stressor may even elicit the implementation of both types of
coping. If a person tries to avoid a stressor by ignoring it but it continues to arise and
cause stress it may be necessary to use an approach strategy to relieve the trauma. For
example, if the athlete with pain ignores the problem and continues in the game
(avoid the stressor), then experiences more intense pain they may have to approach
the situation and deal directly with the stressor before relief will occur. Anshel
concluded that a person's predisposition (e.g., personality, motivation, social skills, & self-control) and their preferred coping style interact to form an approach to the coping process that they are comfortable with.

The most recent and detailed study on approach-avoidance in sport was conducted by Johnston and McCabe (1993). They examined the efficacy of approach and avoidance strategies for coping with stress during sport. Some evidence was found to support the use of the approach-avoidance dichotomy when describing the ways people respond to stressful events during athletic competition. The use of the strategy that was most appropriate to the situation was found to enhance perceived capability and improved performance. It was concluded that stress management training and the use of appropriate coping strategies could lower stress and enhance sport performance.

Although Johnston and McCabe (1993) provided some evidence for the use of an appropriate coping strategy to reduce stress in specific sporting situations their study possessed a number of limitations. Firstly, the subjects participating in the study were all female university students who competed in only recreational sport. The results may not, therefore, be generalised to other groups (e.g., highly skilled athletes, males, adolescents). Secondly, only one type of coping strategy was taught to each group in the intervention. Although the study did indicate that the training and use of an appropriate coping strategy could lower stress and enhance performance, clear conclusions cannot be drawn on the efficacy of approach and avoidance strategies in all sporting situations. The implementation of a study in a field setting in which a greater variety of coping strategies can be taught may be more valuable than a study in which one strategy is implemented in one, non-competitive task.

Anshel (1990) and Johnston and McCabe (1993) have identified a need for further investigation into the approach-avoidance coping style dichotomy in sport. They suggested future research in field settings, the use of more homogeneous samples, in
terms of ability, and the examination of coping effectiveness as a function of style, preference, and situational demands. They did, however, support the use of the approach-avoidance dichotomy to identify and classify athletes coping styles.

The application of approach-avoidance coping styles is still in an exploratory stage, particularly in relation to sport. As a result, there are some limitations as well as advantages to applying this dichotomy to coping in sport. One limitation with examining categories of coping strategies is the oversimplification of only two basic orientations towards stress. For example, there are numerous types of approach and avoidance, and many different types of threat to approach or avoid. The major benefit of a simple dichotomy, however, is that it allows for the uncomplicated categorisation of potentially stressful demands. It also allows for the efficient selection of an appropriate coping strategy. For example, Carver and Scheier (1994) also believed that the classification and use of coping styles to predict coping reactions in given situations may be warranted because although coping can vary markedly across time and situations, people do tend to develop habitual ways of dealing with stress. Although there is still only minimal evidence supporting the use of dispositional coping styles for predicting responses to stress it is too premature to discount the idea that such styles influence situational coping. A dispositional style may influence situational coping at a certain phase of a coping transaction but not at others, or there could be a constant influence of a style. Individuals may employ a similar style of response when under stress and at all other phases of the transaction, regardless of it's relevance (Folkman & Lazarus, 1980). Despite the approach-avoidance dichotomy being a simple classification system for coping responses, other dimensions have also been used to delineate between strategies. One such dimension involves the classification of coping responses into one of two strategems, problem-focused or emotion focused coping (Folkman & Lazarus, 1985).
Problem- and Emotion-Focused Coping

Folkman and Lazarus (1985) have identified two types of coping styles that individuals may use when faced with a stressful situation that differs from Roth and Cohens' (1986) approach-avoidance framework. These coping response patterns are known as problem-focused coping and emotion-focused coping. Problem-focused coping includes all coping efforts that are intended to act on the stressor. This type of coping involves attempts to change the troubled person-environment relationship by focusing on problem solving or doing something to alter the source of stress. An example of problem-focused coping in sport is when an athlete uses an analysis of past performances to come up with different approaches to the game or different game plays. By initiating these new approaches the athlete may be able to avoid a stressful situation. In contrast, emotion-focused coping is aimed at reducing or managing the emotional distress that is associated with the stressful event. The basic premise of this style is that adjustment or adaptation can be facilitated by emotional regulation achieved through avoiding the stressor, cognitively reframing the stressor, or selectively attending to the positive aspects of the self or situation (Compas, 1987). This type of behaviour involves either a direct or defensive reappraisal of the stressful event and the emotional reaction provoked by it that is altered by the way the event is reinterpreted. Examples of emotion-focused coping include denial, humour, wishful thinking, religious faith, and attentional avoidance (Madden et al., 1990).

Studies of child and adolescent coping in general psychology literature have suggested that both problem- and emotion-focused coping are necessary for successful adaptation to stress. For example, Spivack & Shure (cited in Compas, 1987) cite cognitive problem solving as one type of problem-focused coping. This type of coping involves an individual recognising a problem and implementing cognitive problem-solving skills such as the generation of alternative solutions, means to an end thinking, and social causal thinking, to cope with the situation. They further indicated
that different coping responses aimed at the regulation of emotions, emotion-focused coping, may also be important to positive adjustment. Suls and Fletcher (1985) reported that the importance of problem- and emotion-focused coping may vary, depending on the type of stress and point in time the stress occurs. Studies with adults (e.g., Folkman & Lazarus, 1985) have also indicated that both problem- and emotion-focused coping are used during most stressful episodes. In a sport example, an athlete may make a physical error whilst competing in a hockey game. Their initial coping response may be emotion-focused, with the individual worrying about the mistake, or getting angry about it. After these emotion-based responses the athlete may employ a problem-focused strategy such as asking the coach for advice about the situation or going over the event in their mind so that it doesn't happen again.

Numerous studies (e.g., Folkman & Lazarus, 1985; Folkman et al., 1986; Scheier, Weintraub, & Carver, 1986) have found that although the discrimination between these two coping dimensions is important and useful, it may be too simplistic and inadequate in describing the qualitative differences between various classes of coping. These researchers believe that there are factors other than problem-focused coping that could be variations on emotion-focused coping (Carver, Scheier, & Weintraub, 1989). Activities such as planning, seeking assistance, and taking direct action are all problem-focused coping responses, but they could also be considered to be distinct activities. Numerous strategies that are often included in the definition of emotion-focused coping are also very different from one another and may in fact be worthwhile investigating separately. These strategies include denial, positive reinterpretation of events, and seeking social support.

Lazarus & Folkman (1984) used these two general dimensions as a conceptual guide for the Ways of Coping Checklist. They found that responses to this scale formed several factors rather than only the two dimensions (problem- and emotion-focused coping). These included wishful thinking, detachment, self-blame, emphasising the
positive, and problem focused coping. Folkman, Lazarus, Dunkel-Shetter, Delongis, and Gruen (1986) identified slightly different categories of coping including confrontation, distancing, and escape-avoidance. The problem/emotion-focused dichotomy is still, however, used when a simple classification of coping strategies and styles is required. For the simplicity of classification, this dichotomy will be used in this study when examining coping with stress in sport.

**Gender, Stress, and Coping**

Gender has been cited as being an important mediator in an individual's selection of coping strategies and coping styles (e.g., Belle, 1987). Despite the possible significance of gender differences, gender differences have rarely been the primary focus of studies on stress and coping. The most common reasons for assuming that there are gender differences in stress and coping are the physiological, environmental, and cultural differences associated with a person's sex. It is believed that these variables have a significant impact on both stress intensity and coping (Aneshensel & Pearlin, 1987).

Current evidence for gender differences in coping styles and strategies includes studies that have examined what Miller (1987) refers to as an informational style. She proposed that when individuals are placed in a threatening situation they will employ one of two informational modes of coping, monitoring or blunting. Monitoring involves, "... being alert for and sensitised to threat-relevant information", whilst blunting includes "...cognitive avoidance and transformation of threat-relevant cues" (Miller, 1987). Miller reported that women were more likely than men to use blunting (distraction) to cope with stress in a number of situations, whilst males seek more information about the situation (monitoring). Stone and Neale (1984) provided further support for the notion that females use more distraction coping than males.
They found that females preferred to forget about a stressful situation, whilst males were more likely to seek information about the situation and talk to others.

Gender differences in self-monitoring and self-regulation are other areas that have been examined in the coping literature. Carver and Ganellen (cited in Barnett, Biener & Baruch, 1987) found that when responding to hypothetical failures females engaged in more self-criticism than males. Females, as opposed to males, also tended to overgeneralise self-critical statements and were more self-consoling.

In the literature on adult coping and gender, the majority of empirical evidence supports the notion that males deal with problems more directly than females (Stone & Neale, 1984). For example, when assessing coping options, males report a higher percentage of appraisals which lead to direct action and a lower percentage of appraisals which inhibit action than females (Frydenberg & Lewis, 1991). In addition, females are less likely than males to seek additional information about a situation or event that causes stress. Females are also less likely to get involved in alternate activities to reduce tension, and are more likely to expect the worst.

Ptacek, Smith, and Dodge (1994) conducted a study in which sex differences were examined where the effects of event type were controlled. That is, the nature of the stressful event examined was constant for men and women. This was done to determine whether males and females would use different or similar coping strategies to deal with an identical stressful event. They found that despite similar appraisals, males and females differed significantly in their coping responses to the event. The females reported greater use of social support and emotion-focused coping strategies such as expressing feelings and avoiding the situation, whilst males were more likely to employ problem-focused coping such as thinking about solutions to the problem and ways of controlling the situation. The researchers partially attributed these gender differences to socialisation. That is, it is possible that males and females are
socialised to cope with stress in different ways. Ptacek et al. (1994) further explain that as a result of sex-role stereotypes, males are expected to independent, instrumental, rational and ambitious, whilst females should be emotional, supportive, and dependent. Thus, men are encouraged to use problem-focused strategies, whilst women are directed towards the use of more emotion-focused coping and social support.

Taken together, the results of the studies on gender differences in coping suggest strongly that females are more likely to employ more emotion-focused strategies as well as increase their use of social support when in a stressful situation, whilst males tend to employ more rational, problem-focused coping strategies. This finding was indicated in Miller's (1987) research on monitoring and blunting, Stone and Neale's (1984) investigation into adult coping and gender, and Ptacek et al.'s (1994) study. All studies found that males preferred to cope with stressful events by using problem-focused strategies that involved seeking information and direct action, as opposed to females who were more likely to use emotion-based techniques such as expressing their feelings and avoidance.

One finding that has been consistent in much of the coping literature is that females are far more likely than males to seek reliance and social support from others (e.g., Fleishman, 1984; Ptacek, Smith, & Dodge, 1994; Ptacek, Smith, & Zanas, 1992). Studies on help-seeking have yielded similar patterns of results, with females utilising sources of help more frequently than men (Belle, 1987; Stone & Neale, 1984). Based on their review of gender differences in help-seeking, McMullen and Gross (1983) concluded that western culture has identified help-seeking as a behaviour that is more 'appropriate' for females than males. Thus, because males may regard help-seeking and social support as being a threat to their competence or independence, they rarely exhibit help-seeking behaviour.
Gender differences in adolescent coping were examined by Patterson and McCubbin (1987). They found that adolescent females used more problem-solving strategies, invested in close friends, and were more self-reliant than males. In contrast, males used more humour. These results, as with most of the findings in the research on adult coping, provided an insight into the different coping strategies used by males and females. The results, however, were based on coping responses to chronic rather than acute stressors.

Despite a relatively extensive investigation into the differences in stress and coping between males and females in the general psychology literature there has been only minimal exploration of this subject in sporting literature. The majority of stress and coping research in sporting contexts has examined only one gender in their subject pool or combined both sexes. One study that addressed gender differences in sport was conducted by Madden, Kirkby, and McDonald (1989). The researchers examined the coping styles of male and female elite runners using the Ways of Coping in Sport inventory (WOCS). As part of their analysis the predictive function of gender on athlete coping profiles on chronic stress was investigated. It was found that the sex of an athlete was a strong predictor of the extent to which they utilised emotionality as a way of coping with a slump in personal performance. In particular, females were more likely to react to a slump with greater emotion than males, such as anger, accepting sympathy, and acting hastily based on a first hunch. However, sex differences accounted for only one method of coping in response to one type of stressful situation and cannot be generalised to other situations. While numerous studies examined the coping strategies employed by one gender (e.g., Gould, Eklund, & Jackson 1993a; Gould, Finch, & Jackson, 1993b; Johnston & McCabe, 1993) there were no others that compared males and females.

Sources of stress in sport is another area of investigation that has been largely ignored in gender research. Researchers have examined only males or females, or have
combined the data from both genders in their analyses (e.g., Cohn, 1990; Scanlan & Lewthwaite, 1984; Scanlan & Passer, 1984; Scanlan & Passer, 1978;). Studies on male athletes have found that factors such as performing poorly, performing in front of a crowd, playing difficult shots/moves, playing in poor weather, performance expectancies, parental pressure, and winning or losing, were all sources that created intense feelings of stress (Cohn, 1990; Scanlan & Lewthwaite, 1984; Scanlan & Passer, 1978). Team performance expectancies and the amount of fun experienced during a game were other sources of intense stress in male athletes.

Scanlan and Passer (1984) conducted one study on sources of competitive stress in female athletes. They found that winning or losing was the predominant variable associated with stress. The amount of fun experienced during competition was the most important intrapersonal factor relating to stress. The results from this study were compared with a similar investigation by the same researchers on male athletes (Scanlan & Passer, 1978). The findings from both studies were consistent, with four of the five factors relating to the males' stress also being experienced by the females. These factors were, high competitive A-trait, low self-esteem, and low team performance expectancies. Thus, both sexes appear to share common sources of stress in sport.

**Age differences, Stress and Coping**

Age is another factor that influences the coping process. Whilst much of the past coping literature has focused on adults, there has been a paucity of research on adolescent coping. In addition, research on adolescents has utilised adult inventories rather than age specific measures to gain information about the younger age group. One recent exception of this is the development of a modified version of the Ways of Coping Checklist by Frydenberg and Lewis (1991). This inventory was administered to obtain an assessment of adolescent male and female coping strategies.
It is important to investigate adults and adolescents separately because the two groups possess different characteristics that can influence the stress they experience and their coping responses. For example, an adolescent's choice of coping strategies will include a variety of cognitive styles and abilities that differ from adults, due to differences in levels of concrete and abstract thinking (Frydenberg & Lewis, 1991). Pfeiffer (1977) proposed a hypothesis on ageing and coping, known as the "growth hypothesis". He asserts that as people age they become more effective at coping, and distort reality less frequently than younger participants. Irion and Blanchard-Fields (1987) provided support for this hypothesis in their study on adaptive coping in adulthood. They found that adaptive coping processes more often characterise later adulthood, and that older adults endorse fewer "immature", defensive coping strategies (e.g., hostile reactions and self-blame) than individuals in younger age groups. It was also found that while different coping strategies varied in effectiveness, age differences existed in applying this knowledge when selecting adaptive strategies. Thus, it would appear that although both adolescents and adults recognise that different coping responses should be used in different situations, the younger age group may not have the maturity or levels of thinking required for effective implementation of these strategies in all stressful events.

Other researchers (e.g., Blanchard-Fields, 1986; Felton & Reveson, 1984; McCrae, 1982) have also provided support for the growth theory. They have reported that as individuals become older they are less likely to use immature, maladaptive mechanisms, such as anger, hostility, escapism, fantasy, and self-blame. All of these reactions have been linked to increases in emotional distress, and therefore, are undesirable. Blanchard-Fields (1986) also found that adolescents have greater difficulty dealing with the cognitive and affective demands of situations that are highly emotional. This difficulty in dealing with such demands may cause a
threatening stressor that elicits high feelings of emotion to employ ineffective coping strategies.

Spivak and Shure (1982) also reported that interpersonal cognitive problem-solving skills (e.g., alternative solutions, development of means-ends thinking, and social causal thinking) may differ in their significance as a function of age. Their research only focused on one type of coping in one type of stressful situation, however, it provides further evidence that adults and adolescents differ in their approaches to coping with stress.

In summary, there has also been a dearth of research conducted into age differences, sources of stress, and stress intensity. Researchers examining stress and coping in sport research have also given little attention to the comparison of age groups. Further, while research is abundant on sources of stress in youth athletes (e.g., Cohn, 1990; Gould et al., 1983; Scanlan & Lewthwaite, 1984) coping in youth sport has been largely ignored. When adolescents have been examined, comparisons with adults have been ignored. The lack of research in these areas suggests a need for further investigation into age and stress.

**Stress Management Programs**

It is clear that consistent successful performance is only possible if athletes can manage acute stress during sporting involvement. Past literature has identified numerous strategies that can be employed to reduce the amount of stress that an athlete experiences. For example, Smith (1986) suggested that the learning of athletic, social, and problem-solving skills could positively alter the balance between demands and resources that can create stress. Coping skills that are directed at modifying cognitions that produce maladaptive emotional responses were also identified as being useful for athletes to master and utilise. Krohne and Hindel (1988) also believed that
cognitions should be targeted as a means of preventing or reducing acute stress. They suggested that minimising certain types of cognitions, such as negative thoughts about meaningless or irrelevant information, and reducing self-reflection in situations that require rapid responses could benefit athletes who suffer from any form or intensity of acute stress.

In a series of interviews with Canadian Olympic athletes, Orlick and Partington (1986) found that in order to cope with potentially stressful situations, participants frequently separated relevant information (e.g., instructions or constructive feedback from a coach), from meaningless input (e.g., spectators booing or yelling or opponents teasing). Other documented anecdotal evidence by researchers such as Feinstein (1986) indicates that athletic success is, at least in part, assisted by athletes blocking out harmful, unpleasant input whilst incorporating, learning, and implementing positive, beneficial information.

A number of stress management models and programs have been developed for use in sporting contexts. The general intention of these programs is to provide athletes with resources in the form of new coping skills, and to assist athletes to cope more effectively with chronic as well as acute stress. Some of the stress management/coping programs that have been developed for use with athletes include Smith's cognitive-affective Stress Management Training (SMT; Smith, 1980; 1986), Meichenbaum's Stress Inoculation Training (SIT; Meichenbaum, 1977; 1985), and Anshel's COPE model of stress management (Anshel, 1990). All of these programs are aimed at developing multi modal coping skills.

The SIT program is a cognitive based program that is essentially a treatment paradigm consisting of a semi structured, clinically sensitive training regimen (Meichenbaum, 1985). The SIT is designed to self-monitor maladaptive thoughts, images, feelings and behaviours in order to facilitate adaptive appraisals, train people in problem-
solving and decision making, allow clients to rehearse direct action, emotion-regulation, and self-control coping skills, offer practice in in vivo imaginal and behavioural rehearsal, and help clients gain knowledge, self-understanding, and coping skills to facilitate better ways of handling stressful situations that may arise in their lives. The program involves a variety of training elements, including cognitive restructuring, problem solving, relaxation training, imagery rehearsal, self-monitoring, and self-instruction. Which specific elements are included in individual programs varies, depending on the target group, or individual.

The SIT program is divided into three phases. Phase one is known as the educational/conceptualisation phase. In this first stage, clients are provided with a conceptual framework for understanding the nature of their response to stressful events. The phase focuses primarily on teaching people about the nature of stress and its effects on emotions and performance. The second phase is a skills acquisition and rehearsal phase, in which coping techniques are taught. The aim of this stage is to ensure that individuals develop the capacity to effectively execute coping responses. Clients are taught to develop and rehearse a variety of coping skills that are relevant to their coping requirements and training goals. Generally, two types of coping techniques are taught. The first, known as instrumental (problem-focused) techniques include strategies such as information gathering, problem solving, time management and direct-action efforts. The second type, palliative (emotion-regulation) strategies involve techniques such as denial, relaxation, and diverting attention, that are designed to relieve distress and foster emotion regulation (Meichenbaum, 1985). The final part of the SIT is an application and follow through phase. This stage involves individuals practicing learnt coping skills through imaginal and behavioural rehearsal during SIT sessions, and gradual exposure in vivo (Weinberg, 1989). One of the major objectives of this third phase is to encourage individuals to implement their acquired coping techniques in everyday situations. A review of the coping training and discussion about the clients' coping abilities to cope with stressful events is also
included in this stage of the program. Finally, follow-up sessions are encouraged, to fine-tune coping skills and discuss any problems clients may have been having using the techniques they had been taught.

Numerous studies have been conducted on the effects of SIT in sporting contexts. For example, an investigation by Ziegler, Klinzing, and Williamson (1982) examined the effects of SIT on cardiorespiratory efficiency in male cross-country runners. Participants who completed a SIT mental training program (which included EMG, relaxation training, cognitive coping strategies, and imagery training) displayed significant changes in physiological responses such as oxygen consumption. The findings of this study supported the researchers' prediction that athletes can gain mastery over physiological responses after receiving effective mental skills training. The athletes also indicated that the imagery and relaxation training they received particularly caused them to change their approach to running. They also reported that after receiving the training they felt more confident in their abilities, could control their stress more effectively, and had an increased appreciation for positive track experiences.

Another study conducted on the SIT, by Kerr and Leith (1993) examined the effects of the program on the performance, mental rehearsal, attentional skills, and competitive anxiety of 24 international gymnasts. An experimental group (N = 12) attended 16 one hour stress management sessions based on SIT, over an eight month period, and a control group received no training. Comparisons between the two groups after the intervention revealed that the experimental athletes demonstrated superior performance, mental rehearsal, and attentional skills. One finding not expected was that the stress management program had no effect on competitive anxiety levels. It was suggested that this finding may have been the result of the athletes increasing their level of facilitative (helpful) anxiety, but reducing their debilitative (harmful) anxiety, thus benefiting performance. The researchers concluded that the study
provided support for the use of stress management programs, and in particular, SIT, in enhancing athletic performance.

Other investigations addressing SIT have also shown support for the program. For example, Mace and Carroll (1986) examined the influence of SIT on anxiety levels and found that experimental participants reported significantly lower scores on Speilberger's State-Trait Anxiety Inventory than control participants. Mace and Carroll (1985) also investigated anxiety levels in abseilers who had received either SIT and practical training, SIT training alone, practical training alone, or no training. Their results revealed that the group who received a combination of SIT and practical training recorded significantly lower stress and anxiety levels than the other groups. Hamilton and Fremouw (1985) conducted a study evaluating the effectiveness of a 10 hour SIT program on the cognitions and free-throw performances of three male basketball players. Improvements in game free-throw percentages and cognitive changes in the percentage of positive coping strategies used after the intervention were attributed to the athletes' exposure to the SIT.

SMT is a coping skills training program designed to help athletes control dysfunctional stress processes by teaching them a specific "integrated coping response" in which relaxation and cognitive components are used to control emotional arousal (Smith, 1980). This is a cognitive-behavioural program that, like SIT is composed of three overlapping phases: conceptualisation, skill acquisition and rehearsal, and skill application. One feature of this program that differs from SIT is 'induced affect' which occurs in the rehearsal stage. SMT further involves the athlete creating high levels of emotional arousal by imagining distressing situations and then "turning" these emotions off through the use of their acquired coping skills (Crocker, Alderman, & Smith, 1988).
One study that found support for the use of SMT (Ziegler, Klinzing, & Williamson, 1982) examined the effects of the program on the physiological responses on runners and compared the results to athletes who attended an SIT program. Participants in the SMT group indicated that they experienced changes in their approach to warm-ups, "mental sets", and their practice and race behaviours. They also reported an increased ability to deal with "emergency stress" situations during sport. These results, as well as the improvements that occurred in oxygen consumption and heart rate provided support for the SMT. No significant differences were found between the SMT and SIT mental training programs.

Although the SIT and SMT programs have some relevance and promise for developing stress management skills and facilitating performance in sporting situations research on these programs has been equivocal. Whilst investigations have provided some support for the stress management models a number of flaws have been identified. For example, Meichenbaum's (1985) SIT program has been criticised for viewing the client as a passive recipient of handling stress, rather than being able to consciously attend to this stress, and for ignoring the athlete's responses following exposure to the stressor (Anshel, 1990). Both the SIT and SMT have also been criticised for focusing on changing thoughts before performance, instead of teaching participants to cope with stressors as they arise in actual situations (Anshel, 1990).

A number of flaws in the research on the SIT and SMT have also been identified and may have led to inconclusive results about the effectiveness of these programs. For example, whilst Mace and Caroll's (1985) study on the effect of the SIT on abseilers found reductions in the stress and anxiety levels of the athletes, no significant improvements in the coping responses of participants were recorded after the program. This result may have occurred because the study failed to examine the effects of the program on sport performance and did not take into consideration the effects of a high risk activity on acute stress. One possible flaw in the research on the SMT program is
that all researchers but Ziegler et al. (1982) lacked control conditions and did not examine the effects of SMT on physiological indicators of performance. These limitations make it difficult to evaluate the efficacy of SMT. One study by Crocker et al. (1988), was designed to overcome some of the limitations of past investigations. They found cognitive and performance measure results that provided support for Smith's program and also concluded that coping skills training aids in the management of the stress process.

Another stress management model is Anshel's (1990) COPE model. This model differs slightly from previous models in that it focuses specifically on acute stress whilst the others are used primarily for managing chronic stress. It was also designed to overcome some of the flaws that previous stress management programs possessed. The model is also based on the premise that people consciously attend to a preplanned series of purposeful thoughts and actions rather than simply being a passive recipient of handling stress. Furthermore, COPE provides a structured framework in which strategies are planned in a set sequence, rather than being presented to participants in a smorgasbord-like approach.

COPE is composed of four cognitive-behavioural processes known as: (C)ontrolling emotions, (O)rganising input, (P)lanning the next response, (E)xecuting skilled performance. A brief explanation of each stage follows:

a) Controlling Emotions - The aims of the first stage are for the athlete to prevent deleterious emotional upheaval when they are exposed to unpleasant stimuli and for them to take responsibility for and correctly perceive the cause of their performance; b) Organise Input - This stage involves processing and making judgements about input received, and separating and selectively filtering out unimportant, meaningless information; c) Planning Response - Involves the use of cognitive strategies that allow for the selection of appropriate responses. The aim is to attend to subsequent demands of a task as soon as possible after the stressor is experienced; d) Execute Response - The
The aim of the final stage is to execute the necessary skills efficiently as soon as possible after the previous phase. It is hoped that if an athlete performs these skills at an optimal level as soon as possible the negative or unpleasant thoughts that can be deleterious to performance will be minimised or eliminated (Anshel, 1990).

Studies conducted on COPE have indicated general support for the model. Anshel (1990), for example, examined the effectiveness of COPE with a group of tennis players. Some participants were instructed on how to use various coping skills proposed in the model to deal with acute stress (negative verbal input), whilst others received no intervention. The results provided partial support for the use of the cognitive-behavioural coping strategies to alleviate the problems associated with acute stress. It was found that after participants in all three treatment conditions were taught the coping strategies in the program both performance and affect improved significantly. Specifically, the group that received the most stress trials (20) displayed the greatest performance differences between the pre- and post-intervention trials. This group also experienced the largest increase in positive affect and a marked decrease in depression and anxiety. In another study (Anshel, Gregory, & Kaczmarek, 1990), baseball and softball players were given unpleasant feedback about their performance by an 'expert' (confederate). Athletes who were taught coping strategies from the COPE model displayed markedly lower negative emotional responses than the other group, hence providing some support for the use of this model.

Another study investigating the COPE model (Anshel, Brown, & Brown, 1993) was conducted to examine the effect of the model on coping with the acute stressor of unpleasant verbal feedback following motor performance, specifically to ascertain the extent to which training in the use of selected cognitive strategies would foster coping with acute stress while performing a motor skill. Findings of the study indicated that systematic changes occurred in performance accuracy and muscle tension after treatment for the COPE group, but not the control and only relaxation groups. Results
supported the inclusion of an avoidant orientation aspect, in which participants are taught to filter out non-meaningful or irrelevant information, strategies inherent in the COPE model. This support was gained because the experimental (COPE) group experienced superior motor performance (31% of explained variance) and a reduction in muscular tension (24% of explained variance) as compared to the other conditions. In contrast to the hypothesis, however, the emotions of the participants were not significantly affected by the treatment in response to acute stress. No significant group differences occurred between any of the treatment phases on the Stress/Arousal Adjective Checklist (SACL). In fact, the participants indicated that they experienced heightened arousal levels for the stress phases of the treatment.

The literature on past stress management programs and models such as COPE indicated that an effective acute stress management program would help athletes to control or eliminate the negative effects stressful experiences through the use of cognitive and behavioural coping strategies. A primary purpose of these programs is to reduce uncertainty and threat of the competitive situations, to discard negative or meaningless information whilst attending to relevant information, to maintain optimal readiness for performance, and to execute necessary skills with minimal cognitive activity and stress related-effects.

**Perfectionism - An Overview**

One disposition that could be linked to perceived intensity of stress and coping in sport is perfectionism. Bunker and Williams (1986) suggested that perfectionism can be debilitating to athletic performance because perfectionistic athletes react badly to errors, problems, or challenges. Discovering more about perfectionistic athletes and their reactions and feelings during sporting competition may also help to identify one antecedent of stress and help to explain the athletes' selected use of coping strategies. For example, one may surmise that high perfectionism is linked to greater stress
intensity and frequency, and a greater need for control over stressful situations. This suggests more likelihood of using problem-focused coping strategies. The primary purpose for examining perfectionism in this study is to test this hypothesis.

Frost, Marten, Lahart, and Rosenblate (1990) define perfectionism as "...the setting of excessively high standards of performance in conjunction with a tendency to make overly critical self-evaluations (p. 450)." This definition encompasses a number of important features. For instance, perfectionists continually set themselves excessively high standards of performance (Burns, 1980). The primary implication of this disposition is that perfectionists have a tendency to be overly self-critical and set standards that allow little latitude for making mistakes. Hence, perfectionists rarely feel competent in carrying out their duties and responsibilities. Furthermore, perfectionists are constantly doubting the quality of their performances (Frost et al., 1990). Burns (1980) identified one of the most common mental distortions in perfectionists as "all-or-nothing" thinking. They evaluate their experiences in a dichotomous manner, perceiving their performance as either "good" or "bad". If they perceive a performance as being anything less than perfect they consider it to be a failure. This manner of thinking could cause the individuals to fear errors and to overreact to them with heightened psychological distress and feelings of failure.

Other characteristics used to describe perfectionists are an overemphasis on precision, order, and organisation (Frost et al., 1990), and near obsessions with neatness (Hollander, 1965). Perfectionists also perceive themselves as being inefficient because they usually believe that successful people achieve their goals with minimal effort, very few (if any) errors, maximal self-confidence, and little or no emotional distress (Burns, 1980). Consequently they believe that their efforts at coping with stress are far more inadequate than successful people, promoting feelings of inferiority, as well as diminished satisfaction and motivation.
Hewitt and Flett (1991) examined perfectionism as a multidimensional construct, consisting of three components, self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism. The primary difference between these components is the object to whom the perfectionistic behaviour is directed, or to whom the behaviour is attributed. Self-oriented perfectionism includes self-directed behaviours, such as setting exacting standards for oneself and stringently evaluating and censuring one's own behaviour. Hewitt and Flett contend that self-oriented perfectionism includes a salient motivational component that causes individuals to strive to attain perfection and to avoid failure. Other-oriented perfectionism involves perceived beliefs and expectations about the capabilities of others. The other-oriented component is similar to that of the self-oriented component, however, the individual's behaviour is directed towards others rather than to themselves. This behaviour includes the setting of unrealistic standards for significant others, placing importance on other people being perfect, and stringently evaluating others' performances (Hewitt & Flett, 1991).

The third dimension, socially prescribed perfectionism, involves the perceived need to attain standards and expectations prescribed by significant others. A person experiencing this component of perfectionism believes that others have unrealistically high standards of them, evaluate them stringently, and place intense pressure on them to be "perfect". This dimension has not been previously identified, or at least labelled as socially prescribed perfectionism in past research. Consequently, no systematic investigations have been conducted on socially prescribed perfectionism.

A study by Hewitt and Flett (1991) with psychiatric patients found that self-oriented, other-oriented, and socially prescribed perfectionism all related differently to indices of personality disorders and other psychological maladjustment. This finding provided support for the notion that the perfectionistic personality style is multidimensional, having both personal and social components. This study also
demonstrated that the three dimensions of perfectionism are related to severe personality disorders and play important roles in the development or maintenance of other persistent symptoms of psychopathology. For example, a strong correlation was found between socially prescribed perfectionism and borderline personality. This implied that the extreme anger and verbal aggression expressed by many perfectionists may be a result of them perceiving other people as having unrealistic expectations of them. This finding was further supported by a strong correlation between anger and socially prescribed perfectionism. It was also found that other-oriented and socially prescribed perfectionism correlated significantly with a compulsive subscale. Overall, the results showed that the three dimensions of perfectionism related differently to indices of personality disorders and other psychological maladjustment. The researchers also indicated a need for further investigation into the social aspects of perfectionistic behaviour.

Other examinations of the effects of a perfectionist personality have found that although perfectionistic behaviour can be a positive factor in emotional adjustment or achievement (e.g., Hamachek, 1978), it is more commonly reported as a pervasive neurotic style (e.g., Flett, Hewitt, & Dyck, 1989; Pacht, 1984). For example, Burns (1980) reported that the negative effects of perfectionism included decreased productivity, impaired health, poor self-control, troubled personal relationships, and low self-esteem. Hamachek (1978), Hollander (1965), and Pacht (1984) also linked perfectionism to negative outcomes, including feelings of failure, guilt, indecisiveness, procrastination, and shame. Furthermore, Burns (1980) stated that many perfectionists appear vulnerable to various potentially serious mood disorders, such as depression, performance anxiety, social anxiety, and obsessive-compulsive disorder. Such vulnerability is particularly common with neurotic perfectionists.
Perfectionism and Sport

Despite extensive investigations of perfectionism in the general psychology literature, scant attention has been given to examining perfectionism in sport psychology. Perfectionistic thinking is surmised to play a powerful and debilitating role in sport competition (Frost & Henderson, 1991). Bunker and Williams (1986) suggest that perfectionistic athletes are so afraid of failure and making mistakes that their enjoyment of sport is greatly reduced and performance is often impeded. They further suggested that athletes who believe that they should be perfect blame themselves for every defeat. This usually results in their self-concept being lowered. Often associated with this reduction is the emergence of a fear of failure and an increase in the amount of pressure placed upon themselves.

An investigation into the relationship between perfectionism and athletes' reactions to athletic competition was conducted by Frost and Henderson (1991). One purpose of this study was to examine whether perfectionism was associated with negative reactions to mistakes made during competition. An additional aim of the study was to determine whether perfectionism was associated with the content of the athlete's thoughts 24 hours prior to a major competition. The athletes' thoughts following errors were identified and then related to their results on the 'Concern Over Mistakes' (CM) and 'Doubts About Actions' (D) scales of the Multidimensional Perfectionism Scale (MPS). The athletes' coaches also completed a series of questions regarding their ability to recover from mistakes and deal with pressure. The results of this investigation indicated an association between certain dimensions of perfectionism and reactions to athletic competition. A high positive correlation was found between athletes who rated highly on the Concern Over Mistakes dimension of the MPS and competitive anxiety ($r = .47$). A high negative correlation was found between the CM dimension and trait sport-confidence ($r = -.61$). Athletes who scored highly on CM also reported a high failure orientation ($r = .70$), reacted negatively to their mistakes
during competition, and experienced a greater number of negative thoughts prior to competition than those with a low CM score. These results indicate that in competitive sport, where performances are evaluated, perfectionists feel threatened because, perhaps, they view the situation as an opportunity for failure.

High scores on a second dimension of the MPS, Personal Standards (PS), was associated with a general success orientation towards sport ($r = .68$), and dreams of perfection prior to competition ($r = .43$). Overall Perfectionism (P) was also shown to be positively correlated with anxiety about athletic competition ($r = .38$) and negatively correlated with self-confidence ($r = -.36$). These results provided support for Frost and Henderson's (1991) hypothesis which stated that perfectionists viewed evaluated performance as an "opportunity to fail", and, therefore, felt threatened in those situations. Feelings of threat commonly result in the perfectionistic athlete experiencing stress. Performance decrements and possible withdrawal from sport may occur due to a lack of effective coping. It should be noted, however, that this study examined only female athletes from one, small liberal arts college in the United States of America, and therefore subjects are unlikely to be representative of all groups. Results, therefore should not be generalised to other age or gender groups.

Based on the results their 1991 study, Frost and Henderson discussed some of the effects that perfectionism can have on performance and motivation. First, perfectionistic athletes tend to focus their attention on mistakes that they commit during competition, and have difficulty forgetting about them (Frost & Marten, 1990). When this occurs, they are likely to be distracted from task-relevant thoughts, often resulting in poorer performance. Secondly, decreased intrinsic motivation for sport may result from reduced enjoyment due to the athlete's perceptions of poor performances and making mistakes (Frost & Henderson, 1991). One limitation of Frost and Henderson's study, however, was that it did not include a measure of performance. As a result, there is no direct evidence that athletes with a high concern
over mistakes performed poorly following mistakes. The inclusion of a performance measure may have supported the notion that perfectionistic athletes perform more poorly following errors.

Gould, Horn and Spreeman (1983) suggested that fears about failure or not performing well are significant sources of stress. Cohn (1990) contends that these fears and the resulting stress often lead to burnout. Based on these suggestions, Frost and Henderson (1991) predicted that athletes who scored highly on 'Concern Over Mistakes' would experience a decrease in intrinsic motivation when their mistakes were apparent. Thus, it is expected that there will be an association between perfectionism and intense acute stress experienced by athletes in the present study. Perfectionistic participants are more likely to perceive their performances to be poor, focus their attention on errors, and experience a greater fear of failure than those athletes who have low perfectionistic tendencies.

**Self-Confidence and Sport-Confidence**

Self-confidence is a disposition that is critical to successful performance (Jones, Swain & Cole, 1990). The correlation between self-confidence and performance success has been one of the most consistent findings in literature on peak performance in athletes (Bunker & Williams, 1986). According to Martens (1987), self-confidence in sport is:

"...an athlete's realistic expectation about achieving success. Self-confidence is an accumulation of the athlete's unique experiences in achieving many different things, which results in the specific expectations he or she has about achieving success in a future activity (p. 151)."
Numerous approaches have been used when examining self-confidence in sport. Bandura's theory of self-efficacy forms much of the basis for the assertion that self-confidence will affect performance (Bandura, 1977). According to Gill (1988) self-efficacy and self-confidence are different, and should not be used synonymously. She suggested that self-confidence is more global and stable than self-efficacy, which is specific to a given time and setting, and may fluctuate greatly. Self-efficacy is a situation specific form of self-confidence. Bandura's theory states that behavioural change is mediated by self-efficacy, the perceived ability to carry out desired behaviours. He suggested that the level of self-efficacy a person possesses will influence whether they engage in a particular behaviour and how long they will persist with an activity or behaviour. Perceived self-efficacy is determined by an individual's belief in their ability to cope with the demands of a situation in terms of motivation, cognitive resources, and appropriate modes of response (Bandura, Gioffi, Barr Taylor, & Brouillard, 1988). Bandura believed that individuals who possess high levels of self-efficacy are more likely to initiate and continue their involvement in activities that create some feelings of threat. This persistence is likely to further increase self-efficacy, enhance motivation, reduce the feelings of threat, and facilitate performance. Individuals who have low self-efficacy have a greater chance of experiencing the stress that is commonly associated with threatening situations. Consequently, their performance will suffer, and it is likely that they will not want to persist with the activity.

Weinberg, Gould, and Jackson (1981) were among the first researchers in sport psychology to use the terms self-efficacy and self-confidence synonymously. They conducted an investigation into self-confidence and performance in which they used a confederate to manipulate self-efficacy in athletes competing in a test of leg strength. The study provided support for a causal relationship between self-confidence and performance in a motor task, with higher self-confidence being linked to more superior motor performance. Martin and Gill (1991) also conducted an investigation
that examined trait sport-confidence and self-efficacy separately. Their study revealed that trait sport-confidence predicted outcome self-efficacy, and that state sport-confidence and self-efficacy predicted performance. The athletes who displayed high sport-confidence and had high self-efficacy expectations performed better than those who were less confident and less self-efficacious. The results indicated that whilst self-confidence and self-efficacy are similar and the former can predict the latter, they are separate concepts. They also supported the hypothesis that confident athletes would perform better than less confident athletes.

Other approaches that have been adopted to predict behaviour in sport include conceptual models of perceived competence (e.g., Harter, 1978) and performance expectancies, both of which have been used to operationalise self-confidence (e.g., Corbin, 1981; Corbin, Landers, Feltz, & Senior, 1983). Despite the contribution of these approaches in past research, Vealey (1986) has suggested that a major limitation in examining competence and expectancies within a sport context was the lack of sport-specific content. The construct of self-confidence that has been conceptualised in these theories refers to general self-confidence. In view of this limitation, Vealey (1986) has identified a construct known as "sport-confidence". This sport-specific version of self-confidence was established when Vealey was conceptualising a model of self-confidence based on, "...the interactional paradigm, sport specificity, the distinction between personality traits and states, and the reciprocity of individual differences and behaviour (p. 222)." Sport-confidence was defined as, "...the belief or degree of certainty individuals' possess about their ability to be successful in sport (p.222)." Vealey also separated sport-confidence into two constructs: trait sport-confidence (SC-trait), and state sport-confidence (SC-state). SC-trait is dispositional, and is defined as, "...the belief or degree of uncertainty individuals usually possess about their ability to be successful in sport (p.223)." SC-state is defined as, "...the belief or uncertainty individuals possess at one particular moment about their ability to be successful in sport (p. 223)."
Taylor (1987) contends that an athlete's level of SC-trait and their competitive orientation interact with the sporting situations in which they participate, thus influencing his or her perceptions of these situations. This trait by situation interaction also causes athletes to respond to events in the competitive sporting environment with a level of SC-state that effects performance. Although much of the self-confidence research has focused on state, as opposed to trait, self-confidence, it is probable that due to the interaction between the SC-trait and SC-state an athlete's trait confidence will also affect performance. This is likely to occur as a result of the changes in state confidence fluctuating around the trait level (Taylor, 1987).

**Sport-Confidence, Stress, and Anxiety**

Research has shown that stress and anxiety often impair rather than enhance performance, although some levels of each can, in some situations, improve performance (e.g., Burton, 1988; Gould, Petlichkoff, Simons, & Vevera, 1987). Martens, Burton, Vealey, Bump, and Smith (1990) and Gould, Petlichkoff, and Weinberg (1984) found that cognitive anxiety is negatively related to self-confidence. Numerous researchers have examined the associations between anxiety, self-confidence, and performance. It is believed that if the relationship between these factors can be more clearly established, and the precursors to anxiety and self-confidence identified, optimal performance states in sport may become more attainable (Jones & Hardy, in Jones, Swain, & Cale, 1990). The identification of intervention strategies that best suit individuals and specific groups of athletes is one way that the desired optimal performance states may be reached.

It was hypothesised by Martens et al. (1990) that there are particular events and situations in an athlete's surrounding environment that are common antecedents of low self-confidence and cognitive anxiety. The most significant of these are believed to be
related to athletes' expectations of success. These researchers suggested that when expectations are reduced or become uncertain, individuals' levels of cognitive anxiety are likely to rise and self-confidence is likely to be reduced.

Jones et al. (1990) examined situational antecedents of multidimensional state-anxiety and self-confidence in elite athletes. Using the Competitive State Anxiety Inventory-2 (CSAI-2) and Pre-Race Questionnaires (PRQs), it was found that self-confidence was predicted by the athletes' perceived readiness prior to an event, and the environment (e.g., weather, suitability of equipment, perceived importance of the event) in which they were to be competing. Cognitive anxiety was also predicted by the athletes' perceived readiness, their attitude about their previous performance, and their beliefs about the difficulty of a specific goal.

There has been relatively little research conducted on the association between stress intensity experienced during competition and self-confidence. However, in one non-sport study, Carver and Scheier (1994) investigated situational coping and coping dispositions before, during, and after taking an exam. They revealed that confidence versus doubt was an important aspect of the phenomenology of a stressful transaction. It was indicated that self-confidence was associated with emotions, and appraisals of threat and of one's ability to cope. The findings provided further evidence for the potential importance, in any coping transaction, of people's confidence about achieving their desired result. They suggested that more confident individuals perceive less threat and harm, experience more positive emotions, and have a greater belief that they can be successful in potentially stressful situations than less confident individuals. Being confident in oneself also appeared to result in the perception of a greater ability to cope in stressful situations, and thus, led to more effective coping responses than in individuals with low self-confidence. It is apparent that more research is required into the relationship between stress and self-confidence in sport.
An examination of previous studies indicates that increasing self-confidence could benefit athletes when they experience stressful situations during sporting competition.

**Gender Differences, Self-Confidence, and Perfectionism**

Several studies have been reported in the sport psychology literature that have examined the relationship between gender and personal dispositions. Dispositions differ from personality traits in that dispositions are part of the make-up, character, or nature of a person, whilst traits are more specific features or attributes of an individual. Dispositions examined in this study include self-confidence and perfectionism.

According to researchers examining gender (e.g., Corbin, 1981; Feather & Simon, 1973; Lenney, 1977) females often fail to reach their achievement potential because they lack self-confidence. Many of the findings in this achievement research may also be relevant to sporting situations. For example, it was suggested that if a task is considered to be "sex-role inappropriate", if it is perceived as being socially comparative, or if there is a lack of clear performance feedback, females are likely to doubt their own performance capabilities (Lenney, 1977). All of these factors can be present in sporting situations. In the past, and still to some extent today, sport has been considered a 'male' domain. Hence, many females have believed that if they are involved in sport they are participating in an activity that may not be sex-role appropriate. When competing in a sport it is also difficult to avoid social comparison, with the competitive nature of sport creating numerous opportunities for comparisons between groups, performances and individuals. These factors may cause a female athlete to feel less confident than a male would about their abilities in sport. Anshel (1990), in a description of female participants in competitive sport, reported that females, as compared to males, display lower self-confidence. He also explained
that they typically avoid behaviour that is inappropriate to their sex role and do not desire that their performance is compared to others.

Corbin (1981) reported a number of differences between the self-confidence of males and females in a competitive situation. Perhaps the most significant finding of this study was that the anticipation of competition resulted in lower confidence levels in females than males, even when the task was considered to be neutral in orientation. Females were also significantly less confident than males after competing against an opponent they perceived to be high in ability. The results indicated that females' performance expectations were unstable and often changed even with single encounters. The performance assessments of males, however, are less likely to be affected by one failure.

Gender differences in perfectionism has received no attention in past published studies. Past research has examined only males or females, but with no sex comparisons. For example, Frost and Marten (1990) conducted a study that examined the role of perfectionism in cognitive, affective, and behavioural responses to a writing task among female perfectionists and non-perfectionists. The findings indicated that perfectionists differed from non-perfectionists on cognitive, affective, and behavioural measures of productivity. They also evaluated their performances differently after a task was completed. Perfectionists believed that they should have performed better on the task, regardless of their actual performance outcome. Under high evaluative threat, perfectionists reported more negative affect before and during the task than non-perfectionists. Thus, although the results of studies (e.g., Frost & Marten, 1990) have provided insight about females and perfectionism, information about sex differences on this disposition, or the factors that may explain perfectionism among females have not been explained.
Literature Review Summary

The literature on stress and coping in sport has provided valuable information about differences and similarities in the coping process in various populations, including age and gender groups. Most of the research on stress and coping has, however, focused primarily on chronic stress. Only in recent years have investigations on sources of acute stress and coping responses received increased attention. To date, research on acute stress in sport warrants further investigation. It is also clear that information about sources of acute stress and athletes' coping responses could benefit emotional reactions and performance. Furthermore, the literature has suggested possible links between personal dispositions, such as perfectionism and self-confidence, and components of the stress process (e.g., reactions to acute stressors and coping responses).

Research on the coping strategies typically employed by different age and gender groups has found that responses used to manage stress in competition differ as a function of group membership. Literature on coping styles has revealed that gender differences occur in the use of problem- and emotion-focused coping, with females usually employing emotion-based responses and males using problem-focused strategies in most stressful situations. This past literature on coping has shown that the gender and age of athletes should be taken into consideration when analysing their coping responses, or establishing which strategies to teach them in stress management programs. Past research on the coping process has been consistent in describing coping as an ongoing process in which combinations of coping responses are typically used in preference to one specific response to manage stress, therefore this should also be considered when examining coping. Coping and appraisal literature has explained that the way that an individual perceives a situation will determine whether they experience stress and how they will react to it. If they appraise the situation as threatening and believe that they do not have the resources to cope effectively intense
stress may occur. Research has shown that if the individual has had training in stress management and thus has better coping resources, they are more likely to appraise the situation as being less threatening as they have greater control over it's outcome. As a result they will be more likely to employ effective coping responses and the stress intensity they experience may be reduced.

There has been much evidence supporting the effectiveness of stress management programs in past literature. Programs such as the SIT, SMT, and COPE show promise for developing coping skills and improvements in sport performance. It is clear, however, that stress management programs may be even more effective if they are tailored specifically to the needs of a targeted population or are compatible with the athletes' coping styles. Thus, the intention of the first study in the present thesis was to compare adult and adolescent aged male and female athletes concerning their sources of acute stress and their typical coping responses as a function of selected personal dispositions. The purpose of study two in this thesis was to examine the effectiveness of a stress management program for adolescent female athletes that took into account their coping tendencies.
Chapter 3

METHOD

Study 1

Participants

Participants in this study were obtained from two groups. One group consisted of adolescents, ranging in age from 13.8 to 17.9 yrs ($M = 15.4$ yrs). The athletes were members of an elite sports organisation in New South Wales (Australia) and competed in a team sport. Participants in this group ($n = 74$, 39 males and 35 females) consisted of 12 field hockey players (5 males and 9 females), 16 female netball players, 18 male cricket competitors, four male rugby league players, eight male rugby union athletes, and 12 basketball players (10 females and 4 males).

Another group consisted of adult athletes ($n = 65$, 37 males and 28 females) older than 18 years of age who competed in team sports for local clubs in New South Wales (Australia). Their ages ranged from 19 to 45 yrs ($M = 26.65$ yrs). The participants participated in a variety of team sports, including netball (12 females), soccer (15 males), touch football (3 females), hockey (7 females and 4 males), rugby union (8 males), cricket (5 males), rugby league (3 males), and basketball (7 females and 3 males).

Participants in the adolescent group were required to participate in the study as part of their involvement with an elite sporting organisation. All coaches and team managers were aware of all procedures, and had the authority to prevent any athletes from participating if they felt it was necessary. All participants in the adult group were volunteers. Participants were approached to gain permission for their involvement in the study, and were required to complete a consent form (see Appendix A) that
Equipment and Measures

**Stress and Coping in Sport Inventory - Development and Use**

A questionnaire was designed for this study to identify sources of stress and coping strategies and administered to all participants during the data collection sessions in Study 1. There were no previously published instruments that had measured perceived intensity of acute stressors in sport, or the coping strategies used in response to these acute stressors. Survey development consisted of adapting items from previously published inventories from the literature concerned with acute stress and coping. This inventory, referred to hereafter as the Stress and Coping in Sport Inventory (SCSI; see Appendix B), is divided into two parts. Part 1 focuses on acute stressors that athletes may encounter whilst playing their sport. All items in this section had been identified as sources of acute stress during sporting competition by Anshel (1990), Anshel, Brown, and Brown (1993), and Gould, Horn, and Spreeman (1988). This part of the questionnaire consists of a list of 15 sources of acute stress. Participants were required to rate the intensity level of stress usually caused by each stressor on a Likert scale from 1 (no stress) to 7 (extreme stress).

Part 2 of the questionnaire included identifying the four highest intensity stressors from Part 1. Athletes were then required to refer to a list of coping strategies and to circle the one strategy they usually used to cope with each of the identified stressors. The list of coping responses was based on the Adolescent Coping Checklist (ACC - Frydenberg, 1993), the Ways of Coping Checklist (WOCC - Lazarus & Folkman, 1984), and the Ways of Coping With Sport (WOCS - Crocker, 1989). Although all of these inventories are reliable and valid measures of coping and provided selected
items that were appropriate for the current study, each inventory possessed limitations. For example, the ACC and WOCC were not related to sport and did not address acute stress. Rather, they focused predominantly on chronic sources of stress. These three questionnaires, as well as two sport psychologists with past research experience in the participants of stress and coping in sport, and an administrator from the Illawarra Academy of Sport (who has had vast experience with adolescent athletes) were consulted when preparing the list of items to establish content validity.

A third question in Part 2 asked participants to rate the effectiveness of the coping technique they selected in reducing their stress in each situation. This was indicated on a seven point Likert scale ranging from 1 (not at all effective) to 7 (very effective). Participants’ responses included in this section of the inventory reflected the four most intense sources of acute stress indicated in Part 1 of the survey. It was determined that only the four highest intensity stress sources would be examined in Part 2 because the study was only examining intense stressors. It was predicted that most participants would not rate more than four stressors as causing intense stress (5, 6 or 7 on the Likert scale). In the pilot test only two of the participants recorded that more than four acute stressors elicited high to extreme stress intensity levels.

Before the questionnaires were administered, a pilot test was conducted with 12 team-sport athletes between the ages of 14 and 16 yrs from a local sporting organisation who had similar skill levels as the participants participating in the study. All athletes were asked to complete both sections of the SCSI. This pilot test was carried out to establish whether participants in the desired age group were able to understand and complete the questionnaire without any problems. The pilot test also examined whether the items were relevant and plausible in the actual settings in which they were to be used. Questionnaires administered as part of this pilot test were completed before training sessions in settings similar to those in the main data collection sessions for Study 1. After examining the returned questionnaires and speaking to the athletes
who participated, selected items on the SCSI were reworded to the satisfaction of the participants.

**Multidimensional Perfectionism Scale**

Similar to the SCSI, a questionnaire used to measure perfectionism, the Multidimensional Perfectionism Scale (MPS - Frost, Marten, Lahart, & Rosenblate, 1990 - see Appendix B) was completed by the athletes during the data collection sessions conducted in Study 1. The MPS is a 35-item questionnaire that consists of six subscales, each of which represents a dimension of perfectionism. There are, organisation (O), doubts about actions (D), parental concerns (PC), personal standards (PS), concern over mistakes (CM), and parental expectations (PE). An overall score indicating the subject's level of perfectionism (P) is also determined from the inventory by summing all subscales. Higher scores indicate stronger evidence for perfectionism.

The MPS was designed and validated in the U.S. with college students (Frost et al., 1990). Frost et al. correlated all subscales and the overall perfectionism measure with other similar scales (e.g., Burns Perfectionism Scale; Burns, 1980) to establish validity. Intra-class reliabilities were calculated for all subscales, with coefficients of internal consistency ranging from .77 (Doubts About Actions) to .93 (Organisation). The reliability of the overall perfectionism scale was .90. Most of the subscales were highly correlated, with the exception of Organisation, which displayed the weakest correlation with the total of other items in the scale, as well as a weaker pattern of intercorrelation with the other subscales (Frost et al., 1990). As a result of these findings, organisation is often treated as a separate subscale whose items are not included when computing the overall perfectionism score. In the present study, the organisation subscale was examined as both an individual subscale and as part of the overall perfectionism score.
Although the MPS is not sport-specific, it was included in the current investigation because individuals with a high level of perfectionism usually experience perfectionistic thinking in most aspects of their life, including sport (Frost & Henderson, 1991). Perfectionistic athletes fear failure and mistakes and their performance may be affected as a result (Mahoney, in Burns, 1980).

**The Trait Sport Confidence Inventory**

The third questionnaire used in Study 1 was the Trait Sport Confidence Inventory (TSCI; Vealey, 1986 - see Appendix B). This inventory is based on a sport-specific model of self-confidence and measures trait sport-confidence. The TSCI measures athletes' confidence in a sport setting as opposed to inventories that measure confidence in non-sport settings. The TSCI consists of 13 questions in which participants indicate how confident they generally feel when they compete in sport, in comparison to the most self-confident athlete they know. Their confidence level is recorded on a 9-point Likert scale ranging from 1 (low confidence) to 9 (high confidence). The higher the subject's rating, the more confidence athlete's possess about their abilities in sport competition.

The TSCI has demonstrated adequate item discrimination, internal consistency, test-retest reliability, content validity and concurrent validity. For example, item discrimination analyses were conducted for the TSCI to examine how well the individual items differentiated between high and low self-confidence. All items in the scale showed adequate variability, coefficients greater than .50, and acceptable item discrimination coefficients. A test-retest reliability analysis was also conducted on the TSCI to establish whether the scale could repeatedly and consistently operationalise SC-trait. The results obtained indicated that trait sport-confidence, as measured in this inventory, is a fairly stable disposition that can be measured across time. Reliability coefficients for re-tests conducted one day ($r = .86$, one week ($r = .89$), and one month
(r = .83) after the initial test were all above the accepted criterion of .60 (Vealey, 1986). Concurrent validity was also established by correlating the TSCI with measures of related personality constructs. Correlations with all related constructs were significant indicating that SC-trait was an effective predictor of SC-state, measured by the SSCI (r = .64) and the CSAI-2 (r = .48).

**Procedures**

**Data Collection for Study 1**

Data were collected from the majority of the adult and adolescent groups before training sessions or at games. Upon arrival, a team coach, manager, or athlete introduced the researcher to the participants, gave a brief explanation of the study. All participants were informed that their involvement was required in the study, but were given the option to not participate. Each group of participants was then briefed on the purpose of the study and informed of their rights. They were also asked to read and sign the consent form as part of their agreement to participate in the study. The researcher then distributed the questionnaires and provided participants with an explanation about each section to ensure that all athletes clearly understood what was required of them. Participants were separated and completed the inventories individually for a period of 30 mins.

Four of the teams (one male basketball team, one female basketball team, and two male soccer teams) did not complete the questionnaires at the sport venue due to time restrictions. The athletes from these four teams then completed the questionnaires at home and 95% of them were returned to either their coach/manager or to the researcher within a week. Three participants from these groups were excluded from the data analysis due to missing and/or incorrect data.
Treatment of Data

Sources of Stress

Means and standard deviations for the intensity levels of the stressors presented in the SCSI (S1-S15) were calculated for all participants who completed the questionnaire in Study 1. The means and standard deviations for the overall perfectionism score, the five subscales of the MPS, and the TSCI were also derived for males, females, adults and adolescents. An examination of the average intensity levels of the stressors revealed the five highest intensity sources indicated by each of the four groups. These sources were subsequently analysed to determine the athletes' coping strategies.

To assess group differences in the types of designated acute stressors, a multivariate analysis of variance (MANOVA) was performed. The effects of both gender (SEX) and age (AGE) on the intensity level of the 15 acute stressors were examined to determine whether there were any significant differences between the groups in the sources that caused acute stress.

Coping Strategies

To determine the most common coping responses, the percentages of coping strategies used by all participants were calculated for each stressor. For each of the eight groups (all males, all females, all adults, all adolescents, male adolescent, female adolescent, male adult, and female adult), the percentages of the most commonly reported strategies used to cope with each source of stress were computed to: (1) determine the coping strategies associated with various sources of stress, (2) establish differences in coping between different groups, and (3) identify the frequency of strategies employed after exposure to each stressor. Two stressors ('teammates making a mistake' and
'poor weather') were not included in this examination because they elicited only minimal levels of stress intensity from the participants.

**Perfectionism and Trait Self-Confidence**

To examine the nature of the relationships between trait self-confidence, perfectionism, gender and age, three analyses were conducted. First, two analyses of variance (ANOVAs) were conducted to examine whether there were significant differences between the groups (AGE and SEX) for trait self-confidence and overall perfectionism (and the five subscales). Second, a discriminant function analysis was performed, using the psychological dispositions of self-confidence and perfectionism as predictors of group (age and sex) membership.

Third, a series of stepwise multiple regression analyses were computed to determine whether an individual's level of stress intensity could be used to predict levels of perfectionism and trait-self-confidence. These analyses indicated the relationship between each of the four most intense stressors, as designated by the participants, and the TSCI and MPS scores. The independent variables (stressors) and the order in which they were placed into the multiple regression equation differed for each group because participants' reactions to certain stressors varied. For all groups, the most intense stressor was entered first, followed by the second, third, and fourth highest sources.

**Additional Analyses**

To determine the ways in which athletes in the various groups cope, an additional analysis examining the typical coping response patterns of the participants was conducted. Before this analysis was conducted all items on the SCSI coping response list were classified as either problem- or emotion-focused strategies. To do this the
researcher and two sport psychologists with a knowledge of these coping dimensions made individual classifications of the strategies, then discussed them jointly until a consensus was attained. No strategy was classified as either problem- or emotion-focused until all three parties agreed. Chi-square analyses were used to investigate whether groups differed according to age and gender in their respective use of problem- or emotion-focused coping. Separate chi-square analyses were conducted for each stressor. As indicated earlier, two of the stressors ('teammate making a mistake' and 'poor weather') were eliminated from this analysis because they caused the athletes little or no stress. Only the stressors that were reported to elicit moderate-high acute stress were examined.
RESULTS AND DISCUSSION

Study 1

The analyses of data in Study 1 focused on three main issues: 1) the extent to which males and females, adults and adolescents differed about the types of acute stressors that cause them intense stress, 2) the extent to which groups differed in their use of coping strategies in response to acute stress, and 3) the extent to which trait self-confidence and perfectionism differed between groups. Analyses also examined possible links between these two dispositions and athletes' coping responses to acute stressors and stress.

Sources of Stress

Descriptive statistics on the intensity of stress experienced in response to acute stressors for adolescents, adults, males, and females are presented in Table 1. A summary of the five most intense stressors for each group are listed in Table 2. These stressors were established by ranking the five highest means for each group.

Results showed several similarities in the types of intense acute stressors. For example, all four groups rated 'getting injured' as one of their top two stress sources (adolescents, $M = 4.88$; adults, $M = 5.02$; males, $M = 4.88$; females, $M = 5.11$). One other stressor that was ranked as moderate to high intensity by all groups was 'my opponent has just cheated' (adolescents, $M = 4.80$; adults, $M = 4.86$; males, $M = 4.82$; females, $M = 4.84$). A third similarity between all groups was that 'receiving a bad call from an official' was considered to be a moderate to high intensity stressor (adolescents, $M = 4.39$; adults, $M = 4.65$; males, $M = 4.58$; females, $M = 4.43$).
### TABLE 1: Descriptive statistics on the intensity of stress responses to stressors for groups on the 7-point Likert scale.

#### ADOLESCENTS (N=74)

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A number of differences in sources of intense stress also occurred between the groups. For example, only males rated 'making a mental error' as one of their five most intense stressors ($M = 4.50$), and only adults considered 'making a physical error' as being of moderate intensity ($M = 4.60$).

**TABLE 2:**

**Five highest sources of stress for all groups.**

<table>
<thead>
<tr>
<th>Source</th>
<th>Males</th>
<th>Females</th>
<th>Adolescents</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
</tbody>
</table>
|-------------------------------------------------------------------------------------------------------------------------------
| 1. My opponent has just cheated -            | 4.82    | 1.60    | 5.11        | 1.51    | 4.88 | 1.81  | 5.02 | 1.59  |
| 2. Getting injured -                         | 4.80    | 1.85    | 4.84        | 1.61    | 4.80 | 1.74  | 4.86 | 1.44  |
| 3. Received a "bad" call from an official -  | 4.58    | 1.52    | 4.79        | 1.70    | 4.74 | 1.62  | 4.76 | 0.98  |
| 4. Making a mental error -                   | 4.50    | 1.16    | 4.44        | 1.79    | 4.68 | 1.52  | 4.65 | 1.50  |
| 5. Teammates yelling or hassling you -       | 4.45    | 1.44    | 4.43        | 1.66    | 4.39 | 1.65  | 4.60 | 1.35  |
A MANOVA was conducted to establish whether any differences occurred between males and females (SEX) and adults and adolescents (AGE) in their responses to acute stress. A number of significant group differences were found. A summary of the analysis is presented in Table 3.

**TABLE 3:**
Summary of significant MANOVA results for the effects of age and sex on intensity levels of acute stressors.

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<td>AGE</td>
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<tr>
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<tr>
<td>TEHASS</td>
<td>AGE</td>
<td>2.91</td>
</tr>
</tbody>
</table>

**OVERALL AGE EFFECT** - Wilk's Lambda  
F = 2.09  Pr>F = 0.014

**OVERALL SEX EFFECT** - Wilk's Lambda  
F = 1.98  Pr>F = 0.022

As predicted, differences between males and females in the sources of stress were significant. An overall significant sex effect in sources of stress (F[3, 138] = 1.98, p<0.022) supported hypothesis 1, which predicted that differences would occur in the types of acute stressors that cause males and females intense stress. Specifically, significant differences were found between males and females in the intensity of stress resulting from; a) 'getting hassled or booed by spectators' (F[3, 138] = 5.07, p<0.025), and b) 'your parents criticising you' (F[3, 138] = 3.69, p<0.05). A third stressor, 'coach yelling or putting pressure on you' (F[3, 138] = 3.52, p<0.06), almost reached significance. Overall, the examination of gender effects on common sources of
intense stress suggests that females experience greater acute stress as a result of social evaluation, particularly from significant others, whilst males become more stressed when faced with stressors based on personal performance, errors, and losing.

Also predicted in this study were significant differences between adults and adolescents (AGE) in the types of stressors that typically caused intense acute stress. A significant group effect for age was found ($F[3, 138] = 2.09, p<0.01$), indicating that adults and adolescents were affected differently by the stressors. For example, group differences emerged for the stressors 'making errors', with differences for both 'making a physical error', ($F[3, 138] = 7.51, p<0.007$), and 'making a mental error', ($F[3, 138] = 14.51, p<0.0002$). Adults reported that both of these stressors caused a greater intensity of stress than adolescents. All adults ranked 'making a physical error' among their top five stressors, whilst all adolescents considered this stressor to be a low to moderate source. These findings suggest that adults are more concerned about making mistakes during a game than are younger athletes.

Adolescents also reported experiencing greater stress intensity as a result of the actions of others (e.g., parents or coach criticising or yelling, being hassled by teammates, or opponents' cheating). The younger age group was particularly affected by the stressor, 'coach yelling or putting pressure on you'. Although this stressor only approached significance ($F[3, 138] = 3.52, p<0.06$), it remained an important source of stress experienced by adolescent athletes, particularly females. Both adolescent males ($M = 4.51$) and females ($M = 4.96$) rated stress resulting from their coach as one of their five most intense acute stressors.

An examination of the sources that caused the least intense stress revealed that all groups were relatively unaffected by 'poor weather'. All four groups rated this stressor as their lowest stress source (adolescents, $M = 2.47$; adults, $M = 2.41$; males, $M = 2.55$; females, $M = 2.31$). A second stressor that was considered to be of low intensity
by all groups was 'team-mates making a mistake' (adolescents, $M = 3.32$; adults, $M = 3.52$; males, $M = 3.39$; females, $M = 3.44$). Thus, the participants in this study appeared to experience more intense stress as a result of personal errors than by mistakes made by others.

**Coping Responses to Acute Stress**

The second hypothesis in Study 1 was that there would be significant differences in the coping strategies used by male, female, adult, and adolescent athletes in response to acute stress. Table 4 provides a summary of the most common coping strategies employed after experiencing the stressors. Results are given as the percentages of participants in each group who usually used each of the strategies in response to each stressor.

An examination of the age results revealed that the most frequent overall responses of both groups to acute stress were: (a) 'I concentrated and focused on what had to be done next', and (b) 'I put my angry feelings into my game so that I played better'. Adolescents, whilst choosing to concentrate and focus after exposure to various stressors, showed a slight preference for putting their angry feelings into their games, rating it as their top response following six of the 15 stressors. Several specific stressors tended to elicit this coping response more frequently than others. For example, acute stress caused by opponents resulted in the greatest use of anger by adolescents. Thirty-six percent of this group who were highly stressed when their opponent cheated employed this coping response. Fifty-percent of the participants who were stressed after being intimidated by their opponents also responded with anger in order to play better. Whilst 36% of adults who responded to the stressor, 'my opponent has just cheated', also used anger, a larger percentage of this group (41.7%) '...concentrated and focused on what had to be done next' after their opponent had performed successfully (e.g., scored a goal) or were intimidating (30%). As observed
in Table 4, redirecting one's angry feelings into the game was used by a moderate to high percentage of athletes in most groups when trying to cope with stress caused by the opposition. This finding suggests that opponents are a source of intense stress that often elicit feelings of anger in all individuals regardless of age or gender.

More adolescents than adults used anger to try to cope with stress after criticism or yelling from significant others, such as the coach or parents. The older group responded more frequently with concentration and focusing on what had to be done next (e.g., 25% for 'coach yelling or putting pressure on you', and 39.1% for 'teammates yelling or hassling you'). Both age groups coped by directing their angry feelings into their game to play better above any other strategy after receiving a "bad call" from an official (27% and 22.6% for adolescents and adults, respectively). Adults also employed this technique more often (30.4%) than adolescents (9.5%) after making a physical error.

Both adults and adolescents used the strategy, 'I tried to relax', as their usual response to the acute stressors 'getting injured' (adolescent - 24.9%, adult - 22.2%) and 'feeling pain' (adult - 40%, adolescent - 33.3%). This was also the strategy most commonly used by both males (27.3%) and females (47.4%). The only group with a low percentage of participants using relaxation after experiencing pain and injury was adult males. They preferred to consciously block out the problem when pain occurred (37.5%) or concentrate and focus on their next task after suffering an injury (25%).

The findings on strategies used in response to pain and injury also indicate that a larger number of females than males use emotion-focused coping strategies, such as relaxation when experiencing stress caused by pain and injury. Males, in contrast, are more likely to react by employing problem-focused techniques that resolve a stressful encounter by focusing attention on the task at hand or directing attention away from it.
It appears, however, that the strategy, 'I tried to relax', was the most preferred method of coping following pain and injury by most athletes.

**TABLE 4:** Percentages of Coping Strategy Usage by Groups in Response to Specific Stressors.

<table>
<thead>
<tr>
<th>STRESSORS</th>
<th>Madol</th>
<th>Fadol</th>
<th>Madlt</th>
<th>Fadlt</th>
<th>Adult</th>
<th>Adol</th>
<th>Male</th>
<th>Female</th>
<th>Tot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Making a physical error</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>42.9</td>
<td>40.0</td>
<td>12.5</td>
<td>14.3</td>
<td>13.0</td>
<td>42.1</td>
<td>26.7</td>
<td>25.0</td>
<td>26.2</td>
</tr>
<tr>
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<td>28.5</td>
<td>40.0</td>
<td>6.25</td>
<td>28.5</td>
<td>13.0</td>
<td>31.6</td>
<td>16.7</td>
<td>33.3</td>
<td>21.4</td>
</tr>
<tr>
<td>- went over in mind how I would change the situation so it won’t happen again</td>
<td>14.3</td>
<td>-</td>
<td>37.5</td>
<td>14.3</td>
<td>30.4</td>
<td>9.5</td>
<td>26.7</td>
<td>8.3</td>
<td>21.1</td>
</tr>
<tr>
<td>- put my angry feelings into my game so that I played better</td>
<td>-</td>
<td>20.0</td>
<td>25.0</td>
<td>28.6</td>
<td>26.1</td>
<td>5.26</td>
<td>13.3</td>
<td>25.0</td>
<td>16.7</td>
</tr>
<tr>
<td>- criticised or lectured myself</td>
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<td></td>
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<tr>
<td>2. Making a mental error</td>
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<td></td>
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<td>75.0</td>
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<tr>
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<td>-</td>
<td>19.0</td>
<td>37.5</td>
<td>28.6</td>
<td>22.2</td>
<td>27.0</td>
</tr>
<tr>
<td>- concentrated/focused on what had to be done next</td>
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<td>-</td>
<td>11.8</td>
<td>25.0</td>
<td>14.3</td>
<td>6.25</td>
<td>10.7</td>
<td>11.1</td>
<td>10.8</td>
</tr>
<tr>
<td>- put my angry feelings into my game so that I played better</td>
<td>18.2</td>
<td>20.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>12.5</td>
<td>7.1</td>
<td>11.1</td>
<td>8.1</td>
</tr>
<tr>
<td>- tried to relax</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Getting Injured</td>
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<td>5.0</td>
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<td>20.9</td>
<td>5.25</td>
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<tr>
<td>- concentrated/focused on what had to be done next</td>
<td>22.2</td>
<td>11.1</td>
<td>6.25</td>
<td>5.0</td>
<td>5.5</td>
<td>17.8</td>
<td>16.3</td>
<td>7.9</td>
<td>12.4</td>
</tr>
<tr>
<td>- realised that I had no way of dealing with the situation</td>
<td>-</td>
<td>22.2</td>
<td>18.8</td>
<td>10.0</td>
<td>13.9</td>
<td>8.9</td>
<td>7.0</td>
<td>15.8</td>
<td>11.1</td>
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<tr>
<td>- consciously 'blocked out' the problem</td>
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<td>4. Feeling Pain</td>
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<td>27.3</td>
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<td>14.3</td>
<td>37.5</td>
<td>16.7</td>
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<td>14.3</td>
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<td>14.3</td>
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<td>22.7</td>
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<td>-</td>
<td>15.8</td>
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<tr>
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<td>14.3</td>
<td>12.5</td>
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<td>13.6</td>
<td>-</td>
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</table>

Madol - Male adolescent, Fadol - Female adolescent, Madlt - Male adult, Fadlt - Female adolescent, Adol - Adolescent, Fmle - Female.

(continued next page)
<table>
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<tr>
<th>5. Received a &quot;bad&quot; call from an official</th>
<th>Madol</th>
<th>Fadol</th>
<th>Madlt</th>
<th>Fadlt</th>
<th>Adult</th>
<th>Adol</th>
<th>Male</th>
<th>Female</th>
<th>Tot</th>
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</thead>
<tbody>
<tr>
<td>- put my angry feelings into my game so that I played better</td>
<td>29.6</td>
<td>20.0</td>
<td>31.25</td>
<td>13.3</td>
<td>22.6</td>
<td>27.0</td>
<td>30.2</td>
<td>16.0</td>
<td>25.0</td>
</tr>
<tr>
<td>- concentrated/focused on what had to be done next</td>
<td>25.9</td>
<td>10.0</td>
<td>18.75</td>
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<td>12.9</td>
<td>5.4</td>
<td>6.7</td>
<td>16.0</td>
<td>8.8</td>
</tr>
<tr>
<td>- tried to keep feelings to myself - consciously 'blocked out' the problem</td>
<td>7.4</td>
<td>-</td>
<td>-</td>
<td>26.6</td>
<td>12.9</td>
<td>5.4</td>
<td>4.7</td>
<td>16.0</td>
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<tr>
<td>- took my frustrations out on other people or objects</td>
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<td>-</td>
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<td>18.75</td>
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<td>6. Getting hassled or booed by spectators</td>
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<td>-</td>
<td>25.0</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<td>- concentrated/focused on what had to be done next</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>- tried to relax</td>
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<td>25.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>13.3</td>
<td>20.0</td>
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<tr>
<td>8. Falling for a sucker/dummy move</td>
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<td>37.5</td>
<td>22.2</td>
<td>-</td>
<td>18.2</td>
<td>35.7</td>
<td>25.0</td>
<td>30.0</td>
<td>26.9</td>
</tr>
<tr>
<td>- went over in mind how I would change the situation so it won't happen again</td>
<td>16.7</td>
<td>37.5</td>
<td>22.2</td>
<td>50.0</td>
<td>27.3</td>
<td>28.6</td>
<td>18.75</td>
<td>40.0</td>
<td>26.9</td>
</tr>
<tr>
<td>- put my angry feelings into my game so that I played better</td>
<td>33.3</td>
<td>-</td>
<td>33.3</td>
<td>-</td>
<td>27.3</td>
<td>-</td>
<td>18.75</td>
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<tr>
<td>- tried to relax</td>
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<td>25.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>13.3</td>
<td>20.0</td>
<td>7.7</td>
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<tr>
<td>9. Your parents criticising you</td>
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<td>20.0</td>
<td>16.7</td>
<td>18.2</td>
<td>17.4</td>
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<td>17.7</td>
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<td>7.7</td>
<td>30.0</td>
<td>-</td>
<td>33.3</td>
<td>18.2</td>
<td>17.4</td>
<td>5.55</td>
<td>31.3</td>
<td>17.7</td>
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<td>22.2</td>
<td>6.25</td>
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<td>- put my angry feelings into my game so that I played better</td>
<td>15.4</td>
<td>10.0</td>
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<td>13.0</td>
<td>11.1</td>
<td>6.25</td>
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<td>- went on as if nothing had happened</td>
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<td>40.0</td>
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<td>11.1</td>
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<td>- blamed myself</td>
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<td>-</td>
<td>11.1</td>
<td>-</td>
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<tr>
<td>10. Coach yelling or putting pressure on you</td>
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<td>14.3</td>
<td>-</td>
<td>6.25</td>
<td>14.3</td>
<td>17.7</td>
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<td>11.8</td>
<td>7.4</td>
<td>9.1</td>
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<tr>
<td>- tried to analyse the problem to try to understand it</td>
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<td>5.5</td>
<td>-</td>
<td>-</td>
<td>14.3</td>
<td>17.7</td>
<td>3.7</td>
<td>9.1</td>
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(continued next page)
Table 4 (cont.)

<table>
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<tr>
<th>Examples</th>
<th>Madol</th>
<th>Fadol</th>
<th>Madlt</th>
<th>Fadlt</th>
<th>Adult</th>
<th>Adol</th>
<th>Male</th>
<th>Fmle</th>
<th>Tot</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Team mates yelling or hassling you</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- went over in my mind how I would change the situation so it won't happen again</td>
<td>10.0</td>
<td>-</td>
<td>45.5</td>
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<td>8.5</td>
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<tr>
<td>- consciously 'blocked out' the problem</td>
<td>-</td>
<td>14.3</td>
<td>18.2</td>
<td>-</td>
<td>8.7</td>
<td>8.3</td>
<td>9.5</td>
<td>7.7</td>
<td>8.5</td>
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<td>-</td>
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<td>-</td>
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<td>6.4</td>
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<td>9.5</td>
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<td>- took my frustrations out on other people or objects</td>
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<td>14. Being intimidated by opponents</td>
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Adolescents and adults also differed in their use of specific coping strategies. For example, one marked variation between groups was their reaction to making a physical error, in which a much larger percentage of adolescents (40%) than adults (13%) '...concentrated and focused on what had to be done next'. A high number of
the younger group also used the strategy, 'I went over in my mind how I would change the situation so it won't happen again' (32%). In contrast, the adult participants' most common responses to a physical error were to put their angry feelings into their game so that they played better (30%), or to criticise or lecture themselves (26%). It appears that adolescents were more concerned about changing and improving the situation than adults, who typically responded to this stressor with negative emotions. After committing a mental error adolescents preferred to concentrate and focus on what had to be done next (38%) and to change the situation in their minds so it wouldn't happen again (25%). When trying to cope with a mental error adults used the same two techniques as adolescents, however more athletes in the adult group (adolescents - 25%, adults - 33%) went over the situation in their mind. These findings suggest that whilst adolescents tend to respond in similar ways to mental and physical errors, that is, using problem-focused strategies such as increasing concentration and focus, adults' coping reactions may depend on the type of error made.

In addition to the differences between the two age groups in the use of coping strategies there were also a number of similarities. For example, the most frequently given response to, 'my opponent has just cheated', was 'I put my angry feelings into my game ...' (36% of both the adolescent and adults groups). There were also similarities between the responses to stress arising from parental criticism, with participants in both age groups either concentrating and focusing on the next task or trying to keep their feelings to themselves (17% and 18% for adolescents and adults respectively). Other likenesses in the use of coping strategies, such as using relaxation to deal with stress from pain and injury, have been examined previously.

An overall assessment of the findings on coping strategies used by adults and adolescents showed that whilst there were some clear similarities between the groups in their choice of responses, there were also a number of differences that distinguished age groups. For a large percentage of athletes in both groups the strategies, 'I
concentrated and focused on what had to be done next', 'I put my angry feelings into my game so that I played better', and 'I went over in my mind how to change the situation so it won't happen again', were the most common responses to stress. However, the typical coping strategy by each group varied after exposure to different types of stressors.

The three most frequent coping responses given by males and females were similar to those given by adolescents and adults. Overall, 'I concentrated and focused on what had to be done next', 'I put my angry feelings into my game so I played better' and 'I went over in my mind how I would change the situation so it won't happen again' were the strategies used most often by all groups. These similarities indicate that these three strategies are frequently employed by a large number of individuals regardless of age or gender. Differences between gender groups did, however, occur in responses to individual stressors.

The most common coping response of both males and females to the stressors examined was to concentrate and focus on their game. This response was given by the majority of females participants for six of the 15 stressors, and the second most frequently reported strategy used to cope with three other sources. Males also rated this technique as one of their two most frequently employed techniques for six of the stressors. Overall, a higher percentage of males tended to displace their anger into their game after experiencing acute stress. Females used this technique only in response to specific types of stressors (e.g., opponents, and problems with officials and spectators).

Although there were some overall similarities in the ways that males and females coped, there were some clear differences in the approaches they used to deal with specific sources of stress. For example, the primary response given by females to stress associated with making either a physical or mental error was to mentally review
the situation (physical error - 33\% of female respondents, mental error - 56\% of female respondents). Males preferred to use their anger to help them perform better or to increase their concentration and focus after a physical error. Males believed that making a mental error caused them more intense stress than females did (males $M = 4.50$; females $M = 4.20$). An examination of the male responses to this stressor revealed that their most frequently used coping strategy was 'I concentrated and focused...' (29\%). Male adults did, however, use a larger variety of coping techniques than male adolescents, with replaying the event in their mind to stop it from occurring again (24\%) and concentrating and focusing (24\%) being the most popular of the older group's responses.

Although the most frequent overall responses to the stressors 'injury' and 'pain' was 'I tried to relax' (injury - 25\%, pain - 37\%), there were clear gender differences in use of this technique. In response to acute stress experienced after an injury, 34\% of the females used relaxation, as compared to only 14\% of males. Both adolescent and adult female athletes responded similarly to injury with relaxation (adolescent - 33\%, adult - 35\%). However, for the second most common coping strategies the adult athletes tried to calm themselves by self-talk (25\%), whereas adolescents tried to consciously 'block out' the problem (22\%). Males had more varied responses than females to injury.

Although relaxation was also the most frequently used strategy for dealing with stress associated with pain, there was a relatively large difference in the percentages of males and females who typically used this technique. Females, who rated pain as one of their five most intense stressors used relaxation more (48\%) than males, who didn't consider this source to cause intense stress (27\%). Male adults, in particular, preferred to consciously block out the pain (37\%) rather than using relaxation (12\%). In addition to trying to relax, 28\% of female adolescents worried about what happened. This response was rarely employed by any other group in response to pain.
The differences between the genders in their responses to injury and pain indicated that females acknowledge these problems more than males.

Just as there were differences between males and females in the intensity of stress experienced as a result of parental criticism, there were also differences in their use of coping strategies aimed at reducing this stress. The most common response of the females was to keep their feelings to themselves (31%), while only 6% of males used this method. Instead, the strategies most frequently reported by males were 'I concentrated and focused...' (22%) and 'I put my angry feelings into my game...' (22%). Females experienced more intense stress after parental criticism than males. The responses to stress elicited by parental criticism indicated that many females do not like to reveal what they are feeling. Of the males who found this source stressful, many chose to put their efforts, thoughts and feelings into their game rather than trying to hide their feelings.

Although the most common strategy employed by females to cope with acute stress caused by opponents (e.g., success of an opponent, intimidation by opponents, and opponent cheating) was to concentrate and focus on the game, some athletes preferred to apply their angry feelings toward their game performance. The three opponent sources of stress elicited greater use of anger by females than any other types of stressors (success of opponents - 15%, intimidation by opponents - 22%, opponent cheating - 26%). There were still differences, however, in the frequency with which this strategy was used by males and females. Males also responded more to opponent stressors with anger than most other sources of stress. It appears that opponents create intense stress in both males and females. They also cause athletes of both sexes to experience feelings of anger that are not often elicited in other stressful situations.

In summary, there was little variation between the major types of coping strategies that males and females 'typically' used to deal with acute stress. The comparison between
genders was similar to the age comparison in that the most frequently employed strategies were 'I concentrated and focused on what had to be done next', 'I put my angry feelings into my game so that I played better', and 'I went over in my mind how I would change the situation so it won't happen again'. An examination of the specific similarities and differences between males and females, however, revealed that there were larger and more frequent variations in the strategies used for specific stressors than there were between the age groups.

A close examination of the specific groups revealed that in addition to the gender and age differences in use of coping strategies, there were numerous variations in the ways that male and female adolescents coped with stress. For example, after making both physical and mental errors the majority of participants in both groups either concentrated and focused on their next moves or went over their minds how to change the situation. After experiencing stress caused by a mental error, however, female adolescents preferred to use the latter strategy (40%), whilst male adolescents were more likely to use 'I concentrated and focused...' (36.4%). Each group reported the other one of the two strategies as being their second most usual response, but this was used by a lower percentage of athletes than concentration.

The responses of male and females adolescents to pain and injury followed a similar pattern to the general male and female results. A high percentage of athletes in both adolescent groups recorded that they usually tried to relax to reduce their stress, however, they differed in the use of other common techniques. Male adolescents, whilst having no clear strategy preferences, tended to acknowledge that there was a problem but did not want to deal with it. They preferred to continue their involvement in the game and not worry about the pain or injury. Twenty eight percent of female adolescents, in contrast, said that they usually worried about what had happened.
There were large differences in the ways that individuals in the male and female adolescent groups usually tried to cope with stress caused by parents and the coach. After parental criticism, 30% of the female adolescent respondents tried to keep their feelings to themselves, in contrast to only 8% of males. The males were more likely to use anger to help them to play better (male adolescents - 30%, female adolescents - 0%). In addition to thinking about the situation in order to plan how to deal with a similar problem in the future (30%), and trying to analyse the situation (20%), anger was used by male adolescents after experiencing stress from the coach. The younger females had no clear strategy preferences to reduce stress from their coach.

In summary, there were some clear differences in the usual choices of strategies employed to cope with acute stress by males and females, adults and adolescents. This supports hypothesis 2, which predicted that the groups would react differently to acute stressors and try to cope with stress resulting from these sources in varying ways. As well as the differences between gender and age groups, there were variations in the reactions and responses of adolescent males and females, and adult males and females. This finding lends some support to the notion that stress management programs should be group specific, and focus on the unique needs, skills, and preferences of each group.

**Problem- and Emotion-Focused Coping Styles**

In addition to examining the individual strategies used by each group of athletes, participants' coping styles were also considered. Specifically, the use of problem- and emotion-focused coping responses by gender and age groups were analysed in an attempt to gain further insight into the ways that athletes cope with acute stress in sport. Table 5 provides a summary of the percentages of athletes who indicated that they usually responded to each source of stress with either problem- or emotion-focused coping. While there were a large number of similarities found between the groups, there were also some clear differences. A review of the combined group totals for each stressor revealed that emotion-focused coping was used most often. Ten of the 15
sources of acute stress were followed with emotion-focused coping strategies. There were, however, sub-groups that showed a preference for the use of problem-focused coping to deal with stress resulting from some sources.

The athletes' coping responses to stress after physical and mental errors were similar among groups, eliciting problem-focused coping in males, females, adolescents and adults (76%). A chi-square analysis (see Table 6) indicated that after both mental and physical errors, there were highly significant effects (p<0.001) for sex by style, controlling for both adults and adolescents.

Emotion-focused coping responses were used by participants more often than problem-focused strategies after experiencing stress associated with injury and pain. Fifty six percent of all athletes who were stressed by an injury attempted to cope with it through the use of emotion-focused strategies, and 61% of respondents had a preference for this type of response after feeling pain. The most common emotion-based responses was 'I tried to relax' (injury - 25%; pain - 37%). Significant differences were found in the typical response patterns of adolescent males and females after suffering from an injury ($\chi^2[1, N = 200] = 40.60, p<0.001$) and pain ($\chi^2[1, N = 200] = 68.44, p<0.001$). For both stressors, males showed a preference for problem-focused coping, whilst females used strategies that were predominantly emotion-focused. The problem-focused strategies used by males most often were 'I concentrated and focused...' after an injury (21%) and 'I consciously 'blocked out' the problem' after pain (23%). No significant differences were found between male and female adults in their types of coping responses. Both sexes employed a greater percentage of emotion-focused coping to deal with injury and pain.

Another stressor that elicited emotion-focused coping responses from more than half of the participants (56%) was 'I received a bad call from an official'. Examples of emotion-focused coping responses used are, 'I put my angry feelings into my game...', 'I tried to
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<td>16.7</td>
<td>60.0</td>
<td>42.9</td>
<td>37.5</td>
<td>43.8</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>Emotion</td>
<td>33.3</td>
<td>42.9</td>
<td>75.0</td>
<td>100</td>
<td>83.3</td>
<td>40.0</td>
<td>57.1</td>
<td>62.5</td>
<td>56.2</td>
</tr>
<tr>
<td>CHEAT</td>
<td>Problem</td>
<td>14.3</td>
<td>50.0</td>
<td>35.3</td>
<td>25.0</td>
<td>32.0</td>
<td>29.2</td>
<td>22.5</td>
<td>38.9</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>Emotion</td>
<td>85.7</td>
<td>50.0</td>
<td>64.7</td>
<td>75.0</td>
<td>68.0</td>
<td>70.8</td>
<td>77.5</td>
<td>61.6</td>
<td>62.5</td>
</tr>
</tbody>
</table>
There were, however, two groups in which emotion-focused strategies were not the most typical responses. The female athletes questioned were divided in their use of strategy type, with 52% usually using problem-focused and 48% using emotion-focused coping. These percentages were slightly different from the male findings. Only 40% of the male athletes who found this source to be stressful reported that they usually opted for a problem-focused response (e.g., increasing concentration and focus). A closer examination of the groups revealed that whilst this stressor elicited a significant difference in coping responses between male and female adults ($\chi^2[1, N = 200] = 21.88, p<0.001$), there was little difference between the male and female groups of adolescents. Both sexes used emotion-focused coping (male-56%; female-60%) in preference to problem-focused coping. The males were most likely to use the emotion based strategy 'I put my angry feelings into my game...'.

Stress caused by hassling, yelling, and/or criticising influenced the player's selection of coping strategies. For example, parental criticism elicited more emotion-focused coping then problem-focused responses (emotion = 68%, problem = 32%). This stressor caused a high degree of emotion-focused coping (e.g., 'I put my angry feelings into my game...', 'I tried to keep my feelings to myself', and 'I tried to relax'). Male adults were the only group who had a preference for problem-focused coping strategies in response to parents (80%).

Most athletes, from all groups preferred using problem-focused coping (80%) when their coach yelled or putting pressure on them. The most common problem-focused responses included 'I concentrated and focused...', 'I went over in my mind how I would change the situation...', 'I tried to analyse the situation...', and 'I asked the coach for advice'. In all groups more than 70% of the athletes used problem-focused strategies following stress from the coach. Adolescents showed a particularly strong preference...
for this type of coping (adolescents - 88%, adults 75%), as did females (females - 82%, males - 77%).

TABLE 6.
Summary of Chi-square analyses for sex by coping style, controlling for age groups.

<table>
<thead>
<tr>
<th>Stressor</th>
<th>Controlling for group (Adol or Adult)</th>
<th>Chi Statistic</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYER</td>
<td>Adol</td>
<td>29.21</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>15.40</td>
<td>0.00</td>
</tr>
<tr>
<td>MENER</td>
<td>Adol</td>
<td>43.42</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>32.12</td>
<td>0.00</td>
</tr>
<tr>
<td>INJURY</td>
<td>Adol</td>
<td>40.60</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>0.748</td>
<td>0.74</td>
</tr>
<tr>
<td>PAIN</td>
<td>Adol</td>
<td>68.44</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>1.155</td>
<td>0.28</td>
</tr>
<tr>
<td>CALL</td>
<td>Adol</td>
<td>0.290</td>
<td>0.59</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>21.88</td>
<td>0.00</td>
</tr>
<tr>
<td>SPECT</td>
<td>Adol</td>
<td>21.29</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>46.15</td>
<td>0.00</td>
</tr>
<tr>
<td>TEAMER</td>
<td>Adol</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SUCKER</td>
<td>Adol</td>
<td>57.06</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>0.33</td>
<td>0.56</td>
</tr>
<tr>
<td>PARENT</td>
<td>Adol</td>
<td>44.40</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>5.56</td>
<td>0.02</td>
</tr>
<tr>
<td>COACH</td>
<td>Adol</td>
<td>33.37</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>1.67</td>
<td>0.19</td>
</tr>
<tr>
<td>TEHASS</td>
<td>Adol</td>
<td>5.96</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>1.93</td>
<td>0.19</td>
</tr>
<tr>
<td>WEATH</td>
<td>Adol</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>OPPSUC</td>
<td>Adol</td>
<td>5.73</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>28.90</td>
<td>0.00</td>
</tr>
<tr>
<td>INTIM</td>
<td>Adol</td>
<td>1.95</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>28.57</td>
<td>0.00</td>
</tr>
<tr>
<td>CHEAT</td>
<td>Adol</td>
<td>29.21</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>2.51</td>
<td>0.11</td>
</tr>
</tbody>
</table>

The chi-square results on coping patterns after stress caused by others confirmed the results about typical coping responses to acute stress caused by these sources. The analyses also revealed more specific differences and similarities between groups. For all of the stressors involving observation, hassling or criticising by others (e.g., coach and parents), higher percentages of both adult and adolescent male athletes chose to use...
problem-focused coping. Significant differences in the typical coping patterns of male and female adolescents occurred for the stressors involving significant others such as the parents, coaches and teammates. For example, in response to the stressors involving spectator and parental hassling and criticism, a higher percentage of female athletes indicated that they usually used emotion-focused strategies (spectators- $\chi^2[1, N = 200] = 21.29, p<0.001$; parents- $\chi^2[1, N = 200] = 44.40, p<0.001$).

Overall, emotion-focused coping was used more often than problem-focused coping after experiencing stress associated with opponents. There were fewer significant differences between groups in the percentages of athletes who used different coping styles following opponent-related stressors than for other stress sources. For example, all groups used emotion-focused coping strategies (e.g., anger) when trying to cope with stress resulting from their opponent cheating. Male adolescents, in particular, showed a very strong preference for this coping style (male adolescents - 85.7%, female adolescents - 50%, male adults - 64.7%, female adults, 75%). However, differences did occur between some of the groups. For example, a significant difference was found between adolescent males and adolescent females ($\chi^2[1, N = 200] = 29.21, p<0.001$), with males showing a clear preference for emotion-focused strategies, such as anger, and the females using an equal percentage of both coping styles (50%/50%). For this source of stress, the adult gender groups did not differ significantly. A high number of athletes using anger to deal with their stress resulted in emotion-focused coping being relatively high for both groups (adult male - 64.7%, adult female - 75%). Stress occurring as a result of opponents appeared to elicit feelings of anger in many athletes, from all groups.

Overall, the findings on problem- and emotion-focused coping preferences in Study 1 lent further support to the idea that there are numerous differences in the ways that age and gender groups cope with acute stress during sport. Whilst emotion-focused coping was adopted in response to a higher number of stressors, there were specific groups who...
used strategies that were problem-focused to reduce stress caused by some of these sources. Specific types of stressors also elicited problem-focused coping (e.g., errors). The most common problem-focused strategy employed after experiencing such stressors were, 'I concentrated and focused on what had to be done next', and 'I went over in my mind how to change the situation so it won't happen again'. The emotion-focused strategies were more varied, with the most typical of these responses being, 'I put my angry feelings into my game so that I played better', 'I tried to relax', and 'I tried to keep my feelings to myself'.

**Perfectionism and Self-Confidence**

To examine group differences in the disposition scores, One-Way ANOVAs were conducted. Table 7 presents a summary of the ANOVAs for the effects of age and sex on trait self-confidence and perfectionism scores. Results showed a significant difference between males and females on the trait self-confidence measure ($F = 16.52$, $p<0.0001$), as predicted in hypothesis 3ai). Females' ($M = 62.36$, $SD = 16.74$) scores on this measure were significantly lower than males ($M = 73.13$, $SD = 14.20$), indicating that they were significantly less confident than their male counterparts in their ability to be successful at sport. A discriminant function analysis that was conducted to examine the prediction of the dispositional variables on gender also found that the gender of a subject could be significantly predicted ($F[1, 129] = 16.66$, $p<0.0001$) by TSCI scores (see Table 8). That is, a confidence score obtained for an athlete could be used to determine whether they were male or female.

To investigate the predictive value of perfectionism on age and gender, One-Way ANOVAs and discriminant function analyses were conducted. The ANOVAs compared the MPS scores of males and females. These analyses examined the five subscale scores of the MPS in addition to the overall perfectionism score as a function of gender. No
significant gender differences were found for any of the MPS scales. The finding suggests that males and females do not vary significantly in their levels of perfectionistic thinking. This finding did not support hypothesis 3a(ii).

A discriminant function analysis was also computed to establish whether trait self-confidence and perfectionism could be used to discriminate between group (age and sex).

**TABLE 7:**
**Summary of ANOVAs for the effects of age and sex on TSCI and MPS scores.**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>F value</th>
<th>Pr&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SEX</td>
<td>0.00</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>GP</td>
<td>11.72</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>SEX</td>
<td>0.46</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>GP</td>
<td>2.90</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>SEX</td>
<td>0.05</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>GP</td>
<td>2.77</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>SEX</td>
<td>0.01</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>GP</td>
<td>0.31</td>
<td>0.58</td>
</tr>
</tbody>
</table>

TSCI=Trait Self-confidence Inventory  
D=Doubts about actions  
O= Organisation  
PS=Personal standards  
P=Perfectionism

This analysis revealed that membership in gender groups could not be predicted by any of the MPS scales. In the analysis for age, however, a significant discrimination was found between adults and adolescents ($F[1, 129] = 2.97, p<0.009$). Three of the MPS subscales were shown to be associated with an age group (adult or adolescent). The subscale that was most significantly linked with age was Doubts About Actions. This finding confirmed the ANOVA that showed significant group differences for the variable Doubts About Actions ($F[1, 135] = 11.72, p<0.0008$). Adolescents ($M =$
11.35) scored more highly than adults (M = 9.28) on this subscale (D), indicating that they had more doubts about the quality of their performances. The discriminant function analysis also indicated that the variables O (organisation) and PS (personal standards) neared significance in their ability to discriminate between age groups (adolescent and adult). No significant differences were found between either group on the overall perfectionism score (F [1, 129] = 0.9223).

Table 9 provides results for the three models of the stepwise multiple regression analysis which examined the predictive effect of the four highest intensity stressors on the dependent variables TSCI and P for adolescents. Results for the adult, male, and female groups are found in Appendix K. It can be observed that for all groups, no individual or combination of independent variables were significant predictors of either dependent variable. Between 6% and 9% of variance in both perfectionism and self-confidence could be predicted by stress intensity when all four stressors were included in the equation (model 3). That is, stress intensity levels did not predict trait self-confidence or perfectionism in any of the age or gender groups. This indicated that these dispositions may not mediate stress intensity.

Further stepwise multiple regression analyses on the MPS subscales revealed that some of the dimensions of perfectionism could be predicted by stress intensity. The variable that was most significantly related to stress intensity was Personal Standards (PS). Table 10 reveals that for all four groups a high score on the personal standards subscale of the MPS could be predicted significantly by high stress intensity (adolescents - F[4, 72] = 1.74, r² = 0.09; adults - F[4, 72] = 2.12, r² = 0.13; males - F[4, 72] = 3.41, r² = 0.16; females - F[4, 72] = 2.07, r² = 0.13). However, the personal standards subscale only accounted for between 9% and 16% of the variance when the top four stress intensity variables were included in the regression equation. So, although in combination the top four intensity stressors were significant predictors of personal standards, the percent of variance was small.
TABLE 8:
Summary results for discriminant function analysis of TSCI and MPS scores by SEX and AGE.

<table>
<thead>
<tr>
<th>SEX</th>
<th>Univariate test statistics</th>
<th>Group</th>
<th>Univariate test statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>VARIABLE</td>
<td>F</td>
<td>PR&gt;F Pooled Within Can. Structure</td>
<td>VARIABLE</td>
</tr>
<tr>
<td>TSCI</td>
<td>16.6618</td>
<td>0.0001</td>
<td>0.8192360</td>
</tr>
<tr>
<td>P</td>
<td>0.0095</td>
<td>0.9223</td>
<td>-0.019603</td>
</tr>
<tr>
<td>CM</td>
<td>0.7762</td>
<td>0.3799</td>
<td>0.1768260</td>
</tr>
<tr>
<td>O</td>
<td>0.3675</td>
<td>0.5454</td>
<td>-0.121673</td>
</tr>
<tr>
<td>D</td>
<td>0.0158</td>
<td>0.9002</td>
<td>-0.025214</td>
</tr>
<tr>
<td>PS</td>
<td>0.0683</td>
<td>0.7942</td>
<td>-0.052449</td>
</tr>
<tr>
<td>PE</td>
<td>0.2284</td>
<td>0.6335</td>
<td>-0.095907</td>
</tr>
</tbody>
</table>

It was also found that stress intensity was a significant predictor of scores on the Parental Expectations (PE) subscale of the MPS (see Table 11), for adolescents ($F[4, 72] = 1.50, r^2 = 0.81$). Although stress intensity only accounted for 8% of the variance, athletes in this group who experienced high acute stress intensity were still likely to perceive that their parents had high expectations of them. For all male athletes examined in the present study, Parental Expectations also predicted stress intensity ($F[4, 74] = 3.86, r^2 = 0.18$). A total of 18% of the variance on this subscale score was accounted for by the collective effect of the four highest stress intensity variables.
TABLE 9: Stepwise Multiple Regression of stress intensity variables on Overall Perfectionism and TSCI scores.

**MODEL 1 - Perfectionism**

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS1 (CHEAT)</td>
<td>0.0399</td>
<td>0.9639</td>
</tr>
<tr>
<td>IS2 (INJURY)</td>
<td>1.0021</td>
<td>0.2338</td>
</tr>
</tbody>
</table>

R² - 0.0220  Adj R² - 0.0060  F-value - 0.773

**MODEL 2 - Perfectionism**

<table>
<thead>
<tr>
<th>Variables</th>
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<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS1 (CHEAT)</td>
<td>0.0354</td>
<td>0.9679</td>
</tr>
<tr>
<td>IS2 (INJURY)</td>
<td>0.7870</td>
<td>0.3568</td>
</tr>
<tr>
<td>IS3 (CALL)</td>
<td>1.1535</td>
<td>0.2120</td>
</tr>
</tbody>
</table>

R² - 0.0436  Adj R² - 0.0020  F-value - 1.049

**MODEL 3 - Perfectionism**

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS1 (CHEAT)</td>
<td>-0.010</td>
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</tr>
<tr>
<td>IS2 (INJURY)</td>
<td>0.6553</td>
<td>0.4387</td>
</tr>
<tr>
<td>IS3 (CALL)</td>
<td>1.0130</td>
<td>0.2689</td>
</tr>
<tr>
<td>IS4 (TEHASS)</td>
<td>1.6370</td>
<td>0.0996</td>
</tr>
</tbody>
</table>

R² - 0.0813  Adj R² - 0.0272  F-value - 1.504

**MODEL 1 - TSCI**

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS1 (CHEAT)</td>
<td>0.2660</td>
<td>0.7985</td>
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<tr>
<td>IS2 (INJURY)</td>
<td>1.3599</td>
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</table>

R² - 0.0310  Adj R² - 0.0033  F-value - 1.120

**MODEL 2 - TSCI**

<table>
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</tr>
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<tbody>
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<td>IS2 (INJURY)</td>
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</tr>
<tr>
<td>IS3 (CALL)</td>
<td>0.4358</td>
<td>0.6913</td>
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</table>

R² - 0.0332  Adj R² - 0.0088  F-value - 0.791

**MODEL 3 - TSCI**

<table>
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<tr>
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</thead>
<tbody>
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<td>IS3 (CALL)</td>
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<td>0.5875</td>
</tr>
<tr>
<td>IS4 (TEHASS)</td>
<td>1.8229</td>
<td>0.1249</td>
</tr>
</tbody>
</table>

R² - 0.0664  Adj R² - 0.0115  F-value - 1.209
Doubts About Actions (D) (see Table 12) was also found to be a dimension of perfectionism that could be predicted by the intensity of stress experienced by female athletes ($F[4, 58] = 4.06, r^2 = 0.23$). The four highest intensity stressors combined for this group accounted for 23% of the variance. This result indicates the more doubts females have about their sporting performances and actions taken during competition, the more they are likely to experience high intensity acute stress.

TABLE 10:
Summary of significant results from a stepwise multiple regression of stress intensity variables on the Personal Standards subscale of the MPS.

<table>
<thead>
<tr>
<th></th>
<th>ADOLESCENTS</th>
<th>ADULTS</th>
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</thead>
<tbody>
<tr>
<td><strong>MODEL 1 - Personal Standards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variables</td>
<td>B</td>
<td>p</td>
</tr>
<tr>
<td>IS1 (CHEAT)</td>
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</tr>
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<td>IS2 (INJURY)</td>
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<td>0.3929</td>
</tr>
<tr>
<td>R^2 - 0.0824</td>
<td>Adj R^2 - 0.0562</td>
<td>F - 3.145</td>
</tr>
<tr>
<td><strong>MODEL 2 - Personal Standards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variables</td>
<td>B</td>
<td>p</td>
</tr>
<tr>
<td>IS1 (CHEAT)</td>
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<td>0.0404*</td>
</tr>
<tr>
<td>IS2 (INJURY)</td>
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</tr>
<tr>
<td>IS3 (CALL)</td>
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</tr>
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<td>Adj R^2 - 0.0427</td>
<td>F - 2.072</td>
</tr>
<tr>
<td><strong>MODEL 3 - Personal Standards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variables</td>
<td>B</td>
<td>p</td>
</tr>
<tr>
<td>IS1 (CHEAT)</td>
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<td>0.0383*</td>
</tr>
<tr>
<td>IS2 (INJURY)</td>
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</tr>
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<td>IS3 (CALL)</td>
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</tr>
<tr>
<td>IS4 (TEHASS)</td>
<td>-0.2930</td>
<td>0.3818</td>
</tr>
<tr>
<td>R^2 - 0.0930</td>
<td>Adj R^2 - 0.0427</td>
<td>F - 1.742</td>
</tr>
</tbody>
</table>

* p < .05

Continued on page 110.
Table 10 cont.

<table>
<thead>
<tr>
<th></th>
<th>MALES</th>
<th></th>
<th>FEMALES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MODEL 1 - Personal Standards</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variables</td>
<td>B</td>
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<tr>
<td>IS1 (CHEAT)</td>
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<td>R2 - 0.0679 Adj R2</td>
<td>0.0420</td>
<td>F- 2.622</td>
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<td><strong>MODEL 2 - Personal Standards</strong></td>
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<td>0.0311</td>
<td>F- 1.792</td>
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<td><strong>MODEL 3 - Personal Standards</strong></td>
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<td>IS4 (MENER)</td>
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<td>R2 - 0.1629 Adj R2</td>
<td>0.1150</td>
<td>F- 3.405</td>
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**TABLE 11:**
Summary of significant results from a stepwise multiple regression of stress intensity variables on the Parental Expectations subscale of the MPS.

**ADOLESCENTS**

**MODEL 1 - Parental Expectations**

<table>
<thead>
<tr>
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<tr>
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continued on next page.
Table 11 cont.

**MODEL 2** - Parental Expectations

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<td>IS3 (CALL)</td>
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R² = 0.0723  Adj R² = 0.0320  F = 1.793

**MODEL 3** - Parental Expectations

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R² = 0.0811  Adj R² = 0.0271  F = 1.501

---

**MALES**

**MODEL 1** - Parental Expectations

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R² = 0.1513  Adj R² = 0.1277  F = 6.417

**MODEL 2** - Parental Expectations

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<td>IS1 (CHEAT)</td>
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R² = 0.1685  Adj R² = 0.1333  F = 4.794

**MODEL 3** - Parental Expectations

<table>
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<td>IS1 (CHEAT)</td>
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R² = 0.1808  Adj R² = 0.1340  F = 3.863

---
TABLE 12: Summary of significant results from a stepwise multiple regression of stress intensity variables on the Doubts About Actions subscale of the MPS.

FEMALES

MODEL 1 - Doubts

<table>
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<tr>
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R² - 0.0382  Adj R² - 0.0038  F - 1.112

MODEL 2 - Doubts

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<td>IS2 (CHEAT)</td>
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<td>IS3 (COACH)</td>
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</table>

R² - 0.2307  Adj R² - 0.1887  F - 5.497

MODEL 3 - Doubts

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</thead>
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<tr>
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</tr>
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</table>

R² - 0.2314  Adj R² - 0.1745  F - 4.064

In summary, the predictions of group differences in the dispositions trait self-confidence and perfectionism were only partially confirmed. Whilst the expected significant difference between males and females in trait self-confidence was found perfectionism scores did not vary markedly between any of the groups. The finding that stress intensity levels did not predict the disposions of perfectionism and self-confidence was also unexpected. Stress intensity levels did not predict trait self-confidence nor perfectionism in any of the groups. For both analyses, however, significant effects were found when MPS subscales were included in the investigations. Thus, although the overall levels of self-confidence and perfectionism do mediate the intensity of acute stress experienced, the results imply that specific dimensions of perfectionism (e.g., doubts about actions and personal standards) may influence an athlete's reactions to acute stressors in sport competition.
Participants

The participants in Study 2 were 30 females from a group of highly skilled adolescent athletes in New South Wales (Australia), ranging in age from 14 to 16 yrs ($M = 14.9$ yrs). The participants participated in netball ($n = 10$), hockey ($n = 11$), or basketball ($n = 10$). The experimental group consisted of only netball players, the control group comprised only the basketball players, and the hockey players formed the placebo group. The reason for assigning athletes from only one sport to each condition was the availability of athletes from each team. The group to which each team was allocated was dependent upon their schedule, and on their attendance at intervention sessions. For example, the basketball team only had two training sessions scheduled within the proposed six week data collection period. As it was not possible to arrange extra times for intervention sessions, aside from practice sessions, it was decided that this team would be the control group. The netball team was chosen to be the experimental group because their schedule provided the most frequent opportunities for the implementation of an intervention program. All data collection and intervention sessions occurred before the athlete's practices at which time all team members would be in attendance.

Each condition consisted of athletes from the respective teams who had participated in Study 1 of this thesis. All participants were volunteers who lived in close proximity to the data collection sites in New South Wales, Australia. Only one athlete, a basketball player participating in the control condition, did not return the questionnaires sent to him, and therefore, was deleted from the study.
Equipment and Measures

Interviews

A structured interview, consisting of a series of open-ended questions and Likert scale questions was developed for this investigation. All participants were asked an identical set of questions in the same order, thus minimising interviewer bias (see Appendix C). The content of the interview was based on similar issues to those examined in Study 1, sources of acute stress and coping responses. These topics were also addressed in the interview so that further information could be gained about the coping requirements and characteristics of adolescent female athletes. The identified needs and characteristics were then included in the stress management program.

The questionnaire was divided into three sections. Part A required the athletes to recall the most stressful situation they had experienced during a game. They were then asked to rate the intensity level of their stress on a 7-point Likert scale ranging from 1 (not at all stressed) to 7 (extremely stressed). Questions regarding their coping responses to the most stressful situation, and the effectiveness of any coping strategies they may have used were then posed. Finally, participants were queried about the effectiveness of these coping responses, and asked if the strategies had helped them or had any negative effects on their game. Part B of the interview asked participants to answer the same questions as Part A, but in relation to a different game-related stressor they had previously experienced.

The third section of the interview, Part C, ascertained the ease with which participants became stressed and the stress intensity level they usually experienced during most games. These general questions were included to examine whether differences occurred between the stress caused by particular highly stressful events and stress elicited overall in stressful sporting situations. The general questions were also incorporated into the interview to provide further information about the effectiveness
of the intervention. It was believed that reductions in the intensity and 'ease with which' participants experienced acute stress in the post-test may indicate that the intervention favourably influences the athlete's general stress reactions. Responses to both of the questions in Part C were answered on a 7-point Likert scale, in particular, how easily they became stressed, on a scale ranging from 1 (not very easily) to 7 (extremely easily), and their perceived level of stress, on a scale ranging from 1 (not at all stressed) to 7 (extremely stressed).

Pilot interviews were conducted with three adolescent females, between the ages of 14 and 16 yrs, prior to the actual study. These were conducted with athletes from a similar sample to the groups questioned in Study 2. The purpose of administering pilot interviews was to establish whether the interview questions could be understood by, and were appropriate for the adolescent female athletes in the study. A sport psychologist with past experience and knowledge in the areas of stress and coping was also consulted about the composition of the questions. Feedback from these sources resulted in minor revisions in item content, with rewording of selected questions. In addition, two questions concerning the effects of the coping strategies used in specific situations were included following the pilot study to improve the clarity and comprehensiveness of the interview.

**Stress/Arousal Adjective Checklist**

The subject's stress levels were measured by the Stress/Arousal Adjective Checklist (SACL; Mackay, Cox, Burrows, & Lazzerini, 1978, see Appendix D). This inventory was used to establish the degree to which athletes are stressed and aroused during sporting competition. Each subject was presented with a list of 31 adjectives that may have described how they were feeling in a particular situation. The athlete was required to rate the extent to which each adjective applied to their feelings on a four point scale (++ = "definitely describes how you feel" to - = "does not apply to your
feelings"). As the administration of questionnaires could not be conducted at actual game sites, the athletes were instructed to recall their feelings based on how they had usually felt during games that had occurred in the past six weeks. Since the SACL could not be administered to all athletes in specific stressful situations, it was used to gauge changes in the subject's overall levels of stress between the pre- and post-interviews.

Two measures can be obtained from the SACL. The inventory includes words that are related to stress, and words that are related to arousal. Adjectives from each category are distributed randomly throughout the list. To obtain separate measures for stress and arousal, scores from the words associated with each emotion are summed. As the present study was investigating stress, and not arousal, only the stress score was calculated. Scoring for each word (e.g., nervous, tense, up-tight) involved allocating four points for '++' response, three points for '+', two points for '?', and one point for a '-'. Seven words (e.g., relaxed, restful, peaceful) were scored in reverse order (i.e., one point for '++' and four points for '-'). The highest possible stress score is 64 points, with higher scores indicate greater levels of stress.

**Experimental Condition Intervention - Stress Management Program**

The stress management program implemented in Study 2 was modelled primarily on Meichenbaum's Stress Inoculation Training Program (SIT, Meichenbaum, 1977), but also included components of Anshel's (1990) COPE model. Similar to Meichenbaum's model, the current program involved three phases: an introduction, a skills acquisition phase, and an application and follow-through phase (see Appendix E for details of stress management program). The experimental intervention is outlined in Figure 1. This intervention was composed of four sessions, rather than the 12-15 suggested by Meichenbaum (1985) because of time restrictions and subject availability (i.e., the experimental participants could not attend more than four
Past studies involving short duration stress management (e.g., Mace & Carrol, 1986; Hamilton & Fremouw, 1985; Ziegler et al., 1982) have, however, indicated that some short intervention programs have produced some positive performance and psychological changes.

**FIGURE 1:** Outline of experimental group intervention program.

Session 1

The first session in which the researcher had direct contact with the participants involved the collection of pre-intervention data. Initial interviews were conducted with all experimental group participants during this session, and the SACLs were administered to each athlete (see Procedures section for further details about data collection).
(A) Introduction Phase

Session 2

The main focus of the introduction phase was to help the athletes understand the nature of stress and its effect on emotion and performance. The introductory phase of the intervention consisted of three segments. These were presented in the first half of session two. The first segment involved an introduction to the researcher, a brief explanation of what the following six-week period entailed, and a discussion with the participants about themselves. This intervention, unlike the SIT, included little time for establishing collaborative relationships with the participants or collecting information about the athletes' problems, plans, and goals. Many of the procedures outlined in the initial stage of the SIT had already been conducted in both Study 1 of the thesis and in the pre-interview data collection stage of Study 2. For example, relationships had already been established with all athletes, and the stress-related problems of the subject group (female adolescents) had already been identified through the collection of data in both studies. In this intervention, establishing relationships and collecting additional information about the athletes only comprised a small segment of session two.

As in the SIT conceptualisation phase, athletes participating in the present study were educated on the transactional nature of stress and coping, and on the role that cognitions and emotions play in causing, maintaining and reducing stress. This education phase comprised the second segment of the introduction phase. In addition, the disadvantages of high intensity stress and the benefits of stress management were outlined. The final segment of the introduction involved an explanation about the intervention program tailored for their specific group of athletes, based on their needs and preferences.
(B) Skills Acquisition Phase

The second phase of the stress management program, that was implemented during sessions two, three and four, was known as the skills acquisition phase. This stage adopted the same objectives as the second phase of the SIT. That is, to ensure that the participants developed the capacity to effectively execute coping responses. Specifically, the aim was to teach the athletes skills that they could use to cope effectively with acute stress during sporting competition. In Study 1 it was established that coping requirements and typical responses to stress vary between different populations. As a result of this finding, the skills acquisition phase was tailored to the needs of the adolescent females participating in Study 2. A further aim of stage two was to provide a flexible coping repertoire from which the participants could draw coping responses in times of acute stress. The skills acquisition phase was presented over two and a half sessions of the intervention.

To begin the second phase of the stress management program the researcher summarised the coping techniques that female adolescents had reported they employed in Study 1 and during the pre-interview of Study 2, and gained further input from the participants about the coping methods they used. The remainder of the phase focused on coping strategies that could be used to deal with the stressors that adolescent female athletes had reported as causing intense acute stress. These stress sources included injury, hassling parents, the coach yelling, hassling or criticising the athletes, problems with team-mates, cheating opponents, and observation by others.

The first set of coping strategies taught to the athletes in the second half of session two and part of session three were palliative (emotion-focused/regulation) techniques. These types of strategies are designed to relieve distress and foster emotion-regulation (Meichenbaum, 1985). In stressful situations athletes' will often experience increased anxiety, narrowing of attention, feelings of helplessness and/or attention being focused
on irrelevant or negative input or stimuli. It is important to try to consciously control such emotions after being exposed to unpleasant sources of stress. The first objective for an athlete who is presented with an acute stressor is to prevent the emotional upheaval which is usually detrimental to their performance following exposure to the stressor (due to narrow or widened focus, increased muscle tightness etc.) The palliative stage of the program also included techniques from the 'Controlling Emotions' (C) phase of Anshel's (1990) COPE model of stress management that were not included in SIT. For example, learning to take responsibility for one's performance was used in COPE but not SIT. As the controlling emotions stage occurred first in COPE and many similar techniques were included early in the SIT program, these emotion regulation techniques were also taught first in the present program.

As with SIT, the skills acquisition phase of the intervention in Study 2 began with relaxation training. Meichenbaum (1985) suggested that it is best to include relaxation early in a stress management program because most clients are able to learn the techniques readily, and because it has good face validity. An introduction to relaxation was provided first, with explanations of the main and secondary aims, as well as the physical and psychological benefits of the procedures also given. A variety of relaxation exercises that could be implemented during competition in times of stress were then presented to the participants.

Progressive relaxation was explained first. The athletes were told that this type of relaxation would teach them to recognise tension in their muscles and release it at will. An overview of the concept was provided, followed by a practical exercise in which the participants clenched their fists tightly for 10 seconds and then released them. They were also asked to become aware of the tension in their hands before and after the clenching, as greater relaxation was expected after the exercise. Once they had completed this technique they were asked to try the same procedure with another
part of their body that was tense at that time. The athletes were taught that this method is best used if they can first identify their areas of tension and stress and focus on relieving this through the use of progressive relaxation (see Appendix E). Finally, suggestions about when this technique could be used during a game were suggested.

The second type of relaxation taught to the athletes was passive/self-directed relaxation, whereby individuals concentrate on relaxing their muscles, with no preliminary tensing. The ultimate objective of this method is to gradually reduce the time needed to be able to achieve complete relaxation so that eventually athletes will be able to take only a few seconds to be totally relaxed. It was explained that the technique involves relaxing muscle groups while breathing slowly and easily and visualising the tension flowing out of your body. The athletes were also given an opportunity to practice this method.

Centring was the relaxation method to which the most time was dedicated in this program. This was because the technique is a quick and easy way of reducing or controlling acute stress, even in a game situation. It can provide immediate self-control in a range of potentially stressful situations (e.g., when shooting for a goal, after being pushed by an opponent, or after an error has just been made). The procedure was explained in point form as follows:

1. Stand, feet shoulder distance apart.
2. Flick your arms and roll your head slightly to consciously relax the arm and neck muscles.
3. Close your eyes and drop your chin towards your chest.
4. Take a long deep breath using your diaphragm. Don't hunch the shoulders or expand your chest and lungs.
5. While you are inhaling and exhaling it is important to focus your thoughts on the movement on your stomach muscles and continue to monitor this movement while blocking out everything else.
6. As you exhale "let yourself go" (i.e., allow your muscles to relax and feel the tension flow out of your body).
7. Repeat this technique 3 times.
8. After completion of the breathing it is important to immediately focus your attention on the most critical aspects of your sporting environment (i.e., on the task at hand.)
Following the explanation all participants were required to stand and practice the procedure as the researcher read the steps to them. Questions about the effectiveness of the technique and any difficulties incurred were then posed. The benefits and importance of simple breathing exercises were also discussed.

In a conclusion to the relaxation section of the program it was emphasised that people do not usually master relaxation techniques instantly, that it takes some practice. It was also stressed that different methods work for different people and that it was important for each individual to find the technique that worked best for them. In conclusion, the benefits of each type of relaxation were summarised and further examples of the use of relaxation during a netball game were provided.

Meichenbaum (1985) suggested that clients should be encouraged to rehearse coping skills in vivo in the form of homework exercises whenever possible. At the end of session two of this program participants were given an exercise to complete before the following lesson (see Appendix E for copies of all homework exercises and handouts). The activity focused on the relaxation strategies they had been taught and required them to keep a diary of the techniques they used each day. It was requested that each athlete practice at least one of the methods every day, then record which strategy they tried, when and where they used it, if it helped them or not, and if they had any problems with it. In addition to the practice techniques being reported it was also asked that any relaxation employed during their sporting involvement be included in the diary. The intention of this exercise was to encourage the athletes to practice the strategies taught to them and to try to implement them during actual sporting events. Keeping a diary was also one way of gaining information about problems the athletes were having with the strategies and to establish which of the relaxation procedures they preferred to use.
Session 3

The third session of the intervention began with a summary of the previous week's lesson. The relaxation homework exercises were also discussed as a group. The remainder of the session continued with the skills acquisition phase and examined more techniques that can be used to control emotions when faced with an acute stressor during sport competition. The participants were first taught to focus their attention on self-monitoring body reactions such as their heart rate or breathing and to consciously try to control these (e.g., slow them down). At this stage all participants were asked to concentrate and focus on their breathing and to try to slow it down. They were then asked to raise their breathing rate by running for two minutes and then try to focus and slow it down again. It was explained that gaining control and concentration in this manner can be a good way of distracting yourself from the stress and for regaining your focus.

The next coping strategy reviewed was keeping control of positive thoughts. Meichenbaum also included positive thinking in the SIT. Focusing on positive factors, and trying to avoid any negative thoughts or feelings was encouraged in both the SIT and in the current program. It was suggested that athletes mentally repeat statements such as 'what is the point of thinking negative?', 'what good is it doing me?' and 'thinking negative thoughts is only going to do me harm' when they were having trouble eliminating negative ideas from their minds.

The final palliative coping technique explained to the participants was denial, as suggested by Meichenbaum in the SIT. In some instances doing nothing, and not thinking about a stressful event may be the best coping response, especially when there is no possibility of an individual exerting any control over the situation. When not doing anything makes no difference to sporting performance, to the outcome of a game, or to a relationship (e.g., with a coach, parent, or team mate) athletes have little
to lose from not dealing directly with the stress. Denying a stressor can help individuals to feel hopeful, calm, and in control of their feelings and the situation. It was, however, stressed that denial can only be effective in certain situations, and that in some events it is more important to deal directly with your stress and/or the source of stress.

Anshel (1990) suggested that learning to take responsibility for one's performance is an important part of learning to cope effectively. He included this idea in the first stage of the COPE model. The second objective of phase two of the present program was get the athletes to start taking responsibility for their performances. Athletes were first taught that if they take control of their performances and actions they will be more able to recognise and deal with their immediate environment and the ways that they are feeling and acting. Feeling in control may also aide in reducing the defensiveness that often inhibits how individuals respond to information in their sporting surrounds. If information that is important and essential to a person's game is not recognised or processed properly performance may suffer. It was emphasised that when you take responsibility for your performance you are less likely to experience stress from things that are out of your control (e.g., luck, better or older opposition, umpiring mistakes). If, however, a situation is out of your control it is better to forget about it as there is usually nothing that can be done about it. It was recommended that in these times it may be useful to employ the denial approach.

Following an elaboration on the topic of control participants were told that if they experience an unpleasant event, such as making an error or receiving a penalty, then they should at least think about whether they were responsible for it, then take control of the situation by learning from it and moving on to the next event. It was emphasised that on most occasions becoming stressed makes things worse as it can cause an individual to lose focus of their game. Examples of situations in which athletes should take responsibility for their performances, and for stressful events were
discussed with the participants. The athletes were encouraged to recall situations in which they did not take responsibility for something they should have or did not feel in control of, and then suggest how they could have approached and dealt with the situation more constructively and effectively.

The second set of coping strategies that were taught to the experimental athletes contained instrumental (problem-focused) content. Techniques from both the SIT and the Organise Input (O) stage of COPE were included in this section. As suggested by Meichenbaum (1985) it is important to tailor the instrumental coping strategies included in a program to the needs and environmental demands of specific populations. In this case, the female adolescent athletes received training in specific strategies that could be best used to reduce or eliminate acute stress experienced during sport competition. The majority of the instrumental section of the program focused on self-talk techniques. A significant amount of time was spent on this area because in Study 1 and the pre-interview of Study 2 adolescent females reported that one of the most common coping strategies they employed was trying to talk themselves into calming down. They were comfortable using this method, but on many occasions it was not effective in reducing the intensity of stress they experienced. It was believed that if these self-talk methods could be improved their coping would become more effective.

The techniques included in this section of the acute stress management program were selected from both the SIT and the Organise Input (O) phase of COPE. The experimenter explained to the athletes that these strategies could help them to deal more effectively with negative input and evaluation from others and to improve their self-talk. As self-confidence had been identified in Study 1 as a factor that was significantly low in female athletes (as compared to males), the links between negative thoughts, coping strategies (particularly self-talk) and self-confidence were
identified at this stage. The importance of controlled, positive and effective self-talk in increasing self-confidence was explained.

The first technique that was reviewed was thought catching, a process that involves individuals recognising and identifying negative and stress related thoughts. It was emphasised that these thoughts are often inferences and not factual or truthful, as people often believe. At this point the participants were asked to think of times during a game when they may have thought something was a fact, when it actually was not. An example was also provided by the researcher to alert the athletes to the type of situation in which facts could be distorted in their minds.

The second problem-focused strategy included in the program was rational thinking. This is a technique in which individuals replace negative thoughts with constructive rational thoughts. This method is useful for athletes who have trouble letting go of negative and irrational thoughts because they believe they are true. Rational thinking also helps people to stop focusing on negative aspects of a situation and allows positive thinking to occur. Participants were provided with some examples of irrational thoughts are were asked to suggest some alternative statements that they could mentally repeat to themselves in those situations. Rational, logical thinking was encouraged.

Another coping strategy that was dealt with in lesson two of the stress management program was thought-stopping. This procedure involves identifying when you have negative thoughts, consciously stopping them, and then replacing them with positive, constructive thoughts. This technique was presented to the participants in the following step by step guide (Martens, 1987):
1. Identify events that trigger negative thoughts
2. Identify signals to stop negative thinking (e.g., yell or think STOP, snap your fingers, visualise seeing a red flag waving in front of your face) Choose whatever works for you. This may take a while to master. Park these thoughts away in the back of your mind if you wish and, if necessary, deal with them later.
3. Identify productive, realistic substitutes for the negative thoughts.
4. Practice thought stopping using imagery (i.e., re-create an event in your mind, allow negative thoughts to develop, then stop them with your signal and put in positive thoughts.
5. Use thought stopping before and/or during an actual game.

Following an explanation of the procedure participants were guided through a thought stopping practice session. They were required to mentally recreate a stressful situation that had occurred (or may occur) during a netball game where they experienced negative thinking, choose a signal to stop these thoughts, and come up with positive, rational replacements. This exercise was repeated a second time, with a different situation and negative thoughts being dealt with.

At the end of session three the participants were given a homework exercise to be completed before the following lesson. The activity required the athletes to write down any negative thoughts they had during games played throughout the week and to recall why they had them (i.e., what caused them to think this way). For each thought they had they also had to write down a signal (word, thought, image, or action) that could be used to try to stop the thought. Finally, for each thought a positive, rational substitute was recorded.

Session 4

Session four began with a summary of the previous lesson and a discussion about the homework exercises. Following this 10 minute introduction additional instrumental coping techniques were addressed. It was explained that when people try to talk
themselves into calming down it can often intensify their stress because they start to think too much about the stressor. In these situations it may be useful to use different thoughts/self-statements to reduce, avoid, or constructively use stress. A list of examples of coping self-statements was reviewed and provided to all participants. This list included items from the SIT (Meichenbaum, 1985) that were relevant to the sample attending the stress management lessons (i.e., female adolescent athletes). The intention of giving a list of coping self-statement suggestions was to teach the athletes to think rationally and logically about different situations they encounter during sport and to give them some ideas about how they can use self-talk to cope with stress.

The coping self-statements comprised the final part of the self-talk set of coping techniques. Before beginning a new topic a summary of the self-talk strategies was given and the importance of control was emphasised. The idea of thinking logically about stressful situations and the thoughts associated with them was also highlighted.

One of the primary goals of the skills acquisition stage of the program was to teach the participants to separate and selectively filter out unimportant, meaningless, and unpleasant information from more important input they could need and learn from. The information taught in this section was based primarily on the Organise Input (O) stage of COPE. Meichenbaum did not include most of this material in the SIT but it was considered to be relevant to a program designed for the participants in this study. It was felt that it was important for the athletes to learn to make rational, sensible, logical judgements about the information with which they are presented during sport competition. In both Study 1 and the pre-interview of Study 2 it was also established that hassling, criticism, observation, and evaluation from other people were intense acute stressors for adolescent females. The techniques included in this section of the program were focused on coping with these sources of stress. The importance of being able to correctly interpret whether input received is relevant or irrelevant to a situation and to their performance was also emphasised. Some of the techniques that
can be used to cope with potentially stressful information obtained when playing sport were reviewed with the experimental athletes.

The first method that can be used to cope with stressful input taught to the athletes was fogging. This technique involves the athlete acknowledging and agreeing with a person who is being critical of their performance or hassling them about their play (Anshel, 1990). The participants were taught to reflect the negative statement back to the critic. Examples of relevant situations were provided and the athletes were asked to give their own suggestions about ways to reflect back criticism constructively.

A second technique that may be used to deal with unpleasant input is negative inquiry. This aim of this method is to relieve stressful feelings by seeking out information that helps you to understand why you received the criticism (Smith, 1980). Negative inquiry may also be used to get logical advice on how to improve a situation (e.g., "I can't get any shots in today, can you suggest anything to help me?") and avoid further criticism or hassling.

The third technique explained was psychological distancing. This method consists of mentally removing oneself from the source of stress to reduce the importance of the unpleasant information (Smith, 1975). The athletes were taught to discredit sources of negative information by thinking to themselves that it didn't matter what these people said, and that they were not important (regardless of whether they are or not). They were asked to focus on the game and their play. They were also encouraged to try to not always perceive input, regardless of who it was coming from, as the truth. The concepts of rational thinking and thought stopping were reiterated at this point. They could also be employed when in situations when unpleasant input could elicit irrational, negative thoughts.
Another strategy for dealing with negative input from others that was suggested was to use the information to challenge or motivate you to increase effort and perform better (i.e., prove to them that you can play well, or you can perform a skill that they were hassling you about, or that you can recover and learn from an error). Finally, the participants were alerted to the fact that coaches, parents, spectators, and team mates can also experience a lot of stress when they play and often these people are reacting just as the athlete would to high pressure situations. Usually, when athletes are yelled at or criticised it is not meant personally, so don't take it personally. They were told to either mentally distance themselves from the angry emotions or statements, or use the reactions to learn and to help them play better.

After reviewing coping techniques in the skills acquisition phase of the stress management program the athletes were taught about the importance of thinking about directing their efforts towards the game immediately following the employment of a coping strategy (as explained in Stage 3 of COPE, P - Plan the Response). It was emphasised that the athletes should attempt to keep their thoughts positive, assertive and under control at all times. Once this has been achieved, techniques such as thought stopping, problem solving, and decision making may be used, if necessary, to plan how to approach the rest of the game and, in particular, the movements to be made after dealing with stressful situations.

(C) Application and Follow-through Phase

Session 5

The final phase of the stress management program, that was conducted in the last session of the intervention program was the application and follow-through. This phase included a number of the procedures reviewed in the third section of the SIT. The main objective of this phase in both programs was to encourage individuals to
implement coping responses in real life situations (e.g., in actual sporting events). Some basic techniques and exercises designed to help in the transfer of skills from the training situation to 'real-life' situations were taught to the participants.

The primary technique that was reviewed was imagery rehearsal. Athletes were taught to rehearse coping skills in their minds by imagining situations that approximate highly stressful game events and then picturing themselves coping successfully with this situation. The aim of this type of practice was to provide the individuals with an opportunity to rehearse the coping strategies they had been taught before actually employing them during a game. It was hoped that if they engaged in this type of mental practice regularly they would become more comfortable using the techniques, and thus, would be able to cope more efficiently with stressful situations when they arose during sport competition.

Part of the application section of the program was included throughout all phases in the form of homework assignments. A number of exercises were given to the participants at various stages throughout the program to ensure that the athletes were continuing to learn, practice and think about their coping skills.

Finally, athletes were placed in the 'helper' role towards the end of the final session. They were asked to tell the group what they would recommend to someone if they weren't coping well with stress in certain situations (i.e., what types of strategies would they suggest they use). A number of different scenarios were presented and group discussions followed each one.

To conclude the application and follow-through phase, and complete the stress management program, the participants were presented a short (20 minute) review of the program. The types of techniques taught to them were revised and they were asked to tell the group if they had used any of the strategies, and if they had experienced any changes in the amounts and intensity of stress they suffered during
the intervention period. It was then explained that they now had some abilities to cope successfully with stressful events during a game and they were encouraged to use their skills and knowledge. Meichenbaum (1985) indicated that a review such as this may contribute to athletes' feelings of self-efficacy and competence.

Towards the end of the final session in the intervention program the participants were provided with a copy of a mnemonic device. The acronym SURRF may be of use when trying to remember what is required to cope effectively with stress during a game.

- Sense stress when it first starts
- Understand your self-talk
- Replace negative thoughts with positive, constructive self-statements
- Relax using your breathing exercises
- Focus on your next movements

Meichenbaum (1985) suggested that using a mnemonic device such as SURRF may be of some benefit to individuals who are having difficulty remembering their coping procedures, or may serve as a cue for coping behaviours. If an athlete is taught to remember the word SURRF whenever they experience stress, it is possible that they are more likely to be reminded of the coping skills they learned, and therefore are more likely to implement them. The athletes were also provided with a coping skills toolbox (see Appendix F). This guide contained examples of the types of acute stressors that caused adolescent females athletes intense stress and the types of coping strategies that are appropriate to use in these situations.

Session five also included the post-intervention interviews, as well as the administration of the SACLs and manipulation checks to all athletes in the experimental group. All data collection occurred after the completion of the one hour application and follow-through phase (see Procedures for further details on post-intervention data collection).
**Placebo Group Intervention**

In addition to the experimental and control conditions, a placebo group was involved in Study 2. This group, which consisting of 10 hockey players, also participated in an intervention program. However, they received no training in stress management techniques. Instead, the athletes attended three sport psychology sessions in which they were taught about topics other than stress management, that were relevant to their sport. These topics were goal setting, pre-game preparation, and mental imagery. As in the experimental group's intervention, each session in the placebo program lasted for 1 hour and was conducted within a six-week period. The placebo condition was included in Study 2 so that comparisons could be made between the results from this and the experimental group. The main aim of including a placebo group was to establish whether any differences occurring in the use of coping strategies between the pre- and post-interviews could be attributed to the stress management program. When a treatment or intervention is presented people often expect that it will have some type of effect on them. This expectation is capable of causing effects independent of any influence of the actual treatment (Brannon & Feist, 1992). Thus, the placebo condition in Study 2 was used to determine whether any observed differences were produced by the program, or if all participants who received some type of treatment indicated a reduction in stress intensity and/or change in coping techniques. The placebo intervention is illustrated in Figure 2.

**FIGURE 2:** Outline of placebo group intervention program.
(A) Intervention Session 1

The first intervention session with the placebo group involved a lesson on goal setting (see Appendix G for the goal setting lesson). To begin this session the participants were provided with an introduction to the topic, and a discussion about their past goal setting experiences was initiated. Following the introduction the benefits and aims of goal setting were reviewed. The majority of the lesson focused on the principles of goal setting, with specific, performance, realistic, yet challenging, short and long-term goals being encouraged. Issues such as rewarding goal attainment, and the motivational benefits of setting goals were also discussed. Finally, different types of goals that athletes can set were explained. The specific benefits of training, performance, and psychological goals were all covered. As part of this session the participants were also required to be involved in practical exercises based on some of the principles discussed. Before leaving the lesson all of the athletes were given the task of setting themselves some short and long-term goals based on the ideas provided in the class. These goals were to be recorded and presented to their coach at their next game.

(B) Intervention session 2

The second intervention session attended by the placebo group examined pre-game preparation (see Appendix H for Pre-game Preparation lesson). This session began with an introduction to the topics of physical and psychological preparation and then moved into specific examples of techniques and approaches that could be used by the athletes when trying to attain an optimal performance state. The importance of planning for an event, and for specific situations that may arise before during competition were discussed. Suggestions of ways to plan for certain problems that could occur were provided by the athletes. The majority of the lesson was based on the issue of control. The acronym CONTROL (developed by the researcher) was used
as a basis for discussion about a number of topics that should be considered when preparing for a game. These topics, which were dealt with in detail were, Confidence, Observing feelings and thoughts, Negative thoughts, Tension, Relaxation, On-site preparation, and Logical thinking. Various practical exercises and group discussions focusing on issues and skills identified throughout the class were also included in this session.

(C) Intervention session 3

The final sport psychology session conducted for the placebo group was on mental imagery (see Appendix I for the imagery lesson). The athletes were introduced to the topic with a definition and an explanation of how imagery could be used to help them to facilitate performance. As it is essential for individuals to believe in the process of imagery before the technique can be of any benefit, some reasons why the methods work, and evidence supporting the use of imagery were presented to the participants. As different athletes have different sporting needs and requirements a list of the various ways in which imagery can enhance athletic performance was then presented (e.g., practicing skills, learning new skills, solving problems, practicing psychological skills, increasing perception, and recovering from injury). One of the main objectives of teaching the athletes how to use imagery is to improve the vividness and controllability of the images they create. These two areas were explained and numerous practical exercises involving the athletes attempting to recall vivid images using all of their senses, and learning to manipulate images to produce desired outcomes were conducted. Finally, the ideal conditions for practicing and using imagery were discussed (e.g., a setting with no distractions, relaxed attention, and an expectation that the imagery will be helpful). A summary was provided and the coach encouraged all athletes to practice some of the techniques learnt and report to her about them in future training sessions.
**Control Group Procedures**

The control group included in Study 2 attended two sessions within the time frame of the investigation. Their first session occurred within a week of the initial sessions for both the experimental and placebo groups. This session involved the administration of the pre-intervention interviews and the SACL to all participants prior to the commencement of their training camp. As with the other two groups, a six-week intervention period followed the first session, however, the control group received no intervention program. This team continued to play their games and train normally and did not receive training in any aspect of sport psychology or stress management during this time. The second time the researcher had contact with these athletes was at session two, six weeks after the initial meeting. At this second session, all post-intervention interviews, SACLs, and manipulation checks were administered to all participants. Finally, the athletes and coaches were debriefed on the study.

**SESSION 1:**
Pre-intervention interviews and SACLs administered.

**SESSION 2:**
Post-intervention interviews, SACLs, and manipulation checks administered.

6 week intervention period - no intervention conducted with control group - games continued as normal.

**FIGURE 3:** Outline of control group procedures.

**Manipulation Checks**

Manipulation checks were administered to all groups in the post-intervention interview sessions. A different manipulation check was developed for each of the experimental conditions (see Appendix J for copies of the manipulation checks). The intention of these checks was to ensure that the coping skills taught in the stress
management intervention program were valid and were actually used by the experimental group. They were also used to gain support for the use of the program. If there were differences between the pre-and post-interviews of the experimental group, the information provided about the coping methods employed by the athletes could help to explain why these differences occurred (e.g., if there was a change after the intervention and the manipulation check revealed that the experimental group used new strategies to cope with acute stress, the changes may be attributed to the use of these techniques). Thus, Study 2 included the checks to examine:

a) whether there were any changes in the coping strategies used by all groups between the pre- and post-interviews;
b) whether the experimental group actually used the coping strategies taught to them, and, if so, which were the most common techniques used;
c) if any of the coping strategies employed were effective in reducing stress intensity;
d) whether the sport psychology sessions given to the placebo group had any effect on the stress experienced during their games within the six week data collection period.

**Procedures**

**Data Collection for Study 2 (Interviews and SACL)**

Pre-intervention data was collected from each group before pre-scheduled training sessions. All teams had this first session within a two week period of each other. Upon arrival at each collection site the researcher was introduced to the participants by the team coaches and a brief explanation of the procedures for the following six to eight week intervention period was provided. The control group was informed that they would be required to participate in two interviews, six weeks apart, and complete a questionnaire in each of these sessions. The experimental group was told that they would be receiving four stress management lessons in which they would be taught numerous techniques that could be used to cope with acute stress during games. The
athletes were also made aware that they were to attend two interviews about stress and coping, and that they would be completing a short questionnaire about the ways that they feel during sport. These would occur before the first stress management session and during the fifth session. The placebo group was also informed about the two interviews and questionnaire that were to be completed. Furthermore, it was explained to this group that they were to attend three lessons in which the researcher would be teaching them about sport psychology topics that were relevant to their sport. All athletes were made aware that their participation in the study was a requirement of their involvement at the Illawarra Academy of Sport, but were given the option to not participate. All athletes agreed to take part in the study.

Following the introduction and overview of the study provided to each group in session one the athletes were interviewed individually for approximately 10 minutes. All participants were asked an identical set of questions at exactly the same sites before their training sessions. They were then required to complete the SACL. Sessions two, three, and four consisted of the intervention programs for the experimental and placebo groups. Each of these lessons lasted for approximately one hour and were conducted prior to pre-scheduled training sessions at an area close to the training site. Session five for the experimental group involved the final one hour stress management session, followed by individual post-intervention interviews with all athletes. Time restrictions limited the fifth session with the placebo group to the post-intervention interviews only. Six weeks after the first interview the control group was also re-interviewed and required to complete the SACL. For all of the groups involved in Study 2 the post-interview occurred six to eight weeks after the initial meeting (session one), once again at the site of a training or theory session (see Figure 1 for procedure summary). Following the post-intervention interviews all participants and coaches were debriefed. A detailed overview of the study and of the role of each group was provided.
Four of the athletes in the netball team involved in the experimental condition were unable to attend the post-intervention interview. As it was not possible to arrange an alternate time in which to conduct the interviews all participants were sent copies of the interview, SACL, and manipulation check, with an accompanying letter of explanation. One hundred percent of the questionnaires were completed and returned to the researcher within a week.
CHAPTER 6: 

RESULTS AND DISCUSSION

Study 2

Four issues were examined in the analysis of data for this study. First, the extent to which the participants in the experimental group, as compared to the control and placebo groups, differed in their SACL stress scores after the intervention period was examined. The purpose of this analysis was to determine whether the intervention programs caused a reduction in stress scores in any of the groups. Second, responses from the interview questions focusing on perceived stress intensity in specific and general sporting situations were examined to establish whether the experimental group experienced greater reductions in stress levels after the intervention than the other groups. Third, the coping strategies used to deal with acute stress before and after the intervention period were investigated. It was intended that this analysis would establish whether there were differences between the coping strategies used by the three experimental conditions and whether there were any changes in their coping after the intervention sessions. Finally, the effectiveness of the coping strategies employed by the three groups before and after the interventions was analysed to see if a greater improvement in strategy use was displayed by the experimental group. In addition to the analyses conducted on the interview data, information gained from the manipulation checks was also examined to determine whether the intervention had the desired effects on each of the groups.

Stress/Arousal Adjective Checklist

Analyses were conducted on the SACL scores using the SAS statistics program. The purpose of these were to determine evidence of significant changes in the stress intensity levels recorded by each of the three groups between the pre- and post-intervention tests. A 2x3 analysis of variance (ANOVA) was also computed to
determine whether there were any variations between groups in their pre, post, and pre-post difference scores on the SACL (i.e., if one or more of the groups displayed significant differences in pre or post-intervention scores, or significantly greater changes in their pre-post scores than the others). An alpha level of $p<.05$ was set as the criterion for statistical significance. A summary of these results is presented in Table 13.

Table 13: Summary of pre and post means and PROC UNIVARIATE results of the SACL difference (DIFF) scores, by group.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PRE</th>
<th>POST</th>
<th>DIFF</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>F</td>
</tr>
<tr>
<td>Experiment</td>
<td>38.90</td>
<td>2.77</td>
<td>34.00</td>
<td>1.59</td>
<td>4.21</td>
</tr>
<tr>
<td>Placebo</td>
<td>36.82</td>
<td>2.32</td>
<td>35.00</td>
<td>1.97</td>
<td>0.11</td>
</tr>
<tr>
<td>Control</td>
<td>40.40</td>
<td>1.91</td>
<td>40.20</td>
<td>1.88</td>
<td>0.10</td>
</tr>
</tbody>
</table>

It was hypothesised that the experimental group would experience lower stress scores than the other two groups on the SACL post-test as a result of attending the stress management intervention program. No significant differences ($F[2, 27] = 1.18, p>.05$) occurred between the groups' scores on the pre-intervention SACL, indicating that all athletes experienced a similar level of stress prior to the study. Variations in the post-test scores, however, produced a significant difference ($F[2, 27] = 3.34, p<0.05$) between the three groups. A closer examination of the specific groups revealed that the experimental group was significantly lower on post-test scores ($F[2, 27] = 4.21, p < 0.03$) than the other groups. This indicated a reduction in the intensity of acute stress experienced by the athletes in this condition. Neither the placebo ($F[2,27] = 0.11, p >.05$) nor the control group ($F[2,27] = 0.10, p >.05$) had a significant change in their scores between the pre- and post-intervention tests. This result suggests that the stress management program influenced the level of acute stress.
experienced by the athletes in the experimental group, and that the intervention sessions provided to the placebo group had relatively little impact on their stress.

**Stress Intensity**

The final component of the interview analysis involved an examination of perceived stress intensity and of the ease with which participants became stressed during games (i.e. did it take a very tense or important situation to elicit stress or did minor incidents cause feelings of intense stress? Did the athletes become stressed very easily during games?). The pre- and post-intervention responses from the questions "how easily do you usually get stressed during a game", and "...rate how stressed you usually get during a game" were investigated initially, using 3 (groups) x 2 (test times - pre/post) ANOVAs. The results for these tests are presented in Tables 14 and 15. The purpose of these analyses was to determine whether there were any changes in stress intensity and the ease with which acute stress was experienced by the groups from the pre- to post-intervention period.

All groups were less easily stressed by sources of acute stress in sport during the intervention period than they were before the initial interview. These reductions, were not, however, significant for the placebo or control groups. The experimental group, did experience a significant change in responses to question 17 ('how easily do you usually become stressed?', \( F[2,27] = 8.21, p<0.003 \)). The experimental participants were the only athletes to record a significant decrease in the ease with which they became stressed during games. That is, the athletes were less likely to experience acute stress as a result of minor incidents during a game. They did not become stressed as easily as they did prior to the intervention. A significant difference between groups in their pre-intervention ratings of how easily they became stressed (\( F[2,27] = 4.91, p<0.01 \)), but not the post-intervention scores can be observed in Table
14. This result occurred because in the pre-intervention interview the experimental group reported they were more easily stressed than the other groups.

Table 14: Summary of ANOVA results for the effects of group on pre, post, and DIFF scores for questions 17 and 18.

<table>
<thead>
<tr>
<th>QUESTION 17 (How easily do you usually become stressed during a game?):</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SCORES</td>
<td>F value</td>
<td>p</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRE</td>
<td>4.91</td>
<td>0.0152</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POST</td>
<td>0.13</td>
<td>0.8745</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>QUESTION 18 (How stressed do you usually get during a game?):</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SCORES</td>
<td>F value</td>
<td>p</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRE</td>
<td>2.24</td>
<td>0.1256</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POST</td>
<td>0.11</td>
<td>0.8929</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 15: Summary of pre and post means and PROC UNIVARIATE results on the difference (DIFF) scores for questions 17 and 18, by group.

| QUESTION 17 (How easily do you usually become stressed during a game?): |
|---|---|---|---|---|---|---|
| GROUP | M  | SD | M  | SD | F  | p  |
| Experiment | 4.90 | 0.93 | 3.13 | 0.72 | 8.21 | 0.0039 |
| Placebo | 3.27 | 1.64 | 2.80 | 1.13 | 0.04 | 0.8049 |
| Control | 2.90 | 0.85 | 2.80 | 0.91 | 0.05 | 0.8114 |

| QUESTION 18 (How stressed do you usually get stressed during a game?): |
|---|---|---|---|---|---|---|
| GROUP | M  | SD | M  | SD | F  | p  |
| Experiment | 4.30 | 1.31 | 3.38 | 1.09 | 5.14 | 0.0294 |
| Placebo | 3.18 | 1.40 | 3.30 | 1.24 | 0.21 | 0.6618 |
| Control | 3.00 | 0.62 | 2.90 | 0.73 | 0.06 | 0.7976 |

No significant group differences were recorded for the intensity level of acute stress usually experienced before or after the intervention. An examination of the results (Table 15) revealed, however, that the experimental group displayed a significant pre-to post-interview reduction in the intensity of stress they typically experienced during sport (F[2,27] = 5.14, p<0.02). As expected, the intensity of stress scores did not vary
significantly between the two interview sessions for either the placebo or the control groups.

In addition to the analyses conducted on the typical responses and feelings of participants, the stress intensity levels caused by the two highest intensity stressors reported in the interviews were examined (see Tables 16 and 17). No significant differences were found between groups for stress intensity elicited by these high intensity stressors before or after the intervention period. That is, the stress caused by the situations demed most stressful elicited similar intensity levels in most participants, regardless of what the stressor was and which program they had participated in during the intervention period. Thus, the stress management program appears to have had little effect on the stress intensity level experienced by the experimental group.

The only group that reported a significant reduction in the intensity of stress resulting from a specific stressor was the placebo group. Their post-intervention interview score for the second most stressful acute situation was significantly lower than their pre-intervention score. There appears to have been some type of variation in either the coping responses of these athletes or in the actual situations experienced during this period that elicited this change.

Table 16: Summary of ANOVA results for group effects on pre, post, and DIFF scores for questions 3 and 11.

| QUESTION 3 ('On a scale of 1-7 rate how strong your stress was in your most stressful situation'): |
|-----------------------------------------------|-------|-------|
| SCORES                                      | F value | p    |
| PRE                                          | 1.07   | 0.3557|
| POST                                         | 0.16   | 0.8558|
| DIFF                                         | 0.19   | 0.8253|

| QUESTION 11 (On a scale of 1-7 rate how strong your stress was in your second most stressful situation): |
|--------------------------------------------------|-------|-------|
| SCORES                                          | F value | p    |
| PRE                                             | 1.61   | 0.2179|
| POST                                            | 0.41   | 0.6696|
| DIFF                                            | 0.46   | 0.6356|
Table 17: Summary of pre and post means and PROC UNIVARIATE results of the difference (DIFF) scores for questions 3 and 11, by group.

QUESTION 3 ('On a scale of 1-7 rate how strong your stress was in your most stressful situation'):

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PRE M</th>
<th>PRE SD</th>
<th>POST M</th>
<th>POST SD</th>
<th>DIFF F</th>
<th>DIFF p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>5.50</td>
<td>0.53</td>
<td>4.90</td>
<td>0.70</td>
<td>2.01</td>
<td>0.1679</td>
</tr>
<tr>
<td>Placebo</td>
<td>4.80</td>
<td>0.87</td>
<td>4.60</td>
<td>0.96</td>
<td>0.43</td>
<td>0.6926</td>
</tr>
<tr>
<td>Control</td>
<td>5.10</td>
<td>1.10</td>
<td>4.60</td>
<td>1.21</td>
<td>0.76</td>
<td>0.3629</td>
</tr>
</tbody>
</table>

QUESTION 11 ('On a scale of 1-7 rate how strong your stress was in your second most stressful situation'):

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PRE M</th>
<th>PRE SD</th>
<th>POST M</th>
<th>POST SD</th>
<th>DIFF F</th>
<th>DIFF p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>5.20</td>
<td>0.60</td>
<td>4.80</td>
<td>1.06</td>
<td>0.35</td>
<td>0.5338</td>
</tr>
<tr>
<td>Placebo</td>
<td>5.60</td>
<td>0.42</td>
<td>4.50</td>
<td>0.72</td>
<td>7.26</td>
<td>0.0067</td>
</tr>
<tr>
<td>Control</td>
<td>4.60</td>
<td>1.06</td>
<td>4.20</td>
<td>1.12</td>
<td>0.25</td>
<td>0.6128</td>
</tr>
</tbody>
</table>

Overall, the analyses of perceived stress intensity and the ease with which athletes usually became stressed provided some support for the hypothesis which predicted that there would be greater reductions displayed by the experimental group, as compared to the placebo and control groups, in perceived stress intensity after the intervention. The finding that the experimental group was the only condition to display significant reductions in the level of stress intensity usually experienced and the ease with which they typically became stressed, also supports the use of the stress management intervention program as a tool for teaching effective coping skills. However, the data on the two specific stressful situations reported by each athlete in the interviews did not demonstrate support for the program. The experimental group's intervention program appeared to have little effect on the ease and intensity with which stress was experienced by the athletes during the two most stressful sporting situations they had been in. So it appears that the intervention program may have been effective in reducing athletes' stress during their sport in general, but did not help the athletes to cope optimally in situations that elicited the highest intensity stress.
Coping Strategies

Study 2 focused on the participants' use of coping strategies following the acute stress they identified. During the interview all athletes had been asked to identify exactly what their thoughts and actions used to try to cope with the stress they experienced in the two events. Inductive content analysis methods, as outlined by Patton (1990) were used to identify themes that were present in the data. The aim of this procedure was to establish and categorise the different ways in which participants in each group responded to stress, and to identify any variations in these responses across groups and time (pre-post). The analysis involved: a) reading and re-transcribing all answers into group categories (experimental, control, and placebo); b) examining variations in the answers; c) identifying the responses that could be organised into categories (convergence); d) labelling the categories; and e) prioritising the categories (placing them in order based on the frequency of responses in each category).

To verify the categories identified by the researcher, a second individual who was familiar with the stress and coping literature also examined the data. The purpose of this second examination was to validate the analysis conducted by the initial investigator. The two individuals initially examined and categorised the responses individually, then discussed their ideas together until consensus was attained. One hundred percent consensus among the two parties was obtained to confirm the categories.

The athletes identified 58 different coping strategies when interviewed in the pre- and post-intervention sessions. Content analysis of this interview data elicited six general categories of coping into which the 58 strategies were organised. These categories are presented, in descending order, in Table 18, also including examples of the specific coping responses.
The category that included the most frequent globally used techniques was labelled 'task focus strategies'. This dimension comprised coping responses that involved an athlete applying efforts to control thoughts and behaviour and directing these efforts into their performance. The most frequently used strategy included in this dimension was concentration. Other techniques employed by athletes that were included in this category were increasing effort, increasing focus, and trying harder. All task focus strategies involved the athlete making conscious efforts to do their best in the game and improve the situation following exposure to a stressor.

The second most common general coping dimension was known as 'thought control strategies'. This category consisted of 14 raw data themes, with thinking positively and self-talk being the most common of these responses. The dimension reflected efforts made by the participants to exert control, order, or constraint over their thought content when in a stressful situation. Other data themes that possessed these characteristics were, 'I looked at the positives' and 'I thought that it was only a game'.

'Ignoiring/blocking out a stressor' was the class of coping that consisted of the third most frequently reported strategies. This type of response involved the athlete ignoring the source of stress completely, as opposed to ignoring it at the time but storing it in the mind and dealing with it at a later time. The most common strategies in this category were ignoring the stressor, forgetting about the stressor, blocking out the stressor, and not thinking about the problem.

The final three coping dimensions were not used as frequently by the participants as the first three. They did, however, include a sufficient number of responses to warrant individual classification. The 'relaxation' category, which included techniques such as deep breathing, progressive relaxation, and relaxation, was defined as cognitive, physical, and behavioural techniques used to deal with the cognitive and somatic
TABLE 18: General coping strategy dimensions, specific responses from each category, and number of athletes (N=30) reporting each strategy in the pre- and post-intervention interviews.

<table>
<thead>
<tr>
<th>General Coping Category</th>
<th>Specific Responses from this category</th>
<th>Pre No. (total)</th>
<th>Post No. (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Task focus strategies</td>
<td>tried harder</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>increased focus</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>concentrated on the basics</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>concentrated on playing better</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>kept trying</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>focused on game</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>increased effort</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>worked harder</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>concentrated</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>did my best</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>kept mind on game</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>other</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>2. Thought control strategies</td>
<td>think positively</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>thought it was just a game</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>self-talk</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>encouraged myself</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>looked at the positives</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>think we can still win</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>thought it wasn't my fault</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>told myself it would be OK</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>thought it wasn't my fault</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>thought about what I was doing</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>thought not to do it again</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>other</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>3. Ignoring/blocking out stressor</td>
<td>ignored stressor</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>forgot about stressor</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>tried to ignore the problem</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>got it out of my mind</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>blocked out stressor</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>thought of things other than the stressor</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>didn't think about it</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>4. Relaxation</td>
<td>deep breaths</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>progressive relaxation</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>relaxed</td>
<td>3</td>
<td>-</td>
</tr>
</tbody>
</table>

(continued next page)
### TABLE 18 cont.

<table>
<thead>
<tr>
<th>General Coping Category</th>
<th>Specific Responses from this category</th>
<th>Pre No. (total)</th>
<th>Post No. (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Releasing emotions</td>
<td>got aggressive</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>got angry</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>yelled</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>used humour</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>got mad</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>screamed</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>got angry at coach</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>6. Talking to others</td>
<td>encouraged teammates</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>talked to teammates</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>talked more</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>talked to the referee</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>asked coach for advice</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>asked for advice</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>talked to the source of stress</td>
<td>2</td>
<td>-</td>
</tr>
</tbody>
</table>

The strategies all had to involve a conscious effort to relax the mind and/or the body. The fifth of the six general coping categories was 'releasing emotions'. To be included in this category, a strategy involved some type of emotional reaction exhibited by an athlete in response to a stressor. Such reactions included getting angry, yelling, and screaming. The final method of coping known as 'talking to others' involved verbally expressing feelings, information, or encouragement to others, or seeking verbal assistance or advice from another party. Some of the responses in this category were talking more, asking for advice, talking to the source of stress, and encouraging team-mates.

In order to determine whether there were changes in the coping strategies used by each of the groups following the intervention period, the coping response categories identified in the content analysis were examined for each group. Pre- and post-intervention categories were compared between the two interview sessions as a means of establishing if any changes had occurred across time.
The analysis of coping strategies revealed the participants' typical responses by each group. The coping categories from which the athletes used techniques in response to the stressful sporting situations (reported as a percentage of the total number of responses provided by participants in each group) are presented in Table 19. All groups used task focus strategies more than any other type of coping response in both the pre- and post-intervention interviews. The groups experienced an increase in the use of strategies from this category during the intervention period, with the control group reporting the greatest change over the course of the study (31%). One other similarity between the three conditions was their use of fewer, but more specific, strategies during the intervention period than they did prior to the commencement of this study.
For example, the experimental group displayed a large reduction (22.5%) in the use of strategies from the 'ignoring/blocking out the stressor' category. In the pre-intervention interview, 22.5% of the group indicated that they used strategies such as 'blocking out the stressor' and 'forget about the stressor' to reduce their stress. However, no participants reported the use of these responses in the post-interview. Increases in the percentages of athletes using thought control strategies (18.5%) and relaxation methods (15%) to cope with their stress occurred between the pre- and post-intervention interviews. Changes in the coping responses reflected coping techniques taught to them during the stress management program (e.g., selected use of self-talk techniques, relaxation, denial, and ignoring the stressor should only be used in specific situations).

The greatest changes that occurred in the placebo group's coping responses after the intervention sessions were in the frequency with which they ignored stressors and used thought control strategies. The placebo group experienced a 19% decrease in the use of methods such as blocking out and ignoring stressful situations. There was a rise, however, in the employment of thought control strategies. These methods comprised only 11% of the total strategies used before the intervention, but increased to 29% during the six week period.

There were two differences in the types of coping strategies used by the control group athletes before and after the intervention. An increase of 31% occurred in the use of task-focused strategies. This result was high in the post-intervention because many of the athletes reported that they increased their concentration, attentional focus, and physical effort when they were stressed during games. No athletes in the control group released their emotions as a way of reducing stress during stressful episodes within the intervention period, as compared to 22% of the responses from this category in the pre-interview.
### TABLE 20:
**Usual coping strategies employed by athletes in each group before and after intervention, as ascertained by question 19 (how do you usually try to cope with stress?).**

<table>
<thead>
<tr>
<th>GROUP</th>
<th>CATEGORY</th>
<th>PRE (% of total no. of responses)</th>
<th>POST (% of total no. of responses)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experiment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Task focus strategies</td>
<td>40.0%</td>
<td>19.04%</td>
</tr>
<tr>
<td></td>
<td>Thought control strategies</td>
<td>30.0%</td>
<td>28.58%</td>
</tr>
<tr>
<td></td>
<td>Relaxation</td>
<td>15.0%</td>
<td>42.89%</td>
</tr>
<tr>
<td></td>
<td>Ignoring/blocking out stressor</td>
<td>10.0%</td>
<td>4.76%</td>
</tr>
<tr>
<td></td>
<td>Talking to others</td>
<td>5%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Placebo</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Task focus strategies</td>
<td>52.38%</td>
<td>64.29%</td>
</tr>
<tr>
<td></td>
<td>Thought control strategies</td>
<td>19.05%</td>
<td>14.29%</td>
</tr>
<tr>
<td></td>
<td>Relaxation</td>
<td>4.76%</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Ignoring/blocking out stressor</td>
<td>4.76%</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Talking to others</td>
<td>4.76%</td>
<td>21.43%</td>
</tr>
<tr>
<td></td>
<td>Releasing emotions</td>
<td>14.29%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Task focus strategies</td>
<td>57.14%</td>
<td>36.36%</td>
</tr>
<tr>
<td></td>
<td>Thought control strategies</td>
<td>7.14%</td>
<td>27.27%</td>
</tr>
<tr>
<td></td>
<td>Relaxation</td>
<td>-</td>
<td>9.09%</td>
</tr>
<tr>
<td></td>
<td>Ignoring/blocking out stressor</td>
<td>7.14%</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Talking to others</td>
<td>21.43%</td>
<td>27.27%</td>
</tr>
<tr>
<td></td>
<td>Releasing emotions</td>
<td>7.14%</td>
<td>-</td>
</tr>
</tbody>
</table>

In addition to examining coping strategies used in specific stressful situations, the pre- and post-interviews were used to identify the responses usually employed by the athletes when they became stressed. A summary of the data extracted from the answers to question 19 is presented in Table 20. Each response is reported as a percentage of the total number of coping strategies reported by athletes in each group in both the pre- and the post-interviews. Whilst there were numerous similarities between the coping strategies used for the highest intensity stressors and the 'typical' responses employed in response to stressors in most sporting situations, some clear differences did also occur. This indicated that the specific stressors identified in the interviews may have elicited certain types of coping reactions that differed from the typical responses.
The greatest similarity between the strategies used by the experimental group 'typically' and in response to the highest identified (specific) stressors was in the increase in relaxation methods employed after the stress management program for all situations. Participants in this group reported a 28% increase in the use of techniques such as deep breathing and progressive relaxation in most stressful circumstances. Another similarity between their style and use of strategy was a reduction in the use of ignoring or blocking out a stressor. A decrease in this type of coping, often referred to as avoidance coping (Roth & Cohen, 1986), was displayed in the post-interview for the specific and general questions. Both of these results reflected the type of information that had been conveyed to the participants in the intervention sessions. The results further indicated the relaxation techniques were the strategies the experimental group felt most comfortable using.

There were also a number of differences exhibited between the responses to specific stressors and the athletes' typical responses elicited in stressful situations. A 21% reduction occurred between the pre- and post-interviews in the typical use of task focus strategies. This suggested that techniques such as increasing effort, focus, and concentration, were only used in response to certain stressors. Although specific thought control strategies were used in response to some highly stressful situations, a general thought control coping style was not common. Participants indicated that they typically employed methods from the thought control category to a similar extent before and after the intervention. Specific stressful events that occurred during the study, however, elicited these strategies more than they did before the commencement of it. Most of the comparisons between the responses usually made by participants and the responses made in specific stressful situations indicated that whilst there were some coping strategies that were favoured by athletes, there were also some stressors that elicited techniques that varied from these usual responses.
There were fewer differences between the usual and specific responses given by athletes in the placebo group, as compared to those in the experimental group. The main difference was in the use of thought control strategies. Whilst there was a 5% pre- to post-intervention reduction in the typical use of strategies from this category, the post-interview answers for specific stressors showed an increase in these responses. There was also a greater increase in 'talking' strategies (e.g., encouraged teammates, talked more, talked to the source of stress) usually employed after the intervention period (17%) than in the same strategies elicited after particular stressful events. Strategies from the other general coping categories were used to a similar extent in response to usual and specific stressors.

The control group reported that the strategies typically employed in most stressful situations were very similar to those used in the specific circumstances they reported (e.g., the use of thought control strategies increased pre to post-intervention for specific and general stressors). The only exception to this finding was a post-interview decrease in the usual use of task focus strategies, but an increase between the pre to post-interviews for the specific situations. These results suggested that the control group athletes used their own similar techniques before, during, and after Study 2.

In summary, the content analysis on the coping strategies elicited six general coping dimensions. Some athletes in each of the three groups utilised strategies from most of these categories to cope with specific stressors. A number of the techniques included in these dimensions were also reported as being 'typical' responses of the participants in the different groups. All of the teams participating in the study showed a preference for task focus strategies prior to the study. However, the intervention appeared to have some effect on the ways these athletes coped, as ascertained by the interviews conducted after the intervention. The experimental and placebo groups, for instance, displayed changes in their choice of coping responses (e.g., the experimental group had a 28% increase in the use of relaxation strategies and the placebo group
increased strategies involving talking to others by 16%). The experimental groups' selection of strategies during the intervention period (e.g., increases in relaxation and thought control strategies) reflected the content of the stress management program, thus providing support for the hypothesis that predicted that there would be changes in this group's coping, based on the sessions they attended. The control group experienced the least change in strategies, as expected, because they were not exposed to any information that would influence their coping responses.

**Coping Strategy Effectiveness**

The effectiveness of the coping strategies employed by athletes in the three groups before and after the interventions was the fourth factor examined in Study 2. The aim of this analysis was to determine whether there was a greater improvement in strategy use displayed by the experimental group, as compared to the control and placebo groups. Each group's pre- and post-interview means for question 20 (usual effectiveness of coping strategies), and the results of the PROC UNIVARIATE analyses that established whether score differences (representing the effectiveness of coping responses) between the two interviews were significant, are presented in Table 21. Results from an ANOVA that established whether significant differences occurred between the pre, post, and DIFF (ie. the difference between pre- and post-interview effectiveness) scores for question 20 (how effective the coping methods usually employed by the athletes were) when all groups were combined, are summarised in Table 22.

No group displayed significant changes between the pre- and post-interview responses to question 20. The results also indicated that there were no significant differences between the groups in the effectiveness of the coping strategies employed during sporting events prior to or following the intervention period (pre, $F[2, 27] = 0.64$, $p>.05$; post, $F[2, 27] = 0.10$, $p>.05$). These findings suggested that the coping
strategies employed by all participants reduced or minimised stress to a similar extent before and after the intervention was conducted.

Table 21: Summary of pre and post means and PROC UNIVARIATE results of the difference (DIFF) scores for question 20.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PRE M</th>
<th>PRE SD</th>
<th>POST M</th>
<th>POST SD</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>4.70</td>
<td>1.47</td>
<td>4.25</td>
<td>0.64</td>
<td>2.21</td>
<td>0.1679</td>
</tr>
<tr>
<td>Placebo</td>
<td>4.18</td>
<td>1.02</td>
<td>4.30</td>
<td>1.17</td>
<td>0.05</td>
<td>0.7577</td>
</tr>
<tr>
<td>Control</td>
<td>4.60</td>
<td>0.86</td>
<td>4.50</td>
<td>0.83</td>
<td>0.18</td>
<td>0.8114</td>
</tr>
</tbody>
</table>

Table 22: Summary of ANOVA results for the effects of group on pre, post, and DIFF scores for question 20 (strategy effectiveness).

<table>
<thead>
<tr>
<th>SCORES</th>
<th>F value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE</td>
<td>0.64</td>
<td>0.5336</td>
</tr>
<tr>
<td>POST</td>
<td>0.10</td>
<td>0.9018</td>
</tr>
<tr>
<td>DIFF</td>
<td>0.43</td>
<td>0.6568</td>
</tr>
</tbody>
</table>

During the interviews participants were asked to rate the effectiveness of the coping strategies they used to manage the stress that occurred in the first and second most stressful situations experienced during sporting competition. The results of the 3x2 ANOVAs conducted on the pre, post and, DIFF (difference between the pre- and post-interview effectiveness scores) data for questions 6 and 14 are presented in Table 23. These analyses were conducted to determine whether any differences occurred between groups in their pre- and post-interview coping effectiveness ratings, and whether there were group differences between the two test sessions.

The statistics showed no significant differences between the groups ($F[2,27] = 0.67$, $p>.05$). However, the pre to post difference scores on question six ($F[2, 27] = 2.58$, $p<0.09$), and in the post test ratings for question 14 ($F[2,27] = 3.10$, $p<0.06$) approached significance.
Table 23: Summary of ANOVA results for the effects of group on pre, post, and DIFF scores for questions 6 and 14 (strategy effectiveness).

QUESTION 6 (How effective was the coping strategy used to reduce the stress from your most stressful situation?):

<table>
<thead>
<tr>
<th>SCORES</th>
<th>F value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE</td>
<td>2.03</td>
<td>0.1511</td>
</tr>
<tr>
<td>POST</td>
<td>0.40</td>
<td>0.6734</td>
</tr>
<tr>
<td>DIFF</td>
<td>2.58</td>
<td>0.0941</td>
</tr>
</tbody>
</table>

QUESTION 14 (How effective was the coping strategy used to reduce the stress from your second most stressful situation):

<table>
<thead>
<tr>
<th>SCORES</th>
<th>F value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE</td>
<td>0.80</td>
<td>0.4611</td>
</tr>
<tr>
<td>POST</td>
<td>3.10</td>
<td>0.0615</td>
</tr>
<tr>
<td>DIFF</td>
<td>0.67</td>
<td>0.5211</td>
</tr>
</tbody>
</table>

Table 24: Summary of pre and post means and PROC UNIVARIATE results of the difference (DIFF) scores for questions 6 and 14, by group.

QUESTION 6 (How effective was the coping strategy used to reduce the stress from your most stressful situation):

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PRE M</th>
<th>SD</th>
<th>POST M</th>
<th>SD</th>
<th>DIFF F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>3.10</td>
<td>1.60</td>
<td>3.50</td>
<td>1.52</td>
<td>0.39</td>
<td>0.5338</td>
</tr>
<tr>
<td>Placebo</td>
<td>3.80</td>
<td>1.36</td>
<td>2.80</td>
<td>1.49</td>
<td>6.26</td>
<td>0.0183</td>
</tr>
<tr>
<td>Control</td>
<td>3.10</td>
<td>0.97</td>
<td>3.10</td>
<td>0.80</td>
<td>0.00</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

QUESTION 14 (How effective was the coping strategy used to reduce the stress from your second most stressful situation):

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PRE M</th>
<th>SD</th>
<th>POST M</th>
<th>SD</th>
<th>DIFF F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>3.40</td>
<td>1.42</td>
<td>2.80</td>
<td>1.55</td>
<td>0.35</td>
<td>0.5554</td>
</tr>
<tr>
<td>Placebo</td>
<td>3.00</td>
<td>1.13</td>
<td>3.40</td>
<td>0.98</td>
<td>1.11</td>
<td>0.3434</td>
</tr>
<tr>
<td>Control</td>
<td>2.50</td>
<td>1.50</td>
<td>2.10</td>
<td>1.44</td>
<td>0.31</td>
<td>0.5744</td>
</tr>
</tbody>
</table>

A closer inspection of the results reported in Table 24 revealed that whilst the control and experimental athletes varied little in their pre and post scores on question six, the placebo group experienced a significant change ($F[2,27] = 6.26, p < 0.01$) between
these sessions. That is, the coping strategies of the placebo group during the intervention period were significantly less effective than those used prior to the commencement of the study. As expected, the control athletes showed no change in their effectiveness scores and, although it was not significant, the experimental group did improve their coping effectiveness. Group differences in the post-interview ratings of strategies used in the second most stressful situations approached significance (p<.09), suggesting group variations in strategy effectiveness. No significant differences occurred between the pre- and post-interview scores of any group (p>.05), however, the control group indicated reduced post-intervention effectiveness, as compared to the other two groups. Thus, the control athletes believed that the coping methods they employed were not very effective ($\bar{M} = 2.10$, $SD = 1.44$), whilst participants in the other groups considered their techniques to be slightly better (experimental, $\bar{M} = 2.80$, $SD = 0.35$, placebo, $\bar{M} = 3.40$, $SD = 1.11$).

In summary, the data obtained from the questions examining coping style and the use of specific coping strategy effectiveness provided little support for the prediction that the experimental group would more effectively manage during an event after receiving training in stress management, as compared to pre-intervention levels. As expected, the control group displayed little change across time in the success of their coping responses, and the placebo group did not show significant improvements in coping effectiveness.

**Manipulation Checks**

Manipulation checks were administered to all groups participating in Study 2 (see Appendix J). Participants in each group were asked to rate the extent to which they used coping strategies during the intervention period, the effectiveness of these strategies, and whether they used any strategies after their initial interview that differed from pre-intervention coping strategies. The experimental group was also
asked to report how frequently they used the coping strategies that had been taught to them in the stress management program. In addition to the questions all groups received, the placebo group had to rate the extent to which they believed their sport psychology sessions had helped to reduce the stress they experienced in sport during the intervention.

Analysis of the data from these checks focused on the use of coping strategies during the six week intervention period. Firstly, the strategies used by each group were reviewed (see Table 25) and the differences between the conditions were examined. Following an investigation into the types of coping responses that had been employed, the interview questions identifying the frequency and effectiveness of the coping strategies used during competition were investigated. Mean scores for each group are listed in Table 26. Each group was examined individually, however, some of the more apparent similarities and differences between them were also considered.

An examination of Table 25 shows that all participants from the experimental group indicated that using strategies that had been taught to them in the stress management program. Of these, breathing exercises were the most common strategies, with six of the 10 participants (60%) employing them during sporting events. Five participants (50%) also used progressive relaxation methods identified in the program during this time. Other techniques covered in the intervention program included thought stopping, increasing focus on the game.

In contrast to the experimental group, the placebo and control groups primarily used coping strategies that were not included in the stress management program. The manipulation checks indicated that athletes in the placebo group used a wide variety of techniques to deal with their stress, with no strategies being utilised more frequently than any others (all 10%). The methods that they used were also not taught
in the sport psychology sessions they attended. The control group displayed a strong preference for

TABLE 25: **Summary of the most common coping strategies used during the intervention period, as reported by participants in manipulation check question 1b), by group.**

<table>
<thead>
<tr>
<th>GROUP</th>
<th>COPING STRATEGIES</th>
<th>No. of participants who used the strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>breathing exercises/ deep breathing progressive relaxation thought stopping positive self-talk increase focus</td>
<td>7</td>
</tr>
<tr>
<td>Placebo</td>
<td>distraction forget about stressor slow down think about game increase focus talk to others increase concentration role playing self-talk</td>
<td>1 1 1 1 1 1 1 1 1</td>
</tr>
<tr>
<td>Control</td>
<td>talk to others talk to self increase concentration increase effort</td>
<td>5 3 1 2</td>
</tr>
</tbody>
</table>

the use of strategies involving talking to themselves or others. These strategies, and the other methods they employed in stressful events were also not included in the stress management program presented to the experimental group. Only one subject in each of the placebo and control groups reported that they used different coping strategies between the pre- and the post-interview. This suggests that the techniques employed by these athletes during the intervention period were the same as they had been using in most stressful situations prior to the study. Thus, the intervention sessions appear to have had no effect on the types of coping strategies typically used by the participants in either of these groups.
Table 26 provides a summary of the mean scores obtained by each group on the manipulation check questions that examined how frequently participants used coping strategies during the intervention period, how effective these strategies were, and the extent to which the intervention sessions had an effect on acute stress levels. Some clear differences between the three experimental conditions emerged. Athletes in the experimental group reported that they had 'sometimes' used the coping strategies that had been taught to them during the stress management program within the intervention period (question 1a, $M = 4.25$, $SD = 0.90$). This result suggests that although the program was not successful in influencing the athletes to use the coping techniques in 100% of the

**TABLE 26: Means and standard deviations for each group on manipulation check questions.**

<table>
<thead>
<tr>
<th>GROUP</th>
<th>QUESTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1a). Use of coping strategies to reduce stress during a game.</td>
</tr>
<tr>
<td>Placebo</td>
<td>$M = 2.60$, $SD = 1.97$</td>
</tr>
<tr>
<td>Control</td>
<td>$M = 3.56$, $SD = 0.85$</td>
</tr>
<tr>
<td>Experiment</td>
<td>$M = 4.25$, $SD = 0.90$</td>
</tr>
<tr>
<td></td>
<td>Q2. Effectiveness of coping strategies in reducing stress levels.</td>
</tr>
<tr>
<td>Placebo</td>
<td>$M = 3.00$, $SD = 1.42$</td>
</tr>
<tr>
<td>Control</td>
<td>$M = 3.78$, $SD = 1.06$</td>
</tr>
<tr>
<td>Experiment</td>
<td>$M = 4.88$, $SD = 1.12$</td>
</tr>
<tr>
<td></td>
<td>Q4. Effect of sport psych sessions on stress levels.</td>
</tr>
<tr>
<td>Placebo</td>
<td>$M = 3.70$, $SD = 0.87$</td>
</tr>
<tr>
<td>Control</td>
<td>-</td>
</tr>
<tr>
<td>Experiment</td>
<td>-</td>
</tr>
</tbody>
</table>

stressful situations, it provided them with some ideas about the types of techniques available for them to use. When used, the coping strategies appeared to be more than moderately effective (question 2, $M = 4.88$, $SD = 1.12$) in reducing their stress. The experimental group recorded a higher effectiveness score than the other two groups.
This result indicates that the participants' training in stress management techniques allowed them to implement more appropriate strategies than the groups who had no guidance in this area.

Overall, the placebo group believed that the sport psychology sessions they attended had a moderate effect on the levels of stress they had experienced during games in the intervention period (question 4, $M = 3.70$, $SD = 0.87$). However, they also indicated that they rarely used any coping strategies to try to reduce their stress during this time (question 1a, $M = 2.60$, $SD = 1.97$). Only one athlete reported a difference in the type of strategy they employed between the pre- and post-intervention interviews. Those athletes who did report that they used coping techniques on some occasions indicated that the effectiveness of these methods was usually low (question 2, $M = 3.00$, $SD = 1.42$). A low score such as this suggests that the participants were not highly skilled in the use of the coping methods they chose to use. These results, as well as the fact that none of the strategies that were used by this group were included in any intervention sessions, suggest a moderate placebo effect.

The participants in the control group utilised coping strategies to deal with acute stress only on some occasions (e.g., question 1a, $M = 3.56$, $SD = 0.85$). The strategies they employed were also less than moderately effective (e.g., question 2, $M = 3.78$, $SD = 1.06$). These findings suggested that prior to the study the athletes had been using coping strategies that may have been effective only in certain situations, and that these strategies had not been altered during the period of this investigation.

Overall, the results obtained from the manipulation checks indicated that the procedures administered to each group during the intervention period achieved their purposes. Specifically, they confirmed that the coping skills provided to the experimental group were used by these athletes, but not by those in the other two conditions. The data also showed that the implementation of the newly acquired skills
by this group had an effect on their choice of coping responses and on the
effectiveness of these strategies in reducing acute stress. Thus, based on the
behavioural observation of the athletes it appears that the objectives of the
intervention were met.
CHAPTER 7

GENERAL DISCUSSION

The main purposes of Study 1 were to examine the sources of acute stress and preferred coping styles of athletes and to establish whether differences existed between these factors as a function of age (adults and adolescents) and gender. A further aim of this study was to investigate the extent to which trait self-confidence and perfectionism differed between these age and gender groups. Based on previous studies examining gender in relation to sources of stress (e.g., Belle, 1987; Cohn, 1990; Scanlan & Passer, 1978; Scanlan & Passer, 1984) and coping strategies (e.g., Frydenberg & Lewis, 1991; Ptacek et al., 1994; Ptacek et al., 1992; Stone & Neale, 1984), and on literature that examined age differences and coping (e.g., Folkman et al., 1986; Irion & Blanchard-Fields, 1987; Spivak & Shure, 1985), it was predicted that both gender and age differences would be evident. Specifically it was hypothesised that males and females would differ significantly in their sources of intense acute stress, their use of coping strategies, and the dispositions of perfectionism and self-confidence. It was also hypothesised that adult and adolescent athletes would exhibit significant differences in these factors. The data obtained from this investigation provided partial support for all hypotheses, with the exception of the prediction that gender and age differences would occur in levels of perfectionism.

The primary goal of the second study was to examine the effectiveness of a stress management program on skilled female adolescent athletes. Based on previous literature (Anshel, 1990; Anshel et al., 1993; Meichenbaum, 1985; Smith, 1980), it was hypothesised that athletes who experienced a stress management program would significantly reduce their stress intensity, display a larger number of differences in coping strategy use, and improve their coping effectiveness as compared to athletes
who received either a placebo program or no program (control group). Support was found for these hypotheses.

**Study 1**

As predicted, a significant gender difference was found between the sources that caused athletes intense stress. A review of the findings on stress sources revealed that females experienced the most intense stress due to social evaluation (e.g., pressure, hassling or yelling from coach, parents or spectators). Males, in contrast, were more affected by acute stressors that involved personal performance, errors and losing (e.g., mental errors, physical errors, and receiving a bad call from an official).

Negative evaluation or criticism from significant others is a common and important source of stress in sport (Gould et al., 1983). The result indicating that female athletes were intensely stressed by significant others (particularly the parents) was consistent with a study by Scanlan and Passer (1984) who found that parental pressure was one of the major causes of frequent and intense stress in young female athletes. Parents usually have an important role in conveying information to their child about an event or action. Scanlan and Lewthwaite (1984) found that a child's perceptions of parental pressure are related to the amount of stress experienced during sport. If athletes feel that they have performed unsuccessfully, and have not met the demands of a situation, their self-esteem may lower and stress can occur. This stress may then result in feelings of inadequacy and cause the athletes self-esteem to lower even more.

The fact that females experienced significantly higher stress intensity levels than males after receiving criticism from parents, coaches, and spectators may also be explained by the greater tendency of females, as compared to males to rely on social support from others (Stone & Neale, 1984). If females receive criticism instead of support and encouragement from significant others, intense stress may result. Males
are more likely to believe that seeking social support is a threat to their competence and independence (McMullen & Gross, 1983), and therefore, are less likely to take notice of and be affected by criticism or pressure from significant others.

An analysis of the sources of stress data revealed that males experienced more intense stress than females after committing both physical and mental errors. The stress suffered by males as a result of errors was stronger than that experienced after social evaluation stressors such as criticism and hassling by others. This result was consistent with previous studies (e.g., Gould et al., 1983; Pierce & Stratton, 1981; Scanlan & Passer, 1978) on sources of stress during sport. These investigations indicated that many of the events that elicited intense stress in male athletes involved personal performance. The males in this study may have experienced higher intensity stress after errors than females because they usually avoid seeking social support and help from others in response to their need for independence and competence (McMullen & Gross, 1983). One possible consequence of avoiding social support is that the males feel more responsible for their own actions, including their mistakes. Lenney (1977) and Gill (1992) reported that males take more responsibility for success and failures than females.

The coping data from Study 1 revealed that whilst there were some similarities in the overall coping strategies used most frequently by males and females to deal with acute stress, there were also some distinct differences in the coping techniques employed for specific stressors. In addition to the differences between gender groups, there were variations in the reactions and coping responses of adolescent males and females, and adult males and females. These findings provided support for hypothesis 2, which predicted that gender groups would employ different coping strategies in response to acute stressors. The gender differences in coping responses were not, however, as large as expected. Although significant differences between groups were predicted, the fact that both similarities and differences occurred in the coping strategies used by the
groups examined was consistent with some previous research. For example, Frydenberg and Lewis (1991) found many similarities in the use of different coping techniques by boys and girls, but also identified a number of differences between the sexes (i.e., that females were more resigned to circumstance whilst males were more aggressive and private). Thus, it seems that whilst there are some coping strategies that are typically used by most age and gender groups, there are specific circumstances that elicit varying coping responses in individual groups.

The coping responses used most frequently by both males and females were concentrating and focusing on the next task, putting their anger into their game, and going over in their minds how to change a situation so that it wouldn't happen again. These strategies had been identified as some of the coping responses used by athletes in past literature (e.g., Gould et al., 1993a; Gould et al., 1993b; Ptacek et al., 1992), however they were not the most commonly reported strategies. Most of the studies that examined coping strategies, however, focused on the ways that people coped with chronic, as opposed to acute stress, and hence there is relatively little information available to compare the present results to.

Despite the three above mentioned techniques being used most commonly overall by both sexes, significant gender differences in the employment of coping strategies were found in response to specific stressors. One of the clearest differences that emerged was in the use of anger as a coping response. In most of the acute situations examined, males displayed a greater tendency to release the anger elicited by the stressful event than females. The frequent use of anger by males after a stressful experience has not been widely documented in previous sport psychology coping research, however Frydenberg and Lewis (1991), in a non-sport study identified males as more aggressive than females when coping with stress.
Gender differences also occurred in the coping strategies employed in response to parental criticism. After receiving negative input from their parents females indicated that they preferred to keep their feelings to themselves whilst the males were more likely to express their feelings and to re-direct them into their game. This result was consistent with past research which indicated that females were more likely to use strategies such as distraction (Miller, 1987; Stone & Neale, 1984) and avoiding the situation (Ptacek et al., 1994) than males when in a stressful situation.

Many of the gender differences in the ways of coping with stress have been attributed to socialisation processes (e.g., Aneshensal & Pearlin, 1987; Frydenberg & Lewis, 1991; Ptacek et al., 1992). Through these processes males and females are socialised to deal with stressful events in different ways (Ptacek et al., 1992). Specifically, males are expected to be more independent and rational than females (Aneshensal & Pearlin, 1987), and therefore tend to employ rational, problem-focused coping techniques when faced with a stressful situation. It has also been well documented (e.g., Frydenberg & Lewis, 1991; Patterson & McCubbin, 1987; Stone & Neale, 1984) that males usually seek additional information about stressful situations and employ more direct action than females when trying to deal with them. In contrast to males, females tend to be socialised to express emotion, seek social support from others, and use emotion-focused methods to cope with stress (Frydenberg & Lewis, 1991; Ptacek, et al., 1994; Ptacek, et al., 1992).

Opponents elicited strong feelings of anger in both sexes in Study 1. The use of anger by females after encountering these stressors was of interest because opponents were the only sources of stress to cause a high percentage of this gender to react in such a way. One possible reason for the frequent employment of anger as a coping response is that athletes may view their opposition as an impediment to success. Emphasis is often placed on winning in sport, particularly by the coach and parents (Smoll, 1986). If the other team does something that may hinder the chance of success, an athlete may
become frustrated, experience stress, is likely to feel angry about the situation, and this anger may be displaced into performance (Anshel, 1990).

Anger in sport may be displayed in a number of ways. Firstly, anger may be released through aggressive acts directed at the opposition, other people, or objects, a concept called displaced aggression (Anshel, 1990). One way of using anger as a motivation is for an athlete to direct it into their game so that they perform better. This was the method used by the participants in the present study to cope with acute stress caused by opponents. Displacing anger toward game demands has been recommended by Anshel (1990). He suggested that it may be beneficial for individuals' to be taught to "retaliate" with heightened arousal directed toward productive performance. In this way the athlete may use the anger caused by a stressor as a motivation to play better and beat the opponents who have caused the stress.

One finding that was inconsistent with most previous coping literature was that males in the present study ignored or distracted themselves from some stressors (e.g., pain and injury). The males appeared to be more concerned about continuing their involvement in the game than about acknowledging and dealing with problems. Past results (e.g., Ptacek et al., 1994; Stone & Neale, 1984) suggested that males were most likely to deal directly with a stressor by obtaining additional information about the situation or finding ways to control the problem. However, in support of current results, Gould et al., (1993) found that ignoring a stressor was a coping method used frequently by some athletes.

The coping method of ignoring may reflect the male athletes' desire to succeed in sport. Lenney (1977) revealed gender differences in success expectancies, with males reporting higher success expectancies than females in achievement settings. Gill (1988) in her study on gender differences in sport also found that males scored higher than females on sport competitiveness and win orientation. She suggested that gender may
influence the emphasis that an athlete places on social comparison and winning in sport. Perhaps it can be postulated that the male athletes in the present study preferred to ignore their injury or pain rather than deal directly with the problem, which may have resulted in them leaving the game. Continued participation in the competition, of course, increases their chance of success.

Another result that emerged from Study 1 was the general way that females and males coped with acute stressors. The strategies employed by the female athletes appeared to depend on the type of stress encountered, whereas males reacted with similar techniques to a greater number of stressors. Although some previous research on coping strategies (e.g., Crocker, 1992) has indicated that both male and female athletes used a wide range of cognitive and behavioural strategies to cope with sport-related stress, other researchers (e.g., Frydenberg & Lewis, 1991; Ptacek et al., 1992) found gender differences similar to the present study. In these studies females used a combination of problem and emotion-focused techniques, whilst males used predominantly problem-focused coping strategies to deal with most stressors.

One finding that was not expected in the this study was that a similar number of females and males frequently used problem-focused strategies to manage acute stress. In most of the past investigations into coping styles (e.g., Folkman & Lazarus, 1980; Stone & Neale, 1980), males typically adopted a more emotion-focused approach, whilst males reported a greater use of problem-focused coping. The present study, however, yielded similar results to a smaller number of investigations that found no significant differences between the typical coping patterns of males and females. For example, Hamilton and Fagot (1988), and Keller (1988), failed to find any gender differences in the types of coping employed to manage stress.

An examination of overall group similarities and differences in the present study revealed that both males and females utilised problem- and emotion-focused coping
strategies to manage acute stress, however the type of stressor, rather than an overall preference for a particular coping type determined the coping methods employed by participants. Whilst the use of emotion-focused coping by females was not as high as predicted they did employ these types of strategies in response to a higher number of stressors (e.g., pain, injury, parental criticism, and opposition stressor) than males.

Ptacek et al. (1994), reported similar results to the present study in their investigation on gender and coping. They found no gender differences in the frequency with which problem-focused coping strategies were used. They did, however, establish that women used a greater number of coping strategies per stressor than males. It was concluded that the higher number of strategies used by females resulted in them employing a greater number of emotion-focused and social support responses than males, whilst still using a similar number of problem-focused responses. In the present study, the female participants also reported using more coping strategies than males to deal with the acute stress caused by different stressors. This wider selection of strategies by the females may explain why the overall percentage of problem-focused responses employed by these athletes was higher than expected.

In addition to examining sources of stress and coping responses as a function of gender, these factors were also examined as a function of age. Comparisons between adult and adolescent athletes about sources of stress lent support to another hypothesis in Study 1. A significant age effect indicated that different acute stressors existed for adult, as compared to adolescent athletes. Adults were more stressed by their own actions and performances than adolescents, who were more affected by actions or comments of others, including the coach.

One plausible explanation for age differences in stress sources is that adolescents feel higher pressure to perform well in sport (often as a result of significant adult influences), yet have poorer athletic and coping skills than adults (Smoll, 1986). As
adolescents rely more on significant others (e.g., coach and parents) for support, advice, and encouragement than adults (Scanlan & Passer, 1984) pressure from these people may result in high intensity stress. This stress is particularly likely to occur if adolescents receive negative input or criticism from others that is appraised as unpleasant rather than input that is appraised as supportive and instructional (Anshel, 1990). Such feedback can result in feelings of personal inadequacy in meeting the demands of competition, and the imbalance between the athletes' resources and the demands of sport that frequently causes stress occurring (Lazarus & Folkman, 1984).

The fact that the adolescent participants in this study experienced significantly more intense stress than adults as a result of stressors based on others actions or words is in accordance with previous findings on sources of stress in youth athletes. For example, Scanlan and Lewthwaite (1984) reported that perceived pressure from adult influences such as the parents and coach were related to acute stress before competing in sport. They found that feedback and input from such people can result in feelings of personal inadequacy in youth athletes due to social evaluation and comparisons with other competitors. Such inadequacies were linked to feelings of threat on their self-esteem and possible stress reactions. Gould et al. (1983) also identified social evaluation and feedback from significant adult influences as being major sources of stress in youth wrestlers.

The coping responses used most frequently by adults and adolescents were also examined in Study 1 and were found to be similar to those reported by the male and female athletes. The similarities in the use of these responses by all groups suggested that there are coping techniques that are preferred by most athletes, regardless of age or gender. While similarities between age groups occurred for the most frequent coping preferences, age differences did exist in the coping responses used for specific stressors.
One coping strategy used by both adolescents and adults after an injury or pain was relaxation. Relaxation can be used to help to reduce stress after the occurrence of pain or injury (Coleman, 1994). Managing stress through relaxation methods can help to ease tension, and therefore the stress and pressure being placed on an injured part. Other coping techniques used by participants following an injury or pain included ignoring the situation, concentrating on the game, or getting angry. However, these strategies are unlikely to reduce the stress resulting from the problem for a prolonged period of time, particularly if it is a serious injury, as they are not directly aiding or relieving the injury itself. Relaxation is often the only stress reduction method to help control pain.

Although displaced anger was a coping strategy employed by both adults and adolescents in this study, each age group used it to deal with different stress sources. The fact that the adults in Study 1 had a greater tendency than adolescents to use anger as a coping response after mistakes contrasts past research on coping behaviours in different age groups. For example, Irion and Blanchard-Fields (1987) found that adults endorsed less hostile reactions and self-blame strategies than adolescents when placed in a threatening situation. Blanchard-Fields and Robinson (1987) also suggested that adults, as compared to adolescents, perceived themselves as less responsible for stressful events. The adult athletes in the present study, however, felt responsible for their errors. A consequence of this responsibility was that they became angry at themselves for making mistakes. To try to cope with the stress that arose after an error the adults may have redirected their anger into their performances in an attempt to play better and compensate for the mistake.

Adolescents were not as significantly affected by individual mistakes made during a game as adults, however, they did report feeling high intensity stress after being criticised or hassled by other people. This type of negative input also elicited feelings of anger that were directed into many of the adolescent athlete's performances. As
most adolescents do not have a fully developed coping repertoire they may employ strategies that are deemed "immature" to manage this stress. Irion and Blanchard-Fields (1987) suggested that "immature" strategies include the hostility and anger that was reported by the younger athletes in the present study. Smith (1986) also suggested that criticism from coaches may arouse feelings of resentment and hostility in athletes.

The finding that differences in the coping strategies typically employed by adolescent and adult athletes would occur supported the prediction. The typical coping strategy choices of adults and adolescents appeared to depend predominantly on the source of stress encountered, but overall, adults were more likely to employ emotion-focused responses than the younger athletes.

The most frequent emotion based strategy used by adult participants was redirecting their anger into their sporting performances (emotion-focused). Adolescents were more likely to try to concentrate and focus on their game (problem-focused), rather than using emotional responses to cope with stress. This particular result was unexpected, as past literature (e.g., Blanchard-Fields, 1986; Irion & Blanchard-Fields, 1987; McCrae, 1982) had reported that as people became older they were less likely to employ responses such as anger and hostility to deal with stressful situations. One possible reason for the frequent use of anger by adults in this study is that the emotion was not focused on other people or objects, but was directed into the athlete's game to help them to improve their performance. Thus, the release of this emotion may not be considered to be maladaptive as it has been in past studies (e.g., Gould et al., 1993), and may, in fact, be seen as productive and beneficial by these athletes. Overall, the age results of the present study were in accordance with previous investigations that examined age differences in coping strategies (e.g., Compas, 1987, Folkman et al., 1987, Spivak & Shure, 1985). These studies all indicated that the choice of strategies used to cope with stress differed as a function of age.
In addition to the differences between the age and gender groups there were variations in the coping strategies used by male and female adolescent athletes, indicating that these groups' approaches to coping with stress are different. These findings, in addition to the result that the groups differed somewhat in the sources that caused them intense acute stress, indicated that the unique needs and preferences of specific groups should be considered when examining stress and coping.

The personal dispositions of perfectionism and trait self-confidence were also examined as a function of gender and age in Study 1. The aim of the investigation conducted on these dispositions was to establish the extent to which they differed between groups, and the extent to which they were linked to acute stress. It was predicted that perfectionism and trait self-confidence would differ significantly between gender and age groups. Support was not shown for all of these predictions.

One hypothesis for which support was found was that there would be significant gender differences in trait self-confidence. In the present study females reported a significantly lower level of self-confidence in sporting situations. Previous literature in the area of gender and self-confidence (e.g., Corbin, 1981; Lenney, 1977) indicated that females were more likely than males to display low confidence in socially comparative situations. When competing in sport social comparison often occurs as the competitive nature of the activity creates numerous opportunities for evaluation. These comparisons may contribute to a female feeling less confident than a male would in their sporting abilities (Corbin, 1981). Another possible reason for females being less confident than males in athletic situations is that sport is largely a male domain and hence, may be considered "sex-role inappropriate" by some females. Lenney (1977) suggested that when females are in situations that are not deemed "appropriate" for their gender they are likely to doubt their performance capabilities and, as a result, their self-confidence will be lowered.
Whilst the expected difference between males and females in levels of trait self-confidence occurred, scores on perfectionism did not vary between any of the groups. The finding implied that males and females do not differ in their levels of perfectionistic thinking. No research has been conducted on gender and perfectionism in the past. The prediction that there would be gender differences in this disposition was based on the fact that individuals who displayed low self-confidence and those who had high levels of perfectionism exhibited some similar characteristics (e.g., both dispositions are based on self-evaluation and a match between performance and a standard). The non-significant difference found between males and females in this study, and the fact that there was a highly significant gender difference in trait self-confidence suggested that there was no significant association between the two dispositions. These results also indicated that perfectionistic tendencies, including having high expectations, being overly critical of one's behaviour, and fearing negative evaluation, are displayed by athletes of either gender to the same extent, regardless of how confident they are in their sporting abilities.

While no significant age differences occurred in either self-confidence or overall perfectionism, adolescents and adults did differ on some of the dimensions of perfectionism. The younger athletes exhibited more doubts about their actions during sporting competition than adults. Most of the adults questioned had been participating in sport for many years and were more likely to have developed their skills to a level where they did not often have doubts about their ability to perform the best that they could on a majority of occasions. Most of the adolescent athletes, in contrast, had been involved in their chosen sport for a shorter period of time and were still developing and refining their sporting skills. A large number of the adolescent sample were participating in their sport programs to improve their athletic abilities, techniques, and strategies. These athletes may have realised that they had a lot to learn about their sports and may, therefore, have doubted the quality of their performances more than the
adults with more experience. Participating in a sports program in which the continuation of a scholarship is based on consistent high performance quality may also have placed additional pressure on these young athletes, perhaps not as experienced as the older participants. Continued involvement based could have promoted feelings of threat and stress in the athletes, causing them to doubt their performance quality, particularly if pressure to succeed was experienced consistently. Scanlan and Lewthwaite (1984) and Cohn (1990) found that trying to perform up to high personal performance standards and expectations was significantly related to high levels of stress in sport because such standards made athletes aware of the potential for failure. Scanlan and Passer (1978), in their examination of young (11-12 yr old) athletes also found that athletes who perceived they could not adequately meet the demands of the sporting situation (i.e., had doubts about their actions) also experienced high intensity stress.

Degree of self-confidence and perfectionism could not be predicted by stress intensity. This indicated that these dispositions may not be mediators in the coping process. However, specific dimensions of perfectionism may mediate reactions to stressors. The dimension of the MPS most significantly related to stress intensity as a function of gender and age was 'personal standards'. That is, athletes who had high standards of performance and a tendency to evaluate themselves based on performance could be predicted by high stress intensity. This indicates that high scores on the 'personal standards' subscale of the MPS are related to setting high goals, high performance expectations in every task undertaken, and feeling competent performing all tasks. Frost and Henderson (1991) correlated personal standards with a general success orientation towards sport and dreams of sporting perfection. Their results also suggested that a possible result of having a success orientation is that perfectionists view sporting performances as an "opportunity to fail". This perception can result in athletes feeling threatened and experiencing intense stress when placed in such a situation. This proposal was supported in the present study.
Stress intensity could also be used as a predictor of scores on the 'parental expectations' subscale of the MPS, for adolescents. That is, athletes of this age who experienced high intensity acute stress were more likely to perceive that their parents had high expectations of them than those who exhibited low intensity stress. The relationship between this subscale and stress may have been significant for adolescents, but not adults because parents often place greater expectations on their children when they are younger. Individuals rely on significant others such as their parents for support, advice, and encouragement when they are young (Scanlan & Lewthwaite, 1984; Scanlan & Passer, 1984) and they may, therefore, feel pressure to perform up to their expectations.

Another significant result from Study 1 was that the MPS dimension, 'doubts about actions', could be predicted by stress intensity experienced by female athletes. Frost et al. (1990) explained that most perfectionists have a tendency to doubt the quality of their performances, and often feel that they have not completed a task satisfactorily. The females in the present study who had doubts such as these about their sporting performances appeared to experience higher intensity acute stress than those who did not score highly on this scale. This result is similar to the findings of Hewitt and Flett (1991), who found that the doubts about actions were related to anxiety about athletic competition.

Frost and Henderson (1991) found that the doubts about actions scale of the MPS was negatively correlated with self-confidence in athletic situations. They hypothesised that individuals who had many doubts about their abilities and the tasks they undertook would view evaluated performance as an opportunity to fail and therefore feel threatened in such situations. The female athletes in Study 1 recorded lower self-confidence levels than males and were also the only group in which doubts about actions could be predicted by stress intensity. Furthermore, the female group had the highest mean stress intensity score of all groups examined. These results suggested that competitive sport may be more stressful for females, than it is for males, and that this
high stress could be a result of their low self-confidence and the doubts they have about their athletic abilities.

**Study 2**

The purpose of Study 2 was to assess the effectiveness of a stress management program in reducing the intensity of acute stress experienced by female adolescent athletes during sporting competition. The results from this study suggested that a program developed to meet the needs of this group (as ascertained in Study 1), modelled on components of Meichenbaum's (1985) SIT program and Anshel's (1990) COPE model, was effective in increasing coping strategy effectiveness and reducing acute stress experienced by these athletes during sport. Thus, support was found for most of the selected hypotheses proposed for Study 2.

The experimental group displayed significant pre- to post-interview reductions in their SACL scores, the ease with which they became stressed during games, and the intensity of stress experienced as a result of stressors in a contest. The control and placebo groups, on the other hand, did not display significance in any of these differences. These results provided support for hypotheses 1a and 1biii. These changes in stress intensity and coping effectiveness may be attributed to the implementation of skills learned in the stress management intervention program. The results indicating that the experimental group, but not the control or placebo groups, experienced reductions in perceived stress intensity were in accordance with past literature on the effectiveness of stress management programs (e.g., Anshel, 1990; Anshel et al., 1993; Smith, 1980; Suinn, 1987). These investigations found support for the use of stress management programs to reduce or minimise competitive stress.

Whilst the overall levels of perceived stress intensity and the ease with which the experimental group became stressed changed, ostensibly as a result of the
intervention, stress levels following two specific stressful situations did not vary significantly. That is, the most stressful situations elicited similar intensity levels in most participants, regardless of the source of stress encountered and of their knowledge of coping techniques. The only group that significantly reduced the stress intensity resulting from a specific stressor was the placebo group. This finding was contrary to hypothesis 1biii.

One possible reason for the experimental athletes not experiencing a reduction in stress intensity for specific stressful situations was that all of the participants in the group only attended four intervention classes. They had no previous exposure to coping skills training and may not have had enough training in stress management to allow them to manage the most intense situations they faced. The reason that the placebo group had a significant change in intensity as opposed to the experimental and control groups may be attributed to the types of competitions the athletes from each team had played in during the intervention period. The placebo group had less pressure placed on them during this time because they participated in less important games than the other two teams, therefore may have experienced lower levels of stress because the games were not perceived as stressful as contests prior to the study. The participants from the experimental and control groups had a high number of games that may have elicited more intense stress simply because of the nature of competition and pressure placed on them during these more important events (e.g., representative and selection games). Qualitative analysis of interview responses revealed that the placebo athletes felt more pressure and stress in these competitions as a result of their importance. These games were being played at a high level (e.g., regional or state) or were games being played to select athletes to represent either their region or state and, therefore, had an influence on their future involvement in their sport.

Overall findings on the stress experienced by participants revealed that although the degree of stress intensity elicited by highly stressful situations was similar for all
teams regardless of their intervention, the effectiveness of coping strategies and ease of stress scores did differ between groups. The experimental group reported significant increases in general coping effectiveness and it took higher intensity stressors to elicit acute stress after the intervention. Reduced stress following stress management training is supported numerous researchers (e.g., Anshel, 1990; Anshel et al., 1993; Crocker et al., 1988; and Smith, 1980) who found that coping skills training can be used to effectively alleviate problems associated with acute stress. This result is also supported by Ziegler et al. (1982), who established that SIT training resulted in participants being able to control their stress more effectively.

Results of the manipulation check analysis revealed that attending the stress management sessions appeared to facilitate the use of the demonstrated coping strategies (e.g., relaxation methods and thought control strategies) by athletes from the experimental group. This result supported hypothesis 1b, in which the experimental group was predicted to experience more changes than the placebo and control groups in the types of coping strategies they used to manage acute stress after the intervention. This result lent some support to the use of a four week intervention program in this investigation as it displayed that subjects did implement the coping strategies taught to them.

Numerous researchers have also found relaxation and thought control strategies to be effective components of stress management programs. For example, participants in a study conducted by Ziegler et al. (1982) also reported that relaxation techniques taught to them as part of a stress management program caused them to change their approach to their sporting participation and helped them to control their stress more effectively. Other studies (e.g., Berger, Friedmann, & Eaton, 1988; Weinberg, Seabourne, & Jackson, 1981) that have examined the effects of relaxation training have found that it can significantly reduce trait and state anxiety, and produce short term reductions in psychological stress.
One study that produced results contrary to the present study was Anshel et al. (1993). They included relaxation training in their study, however, this treatment was conducted with a group that did not receive any other type of stress management training and found that it did not cause any improvements in muscular tension, motor performance, or emotion. The relaxation program included in this study, however, did not incorporate the same techniques that were taught to participants in the present thesis (e.g., breathing techniques), and their relaxation was not included as part of a more extensive stress management program, as it was in this study.

Although the stress management program did not alter the experimental athlete's coping responses to the extent that they used the coping strategies taught to them in all stressful situations they faced, it did provide them with ideas about the types of techniques available for them to use. All of the athletes from the experimental group who were interviewed in the post-intervention session revealed that the stress management sessions had made them become more aware of the stress they were experiencing and of the strategies they employed to cope with this stress. Most of these athletes told the researcher that they had not attempted to consciously reduce their stress levels during games prior to the study, but after being introduced to the idea of stress management they had made an effort to employ appropriate strategies to help them to cope better.

The most frequently cited strategies employed by athletes in all of the groups before and after the intervention were task focus strategies. Each group experienced a pre- to post-intervention increase in the number of athletes using responses included in this category. The fact that task focused strategies were the most commonly employed coping responses by all participants was inconsistent with past literature (e.g., Gould et al., 1993a; Gould et al., 1993b). Although these previous investigations found task focus strategies to be used to some extent by athletes, they identified thought control
strategies such as rational thinking and self-talk as the most common responses to competitive stress. Thought control strategies were the second most frequently reported coping responses in Study 2, however they were reflected in a much smaller number of interviews, for all athletes except those in the experimental group during the post-intervention interview. The past studies did, however, focus on chronic stressors that may elicit different responses to the acute stressors examined in the present study.

The fact that the control group used task-focus strategies more frequently during the intervention period than before it was due to a greater use of techniques such as increasing concentration, focus, and effort. This change in strategy use may have been influenced by the types of stressful situations the athletes encountered before and after the intervention. The association between stressors and coping responses is in accordance with Gould et al. (1993b), who found links between different sources of stress and the coping strategies used to manage them. They also found that even though some coping strategies (e.g., mental preparation and positive focus) were used in a range of stressful situations, each source had a unique set of coping strategies associated with it.

The control group in the present study participated in more stressful, high-level, pressure games during the intervention period than they did before the study commenced. The athletes did not compete as frequently in state and trial games as they did in local club and school competitions and the types of stressors that arose in these higher level games may have differed from those in the lower standard games. A review of the sources of stress reported by the control group revealed that in the pre-intervention interview stressors involving the coach, teammates, and injury were the most common. In contrast, the most frequently reported stressors in the post-intervention interview were losing, being fouled off, the opposition scoring, and tight games.
The variations in stress sources appear to have been a reflection of the appraisals of the stress intensity levels in different types of competitions the athletes participated in before and after the intervention. The athletes may have perceived that more pressure is placed on the participants winning during these high level games and, as a result, the most frequently reported stressors were those based on factors that may have affected performance outcomes. The important nature of these competitions, combined with the differences in sources of stress may have induced the use of task focus strategies that involved directing thoughts and efforts towards performances in these games. Madden et al. (1989) found similar results to this study, with athletes experiencing a performance slump, and feeling increasing pressure to perform well employing task focus strategies such as increasing effort and resolve. Although Crocker (1992) did not make connections between stress sources and coping strategies he did find that in highly stressful situations athletes predominantly used active and problem-focused coping such as 'concentrating and focusing on what to do next', or 'trying to analyse the problem in order to understand it better - to think of solutions'. These types of strategies were included in the task-focus dimension of the present study. These past studies, and the present study have indicated that if an athlete perceives themselves as losing control of a situation their level of stress increases (Madden et al., 1990), but if they employ coping strategies that help them to gain this control back stress may be reduced. High control over performance outcomes appraised as aversive has been reported as being stress reducing in past literature (e.g., Folkman, 1984; Thompson, 1981).

The increase in the use of task focus strategies, as well as a significant decrease in the use of aggressive responses by the control group may also be partially attributed to coaching. The team coach attempted to reduce the incidence of anger and aggression by her athletes both on and off the basketball court and encouraged them to increase their effort and focus throughout games. The coach alerted the researcher to the fact
that a number of the athletes had been having problems controlling these emotions prior to the study. During the intervention period she felt it was necessary to deal with these problems. As this team comprised the control group the researcher did not have an opportunity to attend to their needs or exert any control over the actions of the athletes or the coach during this period. Any intervention by the researcher on this issue would have contaminated the study by providing athletes in the control group with knowledge of some of the techniques used in the stress management program.

The placebo group also exhibited unexpected changes in the coping strategies they used before and after the intervention. They experienced a pre- to post-intervention increase in thought control strategies and a decrease in techniques involving ignoring a stressor. These changes may also have been the result of the types of stressors that the athletes experienced during the intervention period. The major sources of stress reported in this period were performance stressors such as errors, penalties, missing goals, and poor umpiring decisions. It is possible that the placebo athletes believed that these were not stressors that could be ignored because of their affect on performance outcomes. The most commonly reported stressors prior to the intervention were injury and other people hassling or observing the athletes. As these were sources of stress that may not have affected performance as directly as errors and umpiring decisions, the athletes may have felt that it was best to ignore them and focus on their game. When the participants in the present study committed performance errors or were faced with a situation that may have resulted in them losing a game (e.g., poor umpiring decision) they may have felt increased pressure to perform better, and thus, adapted thought control coping methods to help them to deal with the situation more effectively. Johnston and McCabe (1993) suggested that in situations where there is the potential to control a stressor (e.g., stress resulting from a performance error), employing a coping strategy that involves confronting the stressor, or dealing with the problem rather than ignoring or denying it, is appropriate because it can increase perceived control and self-efficacy and, thus, facilitate performance.
Gould et al. (1993b) found similar results to the present study, as the athletes they examined employed thought control coping strategies such as positive focus, rational thinking, and self-talk when faced with expectations and pressure to perform. Madden et al. (1989) also found similar results, with athletes employing some thought control strategies (e.g., mentally preparing self, analysing situations to understand them, thinking positively) when trying to cope with a performance slump and deal with the associated pressure to perform.

One similarity found between the three groups in Study 2 was that they all used fewer, strategies during the intervention period than they did prior to the study. The reduction in strategy use was expected to occur with the experimental group because although their coping repertoire was increased during the intervention, their attention was likely to have been focused on specific strategies that were appropriate and effective for use in the stressful situations. The small number of strategies used by the placebo and control groups, however, was not expected. This may have been a result of the types of games or the different types of stressors they experienced before and after the first interview. For example, the sources of intense stress experienced by the placebo group before the first interview (e.g., errors, injuries, taking penalty shots, coach pressure, spectators hassling, opposition scoring, teammate error, poor umpiring decisions) were more varied than those reported during the second interview and these stressors elicited a wider selection of coping responses. During the intervention period this group was highly affected by stressors that influenced performance (e.g., errors, poor umpiring, opposition scoring) and these initiated a greater use of thought control and task focus strategies such as increasing focus and concentration, self-talk, and thinking positive than the stress sources prior to the study did.

A comparison was conducted between the coping strategies usually employed by participants and the strategies used in specific stressful situations. This comparison suggested that whilst there were some coping responses that were typically favoured by
athletes, there were some stressors that elicited techniques that differed from these usual responses. One plausible reason for these differences is that the specific situations reported by the athletes in the interview were appraised as highly stressful events. These were the most stressful events the athletes had encountered and, therefore, may have been unusual situations that they were not used to dealing with. A possible consequence of facing uncommon stressors could have been that non-typical coping reactions were elicited.

The purpose of the stress management program implemented in the present study was to improve coping effectiveness. Contrary to expectations, no significant improvements were found in the effectiveness of coping responses used by these participants. One plausible reason for this improvement not occurring is that the intervention program was too short. Four lessons in stress management may not have been sufficient for the participants to attain full mastery of the techniques explored during the program. Meichenbaum (1985) suggested that most SIT consist of 12 to 15 sessions and have follow-up sessions over a 6 to 12 month period. The present program, although incorporating all phases of SIT was not conducted over this many sessions and may, therefore, not have been as effective as a longer program. Kerr and Leith (1993) conducted a longer stress management program (16 sessions) based on SIT and obtained results that supported this length of program. Their experimental group demonstrated superior performance, mental rehearsal, and attentional skills, and lower anxiety levels after the program than the control group. These researchers concluded that a longitudinal design such as theirs, which included a more extensive program was advantageous when teaching athletes stress management skills.

Although a program consisting of six to eight stress management sessions would have been preferable for the present study, this length of program was not possible due to time restrictions placed on the athletes participating in the intervention. The participants in all conditions were only available to meet with the researcher before or
after designated training sessions. Some past literature has shown that stress management programs consisting of a small number of sessions can be successful in teaching effective coping skills and reducing stress intensity. For example, Anshel (1990) used six sessions in his examination of the COPE model and found that the coping strategies taught to the participants in this study significantly improved performance and affect. Also, although Meichenbaum (1985) indicated that, on average, SIT consists of 12-15 sessions, he reported that this aspects of this program had been conducted successfully with clients who received only a single one hour stress management session.

Other results in Study 2 showed that although the experimental group did not become more effective copers as a result of the intervention, they did employ some of the methods they had been taught in the program. It is possible that although the athletes were employing the strategies they had learnt they may have required more time to practice and develop these newly acquired skills.

The manipulation checks administered to all participants in the post-interview indicated that the intervention programs achieved their purposes. The fact that the athletes in the experimental group reported using the coping strategies taught to them during the program (e.g., relaxation techniques and self-talk methods) provided evidence that one of the objectives of the intervention was met. The frequency with which participants used the strategies was not, however, as high as expected. A longer stress management program may have resulted in greater use of these strategies. It is possible that the athletes were simply not experienced enough in the use of these responses and had not had enough time to develop their coping skills to the stage where they could employ an appropriate strategy quickly, without much thought, and then execute their next sporting response as soon as possible. Anshel (1990) suggested that it was important for athletes to be able to execute sporting skills in the virtual absence of thinking after dealing with the effects of a stressor so that the
possible deleterious effects that can interfere with performance are prevented. The athletes in the present study were employing new coping skills they had only been using for a short period of time. Some of these athletes reported in the interviews that they did not have time to execute these skills when they were competing. The athletes indicated that they had to think about using these new strategies in a game and although they knew that they should have used them, they felt that it was more important to concentrate on their performance in some situations.

Despite the experimental group reporting in the interviews that their coping effectiveness did not improve significantly, the manipulation check revealed that the coping strategies they used were more than moderately effective in reducing their stress. All of these athletes reported that using the intervention strategies had had at least some effect on the stress they experienced. This finding suggested that the training the athletes received in stress management achieved it's purpose of teaching coping techniques that helped them to significantly reduce acute competitive stress. The effectiveness result indicated that in at least some stressful situations the experimental athletes remembered the strategies taught to them, knew which strategies to use, and knew how to employ them correctly. The athletes who reported using these strategies also found them to be effective in reducing stress in many of these situations. All of those who reported that they used these techniques were the athletes who also rated their coping strategies as being somewhat effective.

The results of the manipulation checks administered to the placebo group provided evidence that a moderate placebo effect occurred. In the post-intervention manipulation checks the participants reported that the sport psychology sessions they attended had a slight-moderate effect on their stress levels during games during the intervention period. As the sessions did not include any stress management they should not have had any affect on the stress experienced by them. The athletes were aware that they were participating in a study where they were being exposed to
information and may have believed that they were expected to change in some way. Brannon and Feist (1992) explained that participants participating in research often act in ways that they think they should, and that their actions are based more on their self-expectations than on any effects of any independent variables. That is, people's actions tend to be consistent with their expectations. As a result of this type of effect, the participants in the present study may have believed that the intervention they received reduced the stress levels they experienced during games. No other result obtained from the interview or the manipulation check supported this stress reduction, or a change in coping skills.

The manipulation checks for the control group confirmed that the coping response patterns, stress intensity levels, and coping strategy effectiveness of this group did not change as a result of their involvement in the study. This result was expected as the control group did not receive any guidance in stress management and therefore had no reason to change their coping styles.

**Summary of Conclusions, Implications and Future Directions**

Overall, the data obtained about the acute stress sources, coping strategies, typical coping response patterns, and personal dispositions of males, females, adolescents, and adults provided some support for the hypotheses proposed for Study 1. Although there were a number of similarities in the sources of intense stress and coping responses employed by the groups to manage this stress, some of the distinct differences that occurred implied that both age and gender have some influence on individual athlete's stress and coping responses. The results also indicated that these group characteristics, as well as personal dispositions such as self-confidence and some aspects of perfectionism, should be taken into consideration when dealing with the issues of stress and coping. The number of age and gender differences also
appeared to provide some support for the development and implementation of stress management programs tailored to the requirements of specific groups.

A number of implications have been derived from the findings of Study 1. The differences found between adult and adolescent athletes in their sources of acute stress suggested that it may be important to encourage parents and significant others to put less pressure on young athletes to perform well in sport. The finding that adolescents experienced intense stress as a result of negative feedback and criticism from adults suggested that it is important that these adults do not set unachievable, unrealistic, or difficult goals for adolescents. Instead, young athletes need to receive encouragement and support from adults particularly from their parents. If they continue to receive only negative feedback adolescents withdrawal from sport may result, especially if the athletes feel that they cannot be successful or achieve goals set by other people. Cohn (1990) reported that striving to meet parental expectations and pressures from others were some of the most frequent sources of stress in adolescent golfers that led to burnout.

Some implications based on the gender findings also emerged from Study 1. The significant gender differences that occurred in the sources of acute stress based on social evaluation indicated a need to reduce the amount of negative feedback and criticism given to females by significant others, particularly the coach and parents. The finding that females experienced intense stress as a result of negative input and criticism from others indicated a need to teach female athletes to filter out negative or unpleasant information, as outlined in the COPE model (Anshel, 1990) of stress management and taught in the stress management program presented in Study 2.

Another important issue arising from the results in Study 1 was that competitive female athletes were more stressed than male athletes. One possible reason for this result may have been due to the girls' low self-confidence and doubts about their
athletic abilities. Investigations by researchers such as Carver and Scheier (1990, 1994) indicated links between self-confidence, the stress experienced by athletes, and the responses employed to manage stressful situations. They also provided evidence for the importance of confidence about achieving a desired result, indicating that the more doubts an individual had about their abilities the greater feelings of threat and negative emotions they would experience. If an athlete continually doubts the quality of their performances and frequently experiences intense stress it is possible that their intrinsic motivation for their sport may decrease (Smith, 1986). This reduction in motivation could eventually result in a withdrawal from sporting participation by female athletes.

The findings from Study 1 provided some justification for the development and implementation of stress management programs that focus on the unique needs, skills, and preferences of particular groups of athletes. One implication of these differences is that if programs are not designed specifically for the athletes receiving the training and teach them coping skills that are not relevant to their needs (e.g., teach them how to cope effectively with stressors that do not cause them high intensity stress) stress management may be of little benefit to the athletes.

The stress management program developed for the adolescent females in Study 2, based on information gathered from the first study was shown to be a relatively effective method of teaching the participants coping skills to manage stress. Overall, it achieved it's purpose of facilitating the use of demonstrated coping strategies, increasing the participant's coping repertoires and causing reductions in the intense acute stress experienced by the participants during sporting competition. The effectiveness of the experimental group's coping responses was also increased to some extent, however, the fact that this result was not as great as expected implied, however, that the stress management program should have been more extensive. The fact that the intervention in Study 2 was only composed of four sessions was a clear limitation of the present
investigation. This was, however, a limitation imposed on the study due to time restrictions and subject availability. Participants were only able to attend sessions prior to training or games and these had been prescheduled before the commencement of the study.

Meichenbaum (1985) recommended that 12-15 sessions may be needed to ensure that participants master the coping strategies they need to manage stress effectively. The overall changes and improvements in coping strategy use, strategy effectiveness, and stress reduction implied that even a short stress management program such as the present one that focuses on the needs of the specific group being targeted can be effective. Past studies involving short duration stress management (e.g., Mace & Carrol, 1986; Hamilton & Fremouw, 1985; Ziegler et al., 1982) have indicated that although some short duration intervention programs have produced some positive performance and psychological changes, they have not all been completely effective in reducing the negative effects of stress.

In conclusion, the results of this thesis lent support to the use of specific stress management programs, based on group characteristics, to improve the selection and effectiveness of coping responses used by athletes to manage acute competitive stress. This investigation also indicated that the process of comparing age and gender groups was necessary to verify that significant differences do occur between groups who possess different characteristics. Although it may not be essential to conduct group comparisons before developing and implementing future stress management programs, this thesis made it apparent that it can be beneficial to establish and consider the needs, coping preferences, primary sources of intense acute stress, and some personal dispositions characteristics of target groups before determining the components of a program.
Based on the results of Studies 1 and 2, several areas of future investigation seem warranted. One possible direction for future research involves an assessment of the effects of specific stress management programs on athletic performance. Whilst the present thesis established the effects of a coping program that focused on a particular groups' coping needs and characteristics (i.e., the intensity of acute stress experienced, the coping strategies employed in response to specific stressors, the effectiveness of coping responses, and personal dispositions), it did not determine whether the program influenced performance (i.e., no performance measure was included). Although a number of previous studies (e.g., Anshel et al., 1993; Kerr & Leith, 1993) investigated whether changes occurred in areas of performance after athletes received training in stress management, apparently no research has focused on the effects of a program designed specifically for the groups being studied. It is possible that such programs may benefit athletic performance more than a general program such as the SIT. Kerr and Leith (1993) also suggested that the mechanisms through which stress management programs improve performance be examined in future research.

The inclusion of other external measures of intervention effectiveness such as coach perceptions or observation of significant others may also be valuable in a future investigation. The lack of such measures in Study 2 was a limitation, however, was not the focus on the present investigation.

A second direction that future research could take is to implement a more extensive stress management program than the one conducted in this thesis to determine whether a longer, more detailed program would elicit different results to those found in Study 2. A longer program would be designed to foster a greater mastery of coping skills than that attained by the participants in the present thesis. Meichenbaum (1985) suggested that although SIT can be carried out in a single one hour session, it is usually most effective when it consists of 12-15 sessions, as well as booster and follow-up sessions faded over a six to twelve month period. Conducting a more extensive program may clarify some
of the unclear results from Study 2, particularly those relating to stress intensity in specific situations, and the effectiveness of coping strategies used to manage acute stress (i.e., would a longer intervention lead to more effective coping during highly stressful situations?).

It may also be beneficial to conduct a longitudinal study of athletes who have attended stress management programs, where follow-up interviews are conducted on several occasions in the months following the completion of the intervention. Lazarus and Folkman (1984) reported that coping is a long-term process, so a longitudinal analysis (follow-up interviews 6-12 months after the intervention) on the stress intensity, coping strategy selections, and coping effectiveness may be necessary to establish the full effects of a stress management program. Kerr and Leith (1993) conducted a longitudinal study over a 12 month period but also recommended that further longitudinal research be conducted to verify and expand on the results they obtained on the effects of a stress management program.

Finally, an investigation involving a comparison of sources of stress and coping responses across different ability levels (e.g., national vs club) may be of interest. This type of analysis may be of value to athletes at different standards.
REFERENCES


APPENDIX A: Informed Consent Form

INFORMED CONSENT FORM FOR RESEARCH

UNIVERSITY OF WOLLONGONG, DEPARTMENT OF PSYCHOLOGY
WOLLONGONG, NSW 2522

Researcher: Michelle Goyen, Postgraduate student, Department of Psychology

I, ______________________ agree to voluntarily participate in an experiment conducted by the University of Wollongong, Department of Psychology. I understand that this program involves completing 3 questionnaires. I further understand that all of the information that I provide will be true and to the best of my knowledge. I understand that the results of my performance will be strictly confidential, with individual results available only to the researcher and to me, the subject, if I wish. Subjects' names will not be used. Instead, data will be number coded.

All testing will be performed by a full time MA (Hons) student from the University of Wollongong, Department of Psychology who is familiar with all procedures. I realise that I am free to not participate if I choose or to withdraw from the experiment at any point in time.

I have read and understood all of the above, and all of my questions have been answered to my satisfaction. I also understand that I may ask additional questions throughout the study. This study has been approved by the University of Wollongong's Human Experimentation Ethics Committee.

Subject's Signature: ______________________  Print Name: ______________________  
Date: __________
Investigator's Signature: ______________________ (Michelle Goyen).

An interview with the experimenter will be conducted with those athletes who agree to participate. This interview will be based on the results and information in the questionnaires you are about to complete, will take about 10 minutes and will be conducted at a time and place of your choice, or over the phone. If you would like to be involved in an interview please circle YES below. I will then arrange a time for us to meet.

YES/NO
Either tick the appropriate box or fill in the required details for the questions below.

1. SEX: Male [ ]
   Female [ ]

2. Date of Birth: ...../...../.....

3. What is the main sport that you are involved in?
   ______________________

4. What is the highest level you have achieved in this sport?
   (Tick one box) National [ ]
   State [ ]
   District [ ]
   Club [ ]
# APPENDIX Bi: SCSI

## PART 1

Athletes are often faced with situations and events during a game that cause them feelings of stress. These events are known as stressors. Below is a list of stressors that may occur during a game. Please indicate how strongly you usually feel stressed by each of these unpleasant events during a game or match by circling the appropriate number. Work down the page and circle one number for each stressor. THERE ARE NO RIGHT OR WRONG ANSWERS so please answer honestly. Do not spend too much time on any one statement. Remember, circle the answer that best describes how you usually feel.

For example: If you usually experience very intense feelings of stress when you "Fall or trip over" you would circle the number 7 (extreme stress).

<table>
<thead>
<tr>
<th>STRESSOR:</th>
<th>no stress</th>
<th>moderate stress</th>
<th>extreme stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Making a physical error</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Making a mental error</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Getting injured</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Feeling pain</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Receiving a &quot;bad&quot; call from an official</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Getting hassled or booed by spectators</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Teammates making a mistake</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Falling for a sucker/dummy move</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Your parents criticising you</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Coach yelling or putting pressure on you</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Teammates yelling or hassling you</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Poor weather (eg. rain, heat, cold)</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### STRESSOR:

<table>
<thead>
<tr>
<th>Stressor</th>
<th>No Stress</th>
<th>Moderate Stress</th>
<th>Extreme Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Success of your opponent (eg. scoring a goal)</td>
<td>1</td>
<td>2</td>
<td>3 4 5 6 7</td>
</tr>
<tr>
<td>14. Being intimidated by opponents</td>
<td>1</td>
<td>2</td>
<td>3 4 5 6 7</td>
</tr>
<tr>
<td>15. My opponent has just cheated</td>
<td>1</td>
<td>2</td>
<td>3 4 5 6 7</td>
</tr>
</tbody>
</table>

List any other things that have caused you to experience intense stress during a game or match:

<table>
<thead>
<tr>
<th></th>
<th>No Stress</th>
<th>Moderate Stress</th>
<th>Extreme Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. ____________________</td>
<td>1</td>
<td>2</td>
<td>3 4 5 6 7</td>
</tr>
<tr>
<td>17. ____________________</td>
<td>1</td>
<td>2</td>
<td>3 4 5 6 7</td>
</tr>
<tr>
<td>18. ____________________</td>
<td>1</td>
<td>2</td>
<td>3 4 5 6 7</td>
</tr>
</tbody>
</table>
PART 2

(A) My highest source of stress listed in Part 1 was ________________________________

(1) Circle the one number taken from the List of Coping Responses (on Page 6) that best describes how you usually try to cope with this stressor (circle only one number):

1 2 3 4 5 6 7 8 9 10 11 12 13 14
15 16 17 18 19 20 21 22 23 24 25 26 27 28

(2) Rate the effectiveness of this coping technique in reducing your stress (circle one):

not at all effective   moderately effective   very effective
1 2 3 4 5 6 7

(B) My second highest source of stress listed in Part 1 was:

________________________________________________________________________

(1) Circle the one number taken from the List of Coping Responses (on Page 6) that best describes how you usually try to cope with this stressor (circle only one number):

1 2 3 4 5 6 7 8 9 10 11 12 13 14
15 16 17 18 19 20 21 22 23 24 25 26 27 28

(2) Rate the effectiveness of this coping technique in reducing your stress (circle one):

not at all effective   moderately effective   very effective
1 2 3 4 5 6 7
(C) My **third highest** source of stress listed in Part 1 was ________________

(1) Circle the **one** number taken from the **List of Coping Responses** (on Page 6) that best describes how you usually try to cope with this stressor (circle only one number):

1 2 3 4 5 6 7 8 9 10 11 12 13 14
15 16 17 18 19 20 21 22 23 24 25 26 27 28

(2) Rate the effectiveness of this coping technique in reducing your stress (circle one):

<table>
<thead>
<tr>
<th>not at all effective</th>
<th>moderately effective</th>
<th>very effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(D) My **fourth highest** source of stress listed in Part 1 was ________________

(1) Circle the **one** number taken from the **List of Coping Responses** (on Page 6) that best describes how you usually try to cope with this stressor (circle only one number):

1 2 3 4 5 6 7 8 9 10 11 12 13 14
15 16 17 18 19 20 21 22 23 24 25 26 27 28

(2) Rate the effectiveness of this coping technique in reducing your stress (circle one):

<table>
<thead>
<tr>
<th>not at all effective</th>
<th>moderately effective</th>
<th>very effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
When something makes you feel stressed during a game or match there are a number of ways of dealing with it. Below is a list of ways in which athletes often react immediately after (within one minute) of experiencing the stressors identified in Part 1 of this questionnaire:

**LIST OF COPING RESPONSES**

1. I tried to relax
2. I tried to analyse the problem to try to understand it
3. I drew on past experiences when in a similar situation
4. I went over in my mind how I would change the situation so it won't happen again
5. I looked to teammates for help
6. I asked the coach for advice
7. I put my angry feelings into my game so that I played better
8. I concentrated and focused on what had to be done next
9. I criticised or lectured myself
10. I went on as if nothing had happened
11. I tried to keep my feelings to myself
12. I tried to look at the bright side of things
13. I talked myself into calming down
14. I controlled my breathing
15. I prayed
16. I worried about what happened
17. I cried, yelled or screamed
18. I wished a miracle would happen
19. I hoped the problem would sort itself out
20. I consciously 'blocked out' the problem
21. I imagined things would work out well
22. I blamed myself
23. I took my frustrations out on other people or objects (eg. equipment)
24. I realised that I had no way of dealing with the situation

Write below any coping responses that you usually use that are not on this list:

25. 
26. 
27. 

APPENDIX Bii: Multidimensional Perfectionism Scale

Please read each question carefully, and then mark the number which indicates how you feel in response to each question in the space provided. The numbers run from 1 (strongly disagree) to 5 (strongly agree).

1) My parents set very high standards for me.  
2) Organisation is very important to me.  
3) As a child, I was punished for doing things less than perfect.  
4) If I do not set the highest standards for myself, I am likely to end up a second-rate person.  
5) My parents never tried to understand my mistakes.  
6) It is important to me that I be thoroughly competent in everything I do.  
7) I am a neat (tidy) person.  
8) I try to be an organised person.  
9) If I fail at work/school, I am a failure as a person.  
10) I should be upset if I make a mistake.  
11) My parents wanted me to be the best at everything.  
12) I set higher goals than most people.  
13) If someone does a task at work/school better than I, then I feel like I failed the whole task.  
14) If I fail partly, it is as bad as being a complete failure.  
15) Only outstanding performance is good enough in my family.  
16) I am very good at focusing my efforts at attaining a goal.  
17) Even when I do something very carefully, I often feel that it is not quite right.  
18) I hate being less than the best at things.  
19) I have extremely high goals.
Think about how self-confident you are when you compete in sport.

Answer the questions below based on how confident you generally feel when you compete in your sport. Compare your self-confidence to the most self-confident athlete you know.

Please answer as you really feel, not how you would like to feel. Your answers will be kept completely confidential.

When you compete, how confident do you generally feel? (circle number)

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A) Think back to the most stressful situation you can remember being in during a game.

1. What was the game/event/competition in which the stressful experience occurred?

2. What exactly was it that caused the stress?

3. On a scale of 1-7 rate how strong your stress was in this situation?

4. Did you do or think anything to try to stop or reduce this stress?

5. What exactly did you do or think to try to cope with or reduce the stress you were experiencing?

6. How effective was this method in reducing or stopping your stress?
7. Did this strategy help you in your game (e.g., make you play better, or make you less tense)? If so, how?

__________________________________________________________________________

__________________________________________________________________________

8. Did it cause you any problems (e.g., give away a penalty or lose your focus)? If so, how?

__________________________________________________________________________

B) Think of another situation when you were really stressed during a game:

9. What was the game/event/competition in which the stressful experience occurred?

__________________________________________________________________________

__________________________________________________________________________

10. What exactly was it that caused the stress?

__________________________________________________________________________

__________________________________________________________________________

11. On a scale of 1-7 rate how strong your stress was in this situation?

<table>
<thead>
<tr>
<th>not at all stressed</th>
<th>moderately stressed</th>
<th>extremely stressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Did you do or think anything to try to stop or reduce this stress?

YES  NO

13. What exactly did you do or think to try to cope with or reduce the stress you were experiencing?

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

14. How effective was this method in reducing or stopping your stress?

<table>
<thead>
<tr>
<th>not at all effective</th>
<th>moderately effective</th>
<th>extremely effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15. Did this strategy help you in your game (e.g., make you play better, or make you less tense)? If so, how?

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APPENDIX D: Stress/Arousal Adjective Checklist

INSTRUCTIONS FOR MOOD ADJECTIVE CHECKLIST

Each of the following words describe feelings or moods. Please use the list to describe your feelings at this moment.

If the word definitely describes how you feel at the moment you read it, circle the double plus (++) to the right of the word. For example, if the word is RELAXED and you are definitely feeling relaxed at the moment circle the double plus as follows:

RELAXED (++) + ? -

If the word only slightly applies to your feelings at this moment, circle the single plus (+) as follows:

RELAXED ++ (+) + ? -

If the word is not clear to you, or you cannot decide whether or not it applies to your feelings at the moment, circle the question mark as follows:

RELAXED ++ + (?) -

If you clearly decide the word does not apply to your feelings at the moment, circle the minus (-) as follows:

RELAXED ++ + ? (-)

First reactions are usually the most reliable, therefore do not spend too long considering each word. However, try to be as accurate as possible.

SLEEPY ++ + ? -
JITTERY ++ + ? -
ENERGETIC ++ + ? -
CALM ++ + ? -
TIRED ++ + ? -
DROWSY ++ + ? -
LIVELY ++ + ? -
IDLE ++ + ? -
DISTRESSED ++ + ? -
RELAXED ++ + ? -
CONTENTED ++ + ? -
TENSE ++ + ? -
UNEASY ++ + ? -
VIGGROUS ++ + ? -
ACTIVATED ++ + ? -
UP-TIGHT ++ + ? -
RESTFUL ++ + ? -
 ALERT ++ + ? -
CHEERFUL ++ + ? -
ACTIVE ++ + ? -
APPREHENSIVE ++ + ? -
SLUGGISH ++ + ? -
PEACEFUL ++ + ? -
DEJECTED ++ + ? -
NERVOUS ++ + ? -
BOtherED ++ + ? -
PLEASANT ++ + ? -
WORRIED ++ + ? -
COMFORTABLE ++ + ? -
STIMULATED ++ + ? -
APPENDIX E: Stress Management Program outline, homework exercises and handouts - for experimental group.

LESSON 1:
1) Introduction:
- About SMPs
  * reasons for them - teach you skills that you can use to help you to cope better with stress during a game.
  * possible benefits to performance - help you to focus on game instead of stress, stop you being tense and tight (muscles and mind), stop you narrowing your focus of attention and take in everything you need to see, hear and know in a game, generally play better, don't choke, don't give away penalties because of your reactions to stress etc.
  * why reducing stress is good - all of the above. Good to be aroused and excited, but not too stressed because stress can cause muscle tightness and tension that can cause injury, stop you focusing on game, mind wanders, lose touch with the game going on around you. Help you get your mind and body back in optimal condition for a good performance.

- Transactional nature of stress and coping + role that cognitions and emotions play in causing, maintaining and reducing stress.

- The way that you think, react and feel during a game greatly influences the ways that you are affected by stressful things and the ways that you cope with them. If you perceive that an event is stressful you are more than likely to feel all of the reactions that happen when you get stressed. Often you'll react emotionally (anger, worry, upset etc.), get worked up keep thinking about the situation and make you're stress worse. If you can learn to take control of a situation, of your emotions, and of your reactions, coping will be much more effective and stress will be less intense. If you can control how much you get stressed you will be able to focus more on your netball and less on stressful things.

## This SMP will help you to:
1. monitor bad and negative thoughts, images, feelings and behaviours
2. teach you problem solving skills
3. learn how to use skills to help you control your emotions, feelings and actions
4. know when to use certain coping strategies
5. practice coping skills
6. learn how to cope with expected and unexpected stressful situations
- Benefits of a specifically designed program for adolescent girls - the program will focus on your needs, strengths, weaknesses, and other important areas that will help you.
- How my research in Study 1 + your interviews helped me to design this program to be appropriate to them - found the things that make you the most stressed, how you like to try to cope with stress, and whether you are coping effectively or not.

2) Skill Acquisition Phase - learning the coping skills.

- Now that you understand why you need to be able to cope well with stress, and know some of the benefits of a stress management program it is time to develop your abilities to effectively execute coping responses to manage acute stress.

### What have you tried in the past?? Did it help you?? How so??

- (Summarise the techniques they told me they usually used and build on these ==> focus on strategies they are comfortable with:)
### You told me that you usually try to cope with stress by doing things like>
- talking yourself into calming down
- trying to ignore the stressor
- focusing and concentrating on game and skills
- trying to relax (for injury and pain stressors)
- getting angry (for opposition stressors)

It was clear that there were 2 major types of coping that you used the most; a) talking yourselves into calming down, and b) focusing/concentrating on your game and skills. ==> These will be expanded on through teaching you specific skills based on self-talk and focusing.
- The program will also focus on your highest intensity and most frequently reported stressors. These include:
  - injury  
  - parents  
  - coach yelling and hassling  
  - teammates hassling  
  - opponent cheating  
  - observation  
  - opponent intimidating or scoring
The program will present a variety of coping techniques that can be used as you desire and prefer. My goal is to teach you a selection of strategies that you can use so that you have a basis on which to focus your coping.

**Techniques to be taught:**

a) Emotion-focused (regulation) - designed to reduce distress and control your emotions.  
   e.g. - diverting attention
   - denial
   - relaxation

- In stressful situations your response will often include increased anxiety, narrowing of attention, helplessness and/or focusing attention on irrelevant or negative input or stimuli.
- It is important to try to consciously control such emotions after being exposed to unpleasant sources of stress.
- The first objective for an athlete who is presented with something stressful is to prevent emotional reactions which are usually bad for your performance (due to narrow or widened focus, increased muscle tightness etc.)

- A number of strategies may be used to achieve this objective. These include:

a) **RELAXATION**

*Why use relaxation?*

- Relaxation procedures are designed to help athletes to reduce arousal or tension in their bodies.
- One of the major problems athletes have during games is that they can't relax ==> *muscles* get tense and tight, you have a greater chance of injury & it is harder to perform the skills & movts you need during a game.
- Also when you are stressed, tense and uptight you can have *psychological* problems e.g., increased worry  
  increased -'ve thoughts  
  reduced confidence  
  reduced concentration  
===> all these are negative and can be bad for your performance, therefore you need to eliminate them.

*Aims-*

- as you become relaxed you become more aware of your body responses and feelings
- once you can recognise these things it is easier to deal with them.
- to reduce muscle tension caused by the stress and strain of competition
- relaxation helps you to gain control over your body and feelings and get you focused back onto competition.
- can also be used when trying to recover from an injury or reduce feelings of pain.

**TYPES OF RELAXATION:**

- **Progressive Relaxation:**
  - These types of relaxation teach you to recognise tension in your muscles and be able to release that at will.
  - *e.g.*, Tensing muscles 100% then relax them - If a muscle is tight, tensing hard then releasing makes it more relaxed.
  
  ### Try this yourself by clenching your fist really hard for 5 seconds and then releasing it - feel how much better it feels now. Now try it with another part of your body that feels tense or tight at the moment. Does it feel any better now??

- This method can be best used if you can first identify your areas of tension and stress, or just be able to identify that you are stressed. ### Is everyone above to notice when they feel tense in certain areas?? I want you to really become aware of tension, even when you are not playing sport, and try to reduce it by this or the following method.

**Passive/Self-Directed Relaxation:** you concentrate on relaxing your muscles, without tensing first.
- The ultimate objective of this method is to gradually reduce the time needed to be able to achieve complete relaxation so that eventually you will be able to take only a few seconds to be totally relaxed.
- Basically what it involves is relaxing your muscle groups while breathing slowly and easily and visualising the tension flowing out of your body.

**Centring** - is one such technique that is quick and easy to do.
- It can provide immediate self-control in a range of potentially stressful situations *e.g.*, when shooting for a goal, after a mistake, after the other team scores, after someone hassles you, or just when you feel overwhelmed.

**PROCEDURE:**
1. Stand, feet shoulder distance apart.
2. Shake your arms and roll your head slightly to consciously relax the arm and neck muscles.
3. Close your eyes and drop your chin towards your chest.
4. Take a long deep breath using your diaphragm. Don't hunch the shoulders or expand your chest and lungs. Breathe by moving your stomach.
5. While you are breathing in and out it is important to focus your thoughts on the movement on your stomach muscles and continue to monitor this movement while blocking out everything else.
6. As you breathe out "let yourself go" ie. allow your muscles to relax and feel the tension flow out of your body.
7. Repeat this technique 3 times.
8. After completion of the breathing it is important to immediately focus your attention on the most critical aspects of your sporting environment ie. on the task at hand, goal, where the ball is, who to pass to, getting into position etc.

Summary/Conclusions:

- Emphasise that people do not usually master relaxation techniques instantly - it takes some practice.
- Different methods work for different people - find the one that is best for you and use it when needed.
- Use this whenever you feel stressed for any reason during your game. It doesn't take long, but it means that you gain control, reduce your stress and tension, get you more focused on your game, and help you to perform better.
** LESSON 2: **

"Last week we looked at some basic relaxation techniques that you can use when you get stressed during a game. Did any of you use them? Check relaxation diaries? What worked and what didn't? Emphasise the need to continue practising and using them, especially breathing exercises."

Other things you can do to control your emotions when faced with a stressor: (more specific techniques)

a) Focus attention on self-monitoring body reactions such as HR or breathing and consciously try to control these (e.g., to slow them down). Try this - try to slow down your breathing (concentrate and focus only on breathing). Then - raise your breathing rate by running for two minutes and then try again to focus and slow it down. This can be good for distracting yourself from the stress and for regaining your focus.

b) Try to keep control of positive thoughts - think positively, and try to avoid any negative thoughts or feelings. Once again, focus on positive - may be difficult sometimes, esp. in bad situations - but keep thinking 'what is the point of thinking negative?', 'What good is it doing me?' and 'thinking negative thoughts is only going to do me harm'.

c) In some instances doing nothing, and not thinking about a stressful event may be the best coping response, especially when you have no control over the situation. Denial can act as a means of self-protection where you can deal with as much or as little stress as you can cope you effectively. When doing nothing won't make a difference to how you will perform, or the outcome of a game, or to a relationship you have little to lose from not dealing directly with the stress. Denying a stressor can help you to feel hopeful, calm and in control of your feelings and the situation. It is important to note though, that denial can only be effective in certain situations, and in some events it is important to deal directly with your stress and/or the source of stress.

- Another important part of learning how to cope well with stress is learning to take responsibility for your performance. If you take CONTROL you will be more able to recognise and deal with your immediate environment, the way that you are feeling and acting, and help you to stop getting defensive. Getting defensive inhibits how you respond to information in your environment, and often this is information that will be important and essential to your game. When you take control for your performance
you are less likely to be stressed by things that are out of your control (e.g., luck, better or older opposition, umpiring mistakes).
- If they are out of your control, forget about them because there is absolutely nothing that you can do about it - use the denial approach, because no matter how stressed you get about the situation it can't help.
- If something stressful happens that is your fault, take responsibility for it and try to deal with it (e.g., learn from it, use it as a guide for what not to do, use it to help you to play better). Getting stressed about it is only going to make things worse by stopping you from focusing on your game.

** The relaxation and the skills just explained are used to control your emotions. Now I'll teach you some techniques that can be used to stop or reduce stress by solving problems:

*Instrumental:* problem-focused
  e.g. - problem solving
  - focusing on and attending to relevant cues and information whilst ignoring or screening out irrelevant and negative information
  - thought stopping

- I will be teaching you a variety of *self-talk* techniques. Some time will be spent on this area because one of the main ways of coping indicated by adolescent females was that they 'tried to talk themselves into calming down'. They found this method to be comfortable, but on many occasions it was not effective. It was believed that if your self-talk methods could be improved your coping would be more effective.

### A number of techniques may be used to help you to deal better with negative input and evaluation and improve your self-talk (the things that you say to yourself in your mind):
SELF-TALK TECHNIQUES:

- Often, when a person gets stressed during a game they have some type of negative thoughts (e.g., about the coach/parents/spectators etc., about how you are a bad player, about how your going to lose the game etc.).
- These types of thoughts can be associated with self-confidence. If you have a lot of negative thoughts your self-confidence is likely to be quite low. Self-confidence is important, and, as females you already have a fairly high chance of having rather low self-confidence anyway.
- To help to increase your confidence and reduce your stress you need to be able to control your self-talk.

### A lot of you girls, and other female adolescent athletes told me that one of the main ways that you try to cope with stress in sport is to try to talk yourself into calming down. Many of you also said that this wasn't always effective in stopping your stress. Therefore, you need to learn about certain approaches to self-talk that can help you to cope better.

- One of the main ways of getting control of your thoughts is to identify, then eliminate or replace negative with positive thoughts (as talked about before).
- The first thing you need to be able to do is to recognise the automatic thoughts, images and feelings that you have when you are stressed. Often you aren't aware of them. This is called thought catching. When you do actually become aware of your thoughts you will usually view them as being true and factual thoughts, based on something that actually happened (e.g., the umpire called a foul against me, they must be wrong, I didn't deserve that, they're a really bad umpire, how can we win with her against us like that).
- You need to be able to recognise that your thoughts and conclusions about situations and events are often inferences and not always facts (e.g., maybe I was a bit aggressive & could have deserved that foul).
- Quite often these thoughts are negative when there is no real reason for them to be. You must be able to recognise such thoughts before you can deal with them properly and cope effectively with the stress associated with them. If you don't the stress is likely to become worse (e.g., you'll keep thinking that the umpire is bad, or has something against you or the team, every time they make any decision you'll think it's a bad one, and you'll start to worry more about their decisions than your game ==> affects your performance because you are not focusing on the game).
Rational thinking

- This method is useful for athletes who have trouble letting go of negative and irrational thoughts because they believe they are true.
- It involves replacing these thoughts with constructive, rational thoughts:

e.g.s., of irrational thoughts

a) Good athletes don't make mistakes - I just made a mistake so I must be a bad athlete.
   b) Winning is the only thing in sport - I just lost so I am a failure.

Instead of these think things like:

a) Making that mistake was silly but everyone makes mistakes sometime and it doesn't mean they are bad athletes.

b) Winning is good but everyone loses at some time - that's life.

c) Even though I just made a mistake, I know what I did wrong and can learn from that.

- Rational thinking helps you to stop focusing on negative things and allows you to start to think positive thoughts.

Thought stopping:

- This procedure involves identifying when you have negative thoughts, stopping them, and replacing them with positive, constructive thoughts.

Steps to using thought stopping

1. Identify events that trigger -ve thoughts
2. Identify signals to stop -ve thinking e.g. Yell or think 'STOP', snap your fingers, visualise seeing a red flag waving in front of your face etc. Whatever works for you. This may take a while to master. Park these thoughts away and, if necessary, deal with them later.
3. Identify productive, realistic substitutes for -ve thoughts
4. Practice thought stopping - using imagery (re-create an event in your mind, allow -ve thoughts to develop, then stop them with signal and put in +ve thoughts.
5. Use thought stopping before an actual game
LESSON 3:
COPING SELF-STATEMENTS:

- Often when you try to talk yourself into calming down it can just make you more stressed because you start to think too much about the stressor. In these situations it may be useful to use different thoughts/self-statements to reduce, avoid or constructively use stress. A list of examples follows:

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**Preparing for a stressor**

Purpose - To combat negative thinking

Examples - Just think about what I can do about it
- Remember, stick to the issues, and don't take it personally
- Stop worrying. Worrying won't help anything
- What are some of the helpful things I can do instead?
- I'm feeling uptight, that's only natural.
- Think positive thoughts. Thinking negatively isn't helping me at all.

**Confronting and handling a stressor**

Purposes - To control a stress reaction
- As a reminder to use coping responses
- To remain focused on a task or situation

Examples - Don't think about my stress, just about what I have to do.
- This is a reminder to use my coping exercises.
- Relax, I'm in control. Take a slow deep breath.
- As long as I keep my cool, I'm in control of the situation.
- Don't make more out of this than I have to.
- Look for positives, don't jump to conclusions.
- I have lots of different coping techniques I can use to help me now.
- Things are not as serious as I make them out to be.
Coping with feelings of being overwhelmed

Purpose
- Stay focused on the present
- Accept feelings and try to deal with the situation

Examples
- When stress comes just pause for a moment.
- Keep my focus on the present, what do I have to do next.
- I should expect my stress to rise sometimes, it's only natural.
- Relax and slow things down.
- Take time to take a slow deep breath.
- It's time to use my problem-solving skills.
Summary/Conclusions of self-talk techniques: (summarise techniques taught):
- The most important part of talking to yourself to cope with stressful experiences is CONTROL. For you to be able to use self-talk to help you to cope effectively with stress you must take control of your thoughts or negative, irrational thoughts may take over and cause you more problems. Once you start to think negatively it is often difficult to stop and your stress only becomes worse.
- Try to think logically about the situation. Often is you do, you'll realise that there is no reason to continue to be stressed about a situation and that it only makes things worse if you don't deal with the stress.

- One of the primary goals of coping is to separate and selectively filter out unimportant, meaningless, unpleasant information from more important input you need and can learn from.
- You need to be able to make rational, sensible, logical judgements about what you need and what you don't.
- Don't ignore the information but interpret it first to see if it is relevant.
- Information is considered to be irrelevant if it has no bearing on your well-being. You can ignore this once you identify that it is irrelevant.

- Some of the techniques that may be used to do these things are:

1. Fogging - involves acknowledging and agreeing with the person who is criticising or hassling you by reflecting back their negative statement (e.g. "That's true coach, I should have caught that ball").
- Give examples of relevant situations and get the athletes to give their own suggestions about ways to reflect back criticism constructively.

2. Negative Inquiry - involves seeking out information that relieves your stressful feelings by helping you to understand why you are receiving the criticism, to get logical advice on how to improve the situation (e.g., "I must look terrible out there, what can you suggest I try to help me?") and avoid further criticism or hassling.

3. Psychologically distancing yourself from the source of stress - this technique involves you reducing the importance of the unpleasant information. Discredit the source of information by thinking to yourself that it doesn't matter what these people say, they are not important. What is more important is how you play and how much
control you have over your game. Don't always perceive input, regardless of who it is coming from as the truth. This may be hard when the source is your coach.

4. One way of dealing with negative input from your coach (or others) is to use the information to challenge or motivate you to increase your effort and to perform better i.e. prove to them that you can play well, or you can perform a skill that they were hassling you about, or that you can recover from making a mistake, and learn from it.

5. It is also important to remember that the coach is also under a lot of stress when you play and often they are often reacting just as you would to high pressure situations. More often than not when they yell at or criticise you it is not meant personally, so don't take it personally. Either distance yourself from the coach's angry emotions or statements, or use ther reactions to learn and to help you play better. Who knows, if you use the coach's yelling and hassling to motivate you to play better, their stress may also be reduced and things will be easier for you.

Learning these skills is particularly important when faced with stressors based on observation and evaluation by other people (e.g., parents, coach, teammates). These are the stressors that appear to cause the most intense stress in adolescent females so it is important to be able to deal more effectively with these. Females have been shown to rely more on social evaluation, reassurance, and support from significant others and if they receive negative input and feedback rather than positive, supportive input, stress will be high. To be able to deal with this it is important to be able to ignore irrelevant information and process and use relevant, useful input (as explained above). - These skills will be most effective in these types of situations, but if you find that they are effective for you it is possible to use them in most stressful events.

After using an appropriate coping technique to deal directly with your stress you need to think about directing your efforts towards the game (Stage 3 of COPE, P - Plan the Response).

- You need to be able to keep your thoughts positive, assertive and under control and use thought stopping, problem solving, and decision making, if necessary, to plan how you are going to approach the rest of the game and, in particular, your next movements after dealing with the stress or the stressor.
3) Application and Follow-through phases:

- The main objective of this stage is to encourage the athletes to implement coping responses in actual sporting situations.

INTRODUCE:

*Imagery Rehearsal*

- Can be used to rehearse coping skills in the mind that approximate the stressful situation.
- To do this you need to imagine yourself coping with progressively more threatening scenes while relaxed.
- The goal is for you to learn to notice and/or anticipate signs of stress so you become aware of cues that can elicit the coping responses taught to you.

## Imagine becoming stressed, having stressful thoughts and feelings, and then coping with these difficulties by using the skills you have acquired.

- This imagery can be used to help to identify potential problems in using certain strategies so that they can be overcome before attempting to use them in actual stressful sporting situations.

==> Emphasise flexibility.

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**LESSON 4:**

- Put athletes in the role of helper in the last session ==> ## "Tell me what you would tell people to do if they weren't coping well with (specific situations)"

- REVIEW with athletes what they have learned from the SMP + ask how they have felt about the program, if it has helped, if they have used any strategies etc.
- Help them to realise that they have the abilities to cope with stressful events.

One way of remembering the things that you need to do to cope effectively with stress during a game is to remember the following sequence (SURRF):
Sense stress when it first starts
Understand your self-talk
Replace negative thoughts with positive, constructive self-statements
Relax using your breathing exercises
Focus on your next movements/skills to be executed
**Relaxation Diary**

Practice your relaxation skills at least once every day. You can do it at home, at school, and whenever you play a game. Have a go at both of the techniques taught to you: a) the progressive relaxation where you tightened muscles and then relaxed them, and b) the centring exercise, which involved breathing deeply and letting yourself go.

Record when you used the techniques, which one you tried, if it helped you to relax, and how you felt about doing it. Do this every day for the next two weeks (until I next see you).

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**WEEK 1:**

<table>
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<tr>
<th>Technique used</th>
<th>When you used it</th>
<th>Did it work or help? How?</th>
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</table>
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Monday -

Tuesday -

Wednesday -

Thursday -

Friday -

Saturday -

Sunday -

Comments about your relaxation (e.g. is it helping, do you like it, are you improving?):

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
TYPES OF RELAXATION:

PROGRESSIVE RELAXATION:

- These types of relaxation teach you to recognise tension in your muscles and be able to release that at will.
  e.g., Tensing muscles 100% then relax them - If a muscle is tight, tensing hard then releasing makes it more relaxed.

## Try this yourself by clenching your fist really hard for 10 seconds and then releasing it - feel how much better it feels now. Now try it with another part of your body that feels tense or tight at the moment.

- This method can be best used if you can first identify your areas of tension and stress, or just be able to identify that you are stressed.

* Centring is quick and easy and can give you immediate self-control in any number of stressful situations (e.g., when shooting for a goal, after a mistake, after the other team scores, after someone hassles you, or just when you feel overwhelmed.)

CENTRING TECHNIQUE:

1. Stand, feet shoulder distance apart.
2. Shake your arms and roll your head slightly to consciously relax the arm and neck muscles.
3. Close your eyes and drop your chin towards your chest.
4. Take a long deep breath using your diaphragm. Don't hunch the shoulders or expand your chest and lungs. Breathe by moving your stomach.
5. While you are breathing in and out it is important to focus your thoughts on the movement on your stomach muscles and continue to monitor this movement while blocking out everything else.
6. As you breathe out "let yourself go" ie. allow your muscles to relax and feel the tension flow out of your body.
7. Repeat this technique 3 times.
8. After completion of the breathing it is important to immediately focus your attention on the most critical aspects of your sporting environment ie. on the task at hand, goal, where the ball is, who to pass to, getting into position etc.
STRESS MANAGEMENT PROGRAMS

- The way that you think, react and feel during a game influences the ways that you are affected by stressful things and the ways that you cope with them. If you believe that an event is stressful you are likely to feel all of the reactions that happen when you get stressed. Often you'll react emotionally (anger, worry, upset etc.), get worked up keep thinking about the situation and make you're stress worse. If you can learn to take control of a situation, of your emotions, and of your reactions, coping will be much more effective and stress will be less intense. If you can control how much you get stressed you will be able to focus more on your netball and less on stressful things.

A stress management program will help you to:

1. monitor bad and negative thoughts, images, feelings and behaviours
2. teach you problem solving skills
3. learn how to use skills to help you control your emotions, feelings and actions
4. know when to use certain coping strategies
5. practice coping skills
6. learn how to cope with expected and unexpected stressful situations

* Possible benefits to performance

Stress management programs can help you to focus on game instead of stress, stop you being tense and tight (muscles and mind), stop you narrowing your focus of attention, generally play better, don't choke, don't give away penalties because of your reactions to stress etc.
Techniques you can use to control your emotions when faced with a stressor

a) Focus attention on *self-monitoring* body reactions such as heart rate or breathing and consciously try to control these (e.g., to slow them down).

b) Try to keep control of positive thoughts - *think positively*, and try to avoid any negative thoughts or feelings. Think 'what is the point of thinking negative?', 'what good is it doing me?' and 'thinking negative thoughts is only going to disrupt my performance'.

c) Sometimes *doing nothing (denial)*, and not thinking about a stressful event may be the best coping response, especially when you have no control over the situation.
- Use denial when doing nothing won't make a difference to how you will perform, to the outcome of a game, or to a relationship you have little to lose from. Denying a stressor can help you to feel hopeful, calm and in control of your feelings and the situation.
- It is important to remember though, that denial can only be effective in certain situations. Sometimes events it is important to deal directly with your stress and/or the source of stress.

** Another important part of learning how to cope well with stress is learning to take responsibility for your performance. Take CONTROL of your actions, emotions and feelings.
- When you take control for your performance you are less likely to be stressed by things that are out of your control (e.g., luck, better or older opposition, umpiring mistakes). Use *denial* in these situations.
- If something stressful happens that is your fault, take responsibility for it and try to deal with it. Use one or more of the coping strategies you have been taught and try to learn from these experiences.
Problem -focused coping strategies

E.G. - problem solving
- focusing on and attending to relevant cues and information while ignoring or screening out irrelevant and negative information
- thought stopping

### A number of techniques may be used to help you to deal better with negative input and evaluation and improve your self-talk (the things that you say to yourself in your mind):

**SELF-TALK TECHNIQUES:**

One of the main ways of getting control of your thoughts is to identify, then eliminate or replace negative with positive thoughts (as talked about before).

**THOUGHT CATCHING**

- The first thing you need to be able to do is to recognise the automatic thoughts, images and feelings that you have when you are stressed. Quite often these thoughts are negative when there is no real reason for them to be. You must be able to recognise such thoughts before you can deal with them properly and cope effectively with the stress associated with them. If you don't the stress is likely to become worse

**RATIONAL THINKING**

- This is useful for athletes who have trouble letting go of negative and irrational thoughts because they believe they are true. It involves replacing these with constructive, rational thoughts.
Example of an irrational thought:

a) Good athletes don't make mistakes - I just made a mistake so I must be a bad athlete.

Instead of these think things like:

a) Making that mistake was silly but everyone makes mistakes sometime and it doesn't mean they are bad athletes.
b) Even though I just made a mistake, I know what I did wrong and can learn from that.

** THOUGHT STOPPING **

- This procedure involves identifying when you have negative thoughts, stopping them, and replacing them with positive, constructive thoughts.

Steps to using thought stopping

1. Identify events that trigger -'ve thoughts
2. Identify signals to stop -'ve thinking e.g. Yell or think 'STOP', snap your fingers, visualise seeing a red flag waving in front of your face etc. Whatever works for you. This may take a while to master. Park these thoughts away and, if necessary, deal with them later.
3. Identify productive, realistic substitutes for -'ve thoughts
4. Practice thought stopping - using imagery (re-create an event in your mind, allow -'ve thoughts to develop, then stop them with signal and put in +'ve thoughts.
5. Use thought stopping before an actual game
**Thought Stopping:**

1. After playing a game write down any negative thoughts you can remember having and why you had them (ie. what caused you to think this way).
2. For each thought you had write down a signal (word, thought, image, or action) that you could try to stop yourself thinking this way.
3. For each thought write a positive, rational thought that you could use to replace it.

**EXAMPLE:**

*Negative thought* - I'm going to miss this goal.  
*Why?* - I missed the last one.  
*Signal* - Say STOP to myself in my head.  
*Positive/Rational thought* - I've shot goals like this 100's of times before - I can do it again.

N.B. If you can't do this for a game you play in the next 2 weeks, think of some of the negative thoughts you have had in the past, and the reasons why you had them, and complete the exercise based on these thoughts. Try to do it for at least 2 thoughts, but if you have more there is space for more.

---

*Negative thought* - 

*Why?* - 

*Signal* - 

*Positive/Rational thought* - 
Negative thought - _______________________________________
_____________________________________________________
Why? - _________________________________________________
_____________________________________________________
Signal - ________________________________________________
Positive/Rational thought - _________________________________
_____________________________________________________

Negative thought - _______________________________________
_____________________________________________________
Why? - _________________________________________________
_____________________________________________________
Signal - ________________________________________________
Positive/Rational thought - _________________________________
_____________________________________________________

Negative thought - _______________________________________
_____________________________________________________
Why? - _________________________________________________
_____________________________________________________
Signal - ________________________________________________
Positive/Rational thought - _________________________________
_____________________________________________________
## APPENDIX F: Coping Skills Toolbox

<table>
<thead>
<tr>
<th>Problems that may cause stress</th>
<th>Solutions/Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIGH STRESS/TENSION</strong></td>
<td>relaxation exercises</td>
</tr>
<tr>
<td>Errors</td>
<td>positive mental imagery imagine yourself doing really well)</td>
</tr>
<tr>
<td></td>
<td>positive self-talk</td>
</tr>
<tr>
<td></td>
<td>centering</td>
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<tr>
<td></td>
<td>breathing exercises (e.g., deep breaths)</td>
</tr>
<tr>
<td><strong>ERRORS</strong></td>
<td>breathing exercises</td>
</tr>
<tr>
<td></td>
<td>centering</td>
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<tr>
<td></td>
<td>focus on next move/play, not what has just happened</td>
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<tr>
<td></td>
<td>use the mistake to motivate you to play better</td>
</tr>
<tr>
<td><strong>LOSING FOCUS</strong></td>
<td>stop and think if what you are doing or thinking is logical</td>
</tr>
<tr>
<td></td>
<td>keep your thoughts in the present</td>
</tr>
<tr>
<td></td>
<td>centering</td>
</tr>
<tr>
<td><strong>LOSS OF CONCENTRATION</strong></td>
<td>centering</td>
</tr>
<tr>
<td></td>
<td>performance focus</td>
</tr>
<tr>
<td><strong>OPPOSITION</strong></td>
<td>focus on your game, not theirs</td>
</tr>
<tr>
<td></td>
<td>talk to others about the problem (coach, teammates etc) e.g, ask for advice</td>
</tr>
<tr>
<td></td>
<td>use the stress caused by your opponents to challenge or motivate you to play better</td>
</tr>
<tr>
<td></td>
<td>psychologically distancing yourself from the source of stress (opponents), especially if they are hassling you (verbally)</td>
</tr>
</tbody>
</table>
| OBSERVATION (e.g., trials) | - focus on your skills and game  
|                          | - denial (ignore that they are there)  
|                          | - psychological distancing (reduce importance of the people observing you)  
|                          | - coping self-statements  
| GETTING UNPLEASANT INPUT (e.g., from coach, parents, team) | - psychological distancing  
|                          | - denial  
|                          | - fogging  
|                          | - don't take it personally  
| NEGATIVE THOUGHTS (e.g., we're going to lose) | - positive self-talk  
|                          | - thought stopping  
|                          | - rational thinking  
|                          | - control self-talk  
| INJURY/PAIN | - passive relaxation  
| TIGHT GAME | - focus on your game and team - stay focused on the present - don't think about the future (e.g., if you will win or lose), because it will distract you from playing well  
|                          | - coping self-statements |
APPENDIX G: Goal Setting Lesson for Placebo Group Intervention

GOAL SETTING

1. **INTRODUCTION** - Introduce myself (where from, qualifications, and goal setting)
   + introduce topic.

2. Start by getting athletes to tell me why they think setting goals is important
   Ask if they have had to set goals in the past (ST or LT). Does anyone set them on their own? What type? How often? Do they help you in any way? How?

3. Explain **BENEFITS** of goal setting. Why use it?
   - ASK THEM if they can think of any benefits

   * Goals improve performance
   * Goals improve the quality of practices
   * Goals clarify expectations
   * Goals help relieve boredom by making training more challenging
   * Goals increase motivation
   * Goals increase pride, satisfaction & self-confidence

   - Basically, goals can improve perf. by directing your attn & action to specific tasks. They focus you energy & efforts & increase your persistence.
   - People often think goal setting stupid or waste of time, or takes fun out of sport BUT gs may actually make sport better because it helps you to improve & perform better, therefore you feel better about yourself & focus on necessary skills/factors - not wasting time on good skills & not improving.
   - SELF-CONF. - often large increases in this due to gs - if don't set any you don't see improvements - may be losing but still improving but sc is lowering because you haven't measured skills or focused on improvements.

**PRINCIPLES OF GOAL SETTING** -

A) **Set performance rather than outcome goals** -
   * Does anyone know the difference between the 2?
   - OUTCOME = whether you win or lose (usually not totally under your control)
- factors like bad weather, poor umpiring, better opposition or just an off day can cause losing a game - NOT always your fault yet goals not achieved OR may achieve the goal easily even though you haven't played very well (e.g., poor opposition, luck, playing conditions suited you better).

- PERFORMANCE = specific behaviours to be achieved that aren't dependent on factors like luck, other people, weather etc.
  - you have control over them 90-100% of time
  - Perf. goals focus on you exceeding your own best performances and improving skills
  - These are flexible and can be changed depending on current level of performance e.g. fitness level, injuries, time of season/offseason.
  - perf. goals can also be observed and measured so you know if you have reached them.

B) Set realistic, yet challenging goals:
  - Must be able to achieve goals but don't make them too easy or you won't be motivated to strive for them. Goals too hard make you feel like a failure - not the case.
  - STAIRCASE APPROACH
    - Set 1st immediate (ST) goal just above previous perf OR average of past few perfs.
    THEN determine a series of steps - with each 1 bit more difficult than the last.
    - Be aware - very few go directly up - most will stabilise or go backwards. Keep working & eventually you'll get up.
    - 3-4 steps in 1 month best (ST & MT) + adjust stairs (or halve them) depending on sitn. Reassess after injury, illness etc.

C) Set specific rather than general goals:
  - 'Do the best you can' - general, no good: doesn't direct behaviour or tell you what to get or how to get it
  - SPECIFIC - specify criteria for success by being able to measure, therefore you know if you reach it or not, and when.
  - egs. 1) Instead of 'I'm going to pass better than I ever have this game' - 'During this game at least 90% of my passes will be accurate' OR
    2) Instead of 'I am going to shoot better than I ever have this season' - 'By the end of the season I will have made >80% of accurate penalty shots'.
D) Set time frames or target dates for each goal:
- help structure your behaviour
- know exactly by when you want to achieve and focus on this time
- be flexible - allow for problems
REWARDS - reward yourself for progress and goal achievement + regular feedback from coach is important = motivation - makes it more worth achieving & trying to reach.

E) Set short-term and long-term goals:
- SHORT TERM
- usually set for next few training sessions or games - for almost every game you should have some type of ST goal
- they provide immediate incentive to perform well + good motivators (can reward more often)
e.g. to make <2 handling errors in a game
- LONG TERM
- months or years away (often end of season)
something to really aim for in the future
- won't be reached unless ST and MT are achieved

**TYPES OF GOALS**

1) TRAINING:
- need these to show improvements in skills, fitness etc.
  e.g. - fitness (no of push-ups, sit-ups, aerobic fitness, sprint times)
    - power & strength (weights lifted)
    - timing (passing, field placement)
    - skill & control
    - communication
All of these can be observed, worked on, & evaluated in training sessions/fitness sessions, drills etc.
2) PERFORMANCE:
   - goals most probably think of when setting - during game/comp
eds. - no. of accurate passes
   - % of goals scored
   - time in possession of ball
   - metres gained during a game
   - self-confidence
   - concentration & focus
All easily measured - result of training improvements
   - don't make too many at once - concentrate on 1 or 2 imp. areas at a time OR
OVERLOAD.

SUMMARY

- Go over principles again
- Talk about how they should always set goals and how it can only be of benefit to them
APPENDIX H: Pre-game Preparation Lesson for Placebo Group Intervention

- **INTRODUCTION**: Overview of pre-game preparation
  - Pre-game prep involves getting ready physically and psychologically for your game.

  **PHYSICALLY** - getting to game site, where to stay, getting dressed, warm-up etc.

  **PSYCHOLOGICALLY** - goals, mental rehearsal, focusing, preparing mind for demands of competition.

**GENERAL PREPARATION**
- Make objective for game clear (e.g., goals)
- Make sure you feel in total control of the sitn
- Be prepared for the unexpected and expected
- Psych prep for an event should occur before the day

- If one or more factors (e.g., skills, fitness, team cohesion, pscyh) are not at an optimal level = problems on the field - not 100% ready for game & perf. may suffer.

**SOLUTION === PLANNING**

** Planning how you can react and deal with sitns that may occur before an event can help you to cope with them better = save time, effort, worry, & essential physical & mental energy.
- Acts as security blanket
- Learn to handle pressure
- Everyone different ways best
- Helps you to think logically and simply - don't have to think too much about anything except event.

### NAME SOME PROBLEMS THAT MAY OCCUR BEFORE A GAME THAT MIGHT DISRUPT YOUR PREPARATION OR CAUSE YOU WORRY/STRESS.

### How would you usually try to deal with these?
### If you were the coach what you you recommend to do in these situations?
Everyone different but there are some generally accepted ways of trying to deal with some of these things you have mentioned. I'll go through some now.

**CONTROL what you are thinking about** - don't let negative thoughts about outcomes and uncontrollable factors take over your thinking. What's the point?

**CONTROL - OH**

C=Confidence  O=On-site preparation  N=Negative thoughts (eliminate)  T=Tension (reduce)  R=Relax  O=Observe (feelings & thoughts & respond to these)  L=Logic

C) **CONFIDENCE** - Always have conf. in your skill level and abilities - you've trained hard & have the skills, so be confident.

- If you have the skill level but not optimal self-confidence your performance may not be best.

**IMPROVING SELF-CONF** - Setting realistic challenging goals that can be reached regularly.

- Appraise yourself favourably
- Think positively but not too unrealistically
- Try to focus on performance not outcome - have conf. in your ability to play well, don't have no confidence in winning (not good) - if you have conf. in your abilities you will play well & are more likely to win.
- don't be over/falsely confident - - lead to disappointment and reduced conf. later

O) **Observe** - your feelings and thoughts and respond to them with the skills you've been taught.

- Learn to self-monitor your feelings and responses before and during comp. Identify when you performed well and badly and how you felt at these times. Once you've learnt your typical response patterns you can learn to prepare yourself to control your responses voluntarily.

N) **Negative thoughts** - eliminate these

- can be associated with self-confidence - H -ve thoughts = L s-c.
- Control your self-talk - identify and eliminate or replace -'ve with +'ve
- **Rational thinking**
- Useful for athletes who have trouble letting go of -'ve and irrational thoughts because they believe they are true.
- Replacing these thoughts with constructive ones
  e.gs of irrational thoughts
  a) Good athletes don't make mistakes - I just made a mistake so I must be a bad athlete
  b) Winning is the only thing in sport - I just lost so I am a failure

Instead of these, think things like::
  a) Making that mistake was silly but everyone makes mistakes sometime and it doesn't mean they are bad athletes.
  b) Winning is good but everyone loses at some time - that's life.

### Can you think of any others that you may have thought???
How would you replace them with rational thoughts??

- Thought stopping - involves identifying when you have -'ve thoughts & stopping them with +'ve constructive thoughts

Steps to using thought stopping

1. Identify events that trigger -'ve thoughts
2. Identify signals to stop -'ve thinking e.g. Yell or think 'STOP', snap your fingers, visualise seeing a red flag waving in front of your face etc. Whatever works for you. This may take a while to master. Park these thoughts away and, if necessary, deal with them later.
3. Identify productive, realistic substitutes for -'ve thoughts
4. Practice thought stopping - using imagery (re-create an event in your mind, allow -'ve thoughts to develop, then stop them with signal and put in +'ve thoughts.
5. Use thought stopping before an actual game

T) Tension
- reduce it using relaxation and/or centring techniques
R) **Relax** - if over tense, aroused or anxious
- different techniques (PR, mind to muscle, muscle to mind)

### Has anyone ever done any relaxation techniques before, and if so, what types did they work for you???

*Progressive relaxation* - muscles are tensed then relaxed - usually 1 area of muscles at a time. Whole body can take a while, but once you master technique you can focus on 1 tense area if you want and tense then relax this (body scan for tenseness then relieve)

*Centring* - breathing techniques that can be used to gain or regain self-control over your body, emotions and feelings.
- Involves inhaling and exhaling deeply from your abdomen & as you do you adjust your tension level, clear your thoughts, take control, & focus on what needs to be attended to. ###Do some centring with the group.

O) **On site preparation** - become familiar with the site of competition when you arrive (ASAP), especially if you haven't been there before.
1. Consider any factors that could cause concern or influence comp. and either plan or employ a strategy to deal with them or change them.
   
   ***Eliminate the unexpected.

2. Within 1 hour of comp. reexamine your goals for the game and make any necessary adjustments (base these on factors such as weather, injury, conditions etc.)
3. Go through any pre-game routines or rituals that you may always use that work for you (e.g. putting clothes on a certain way, eating a certain food or go though a specific warm-up routine).
4. Go through an *imagery* session, where you see yourself, in your mind, doing a task (e.g, skill, or play). Make sure you see and feel yourselves doing these skills very well, or perfectly - just as you want to.
5. Focus your attention onto the task at hand, relax or psych yourself up depending on your arousal level, concentrate and be confident.

L) **Logic** - don't forget to be logical in what you think and what you do. If you lose site of logic problems will occur - stupid mistakes happen.
CONTROL

C = Confidence

O = On-site preparation

N = No negative thoughts

T = Tension reduction

R = Relax

O = Observe feelings and thoughts

L = Logic
C) **CONFIDENCE:**

- Always have confidence in your skill level and abilities - you've trained hard & have the skills, so be confident.

**Improving self-confidence** -
- Set realistic challenging goals
- Think positively but not too unrealistically
- Try to focus on performance not outcome
- Don't be overconfident - - this can lead to disappointment and reduced confidence.

O) **OBSERVE:**

- your feelings and thoughts and respond to them with skills you've been taught.
- Learn to self-monitor your feelings and responses before and during competition and learn to prepare yourself to control your responses voluntarily.

N) **NEGATIVE THOUGHTS:**

- eliminate these
- Control your self-talk - identify and eliminate or replace -'ve with +'ve

**RATIONAL THINKING**

- Useful for athletes who have trouble letting go of negative and irrational thoughts because they believe they are true.
- Replacing these thoughts with constructive ones

e.g.s of irrational thoughts
a) Good athletes don't make mistakes - I just made a mistake so I must be a bad athlete

b) Winning is the only thing in sport - I just lost so I am a failure
Instead of these think things like:

a) Making that mistake was silly but everyone makes mistakes sometime and it doesn't mean they are bad athletes.

b) Winning is good but everyone loses at some time - that's life.

**THOUGHT STOPPING:**
- involves identifying when you have negative thoughts & stopping them with positive, constructive thoughts

**Steps to using thought stopping**

1. Identify events that trigger negative thoughts

2. Identify signals to stop negative thinking, e.g., Yell or think 'STOP', snap your fingers, visualise seeing a red flag waving in front of your face.

3. Identify productive, realistic substitutes for negative thoughts

4. Practice thought stopping - using imagery (re-create an event in your mind, allow negative thoughts to develop, then stop them with signal and put in positive thoughts.

5. Use thought stopping before an actual game

**T) TENSION**

- reduce using relaxation or centring techniques

**R) RELAX**

- if over tense, aroused or anxious

*Progressive relaxation*
- muscles are tensed then relaxed - one group or muscle at a time
Centring
- Involves inhaling and exhaling deeply from your abdomen & as you do you adjust your tension level, clear your thoughts, take control, & focus on what needs to be attended to.

O) ON-SITE PREPARATION:

1. Become familiar with the site of competition when you arrive (ASAP)

2. Consider any factors that could cause concern or influence competition ***Eliminate the unexpected.

3. Within 1 hour of the game reassess your goals for the game and make any necessary adjustments

4. Go through any pre-game routines or rituals that you usually use that work for you

5. Go through an imagery session, where you see yourself, in your mind, doing a task (e.g, skill, or play). Make sure you see and feel yourselves doing these skills well

6. Focus your attention onto the task at hand, relax or psych yourself up depending on your arousal level, concentrate and be confident.

L) LOGIC

- don't forget to be logical in what you think and what you do. If you lose site of logic problems will occur - - stupid mistakes happen.
APPENDIX I: Imagery Lesson for Placebo Group Intervention

### Has anyone ever used any type of imagery?? If so what for?? Did it work??

**DEFINITION:** (OH 1) An experience similar to sensing something (seeing, hearing, feeling etc.) but happens in the mind. Any of the things you sense are a product of your memory and are experienced in your mind by recalling and/or reconstructing past events, sights, feelings etc.
- It can involve any or all of the senses.

**How imagery can be used to facilitate perf.: (OH)**

Primary uses are:
1. to help athletes to learn or practice skills
2. to rehearse strategies to be used in a particular competition
3. to learn or practice psychological skills
- helps to achieve increased self-awareness and brings to consciousness how they feel when playing.

**Reasons why/how imagery works: (briefly)**

1. **PSYCHONEUROMUSCULAR THEORY-**
   Images in brain transmit impulses to muscles for execution of imagined skill, BUT the impulses are so minor they don't actually produce movt.

2. **SYMBOLIC LEARNING THEORY-**
   Imagery helps develop a mental blueprint (coding system) by creating a motor program in the CNS.

**Evidence: (briefly to convince athletes that it works)**
- 34 studies have found MI to be helpful (e.g., basketball free-throws increased after imagery training, volleyball serving, tennis serving, golf, football kicking).
- Jack Nicklaus says he uses imagery of a golf shot before almost all of his shots (imagining the shot before it happens).
- Greg Louganis (diver) won gold medals at Olympics, uses imagery to practice every dive before he does it.
Ways imagery can enhance performance: (OH + handout)

1. PRACTICING SPORT SKILLS - (mental practice) use imagery to perform a specific sport skill repetitively in the mind (e.g., shooting a penalty shot, executing a perfect pass)

2. PRACTICING STRATEGY - imagining team concepts or individual strategies (e.g., practice an attacking move, defensive patterns etc.)

3. LEARNING NEW SKILLS - can help to develop mental blueprint to be followed when learning a new skill (good to use in combination with physical practice, + videos, demonstrations etc).

4. SOLVING PROBLEMS - good to use MI when in a slump or having problems with certain aspects of their perf.. Use MI to examine critically all aspects of perf or even to uncover the cause of the prob.

5. PRACTICING PSYCH SKILLS - e.g., attentional control, stress management, goal setting, self-confidence.

6. INCREASING SPORT PERCEPTION - can help an athlete to become more aware of what is taking place within and around them (usually by recreating past events in similar settings or circumstances).

7. RECOVERING FROM AN INJURY - MI can be used to cope with pain, stop physical skills from deteriorating, stop forgetting strategy, + sped up recovery of injured area.

Using Imagery:

- Important to improve vividness and controllability of images through exercises and practice. CONTROL v. important.

- Perspective taking: a) internal - (seeing image through your eyes as you are doing the activity). This is best on most occasions to allow more realistic images and feelings.

b) external - (seeing it from the perspective of a camera filming you)
## Which do you usually use when you are imagining things (sporting or non) - Take them through an example (e.g., imagining themselves on an escalator in a shopping centre - how did you view yourself, internally or externally?)

VIVIDNESS:
-Best to have vivid images for all senses (sharp images and details of an event, feeling etc.)

### EXERCISES:
1. Imagine bedroom when 12 years old - imagine colours, what is in it, textures, how you felt in the room, smells etc.)
2. Imagine yourself in a familiar place where you usually perform your sport (e.g., a hockey field). It is empty except for you. Stand in the middle and look around. Notice the quiet emptiness and pick out as many details as you can.
   Now imagine yourself at the same place, but this time with many spectators and your teammates, coach etc. around. Imagine getting ready to play, and focus on the sights, sounds, smells and feelings you experience when getting ready to play.
3. Pick a simple skill in your sport. Perform the skill over and over in your mind and imagine every feeling and movement in your muscles as you perform it. Concentrate on how the different parts of your body feel as you do this. Now include other senses involved in doing this skill (hearing, seeing, feeling)

CONTROLLABILITY:
-Learning to manipulate images to produce the desired outcome by will.

### EXERCISES -
1. Imagine a close friend or family member. Concentrate on their face and notice all of the different features. Now imagine them getting up and walking around a room full of people. Watch them walking around and talking to other people and then coming and talking to you. Create a conversation with this person.
2. Choose a simple sport skill and begin practicing it. Now imagine yourself performing it, either with a teammate or against an opponent. Imagine yourself executing successful strategies in relation to the movements of your teammates or opponents.
3. Choose a specific skill you have trouble performing. Recreate experiences in which you have not been performing the skill well. Take careful notice of what you are doing wrong. Now imagine yourself doing the skill correctly. Focus on how your body feels as you go through the different movements involved in performing the skill correctly. Repeat this exercise in slow motion to find and correct any mistakes.
** Try to make all images positive (i.e. winning, being successful) unless you are trying to find out where you are going wrong, so that you are mentally practicing correct, successful skills and outcomes.

**Ideal Practice Conditions:** *(OH + handout)*

MI is practiced best under certain conditions:
1. a setting with no distractions
2. be relaxed (more effective than when tense)
3. go into a session with the expectation that imagery will be helpful but also be realistic in expectations (don’t expect miracles)
MENTAL IMAGERY

DEFINITION:

Mental imagery is an experience similar to sensing something (seeing, hearing, feeling etc.) but happens in the mind. Everything you sense is a product of your memory and is experienced in your mind by recalling and/or reconstructing past events, sights, feelings, smells etc.

WHY MENTAL IMAGERY WORKS:

2 Theories:

1. PSYCHONEUROMUSCULAR THEORY-

   - Images in the brain transmit impulses to the muscles for execution of an imagined skill, BUT the impulses are so small that they don't actually produce any movement.

2. SYMBOLIC LEARNING THEORY-

   - Imagery helps to develop a mental blueprint (coding system) by creating a motor program in the central nervous system. Once this system is developed the nervous system knows how to respond even if no physical practice has been done.
WAYS IMAGERY CAN HELP YOUR PERFORMANCE:

1. PRACTICING SPORT SKILLS -
(mental practice) you can use imagery to perform a specific sport skill over and over in the mind and therefore practice anywhere anytime without equipment or a field (e.g., shooting a penalty shot, executing a perfect pass).

2. PRACTICING STRATEGY -
imagining team concepts or individual strategies (e.g., practice an attacking move, defensive patterns etc.). Especially good for complex or difficult strategies that take some time to master and remember.

3. LEARNING NEW SKILLS -
can help to develop mental blueprint to be followed when learning a new skill (good to use in combination with physical practice, videos, demonstrations etc).

4. SOLVING PROBLEMS -
good to use imagery when in a slump or having problems with certain aspects of performance. Use mental imagery to examine all aspects of poor performances or even to uncover the cause of the problem. Imagine yourself performing a skill/strategy incorrectly in the types of situations you would normally perform it badly in so that you can find the exact cause of the problem.

5. PRACTICING PSYCH SKILLS -
e.g., attentional control, stress management, goal setting, self-confidence.

6. INCREASING SPORT PERCEPTION -
can help an athlete to become more aware of what is taking place within and around them (usually by recreating past events in similar settings or circumstances).

7. RECOVERING FROM AN INJURY -
MI can be used to cope with pain, stop physical skills from deteriorating, stop forgetting strategy, + speed up recovery of injured area.
VIVIDNESS:

- It is best to have vivid images for all of your senses (sharp images and details of an event, feeling, smell, noise etc.) or you will not gain the full benefit.

** PRACTICE EXERCISES:

1. Imagine yourself in a familiar place where you usually perform your sport (e.g., a hockey field). It is empty except for you. Stand in the middle and look around. Notice the quiet emptiness and pick out as many details as you can.

Now imagine yourself at the same place, but this time with many spectators and your teammates, coach etc. around. Imagine getting ready to play, and focus on the sights, sounds, smells and feelings you experience when getting ready to play.

2. Pick a simple skill in your sport. Perform the skill over and over in your mind and imagine every feeling and movement in your muscles as you perform it. Concentrate on how the different parts of your body feel as you do this. Now include other senses involved in doing this skill (hearing, seeing, feeling)

CONTROLLABILITY:

- Learning to manipulate images to produce the desired outcome by will.

**EXERCISES -

1. Choose a simple sport skill and begin practicing it. Now imagine yourself performing it, either with a teammate or against an opponent. Imagine yourself executing successful strategies in relation to the movements of your teammates or opponents.

2. Choose a specific skill you have trouble performing. Recreate experiences in which you have not been performing the skill well. Take careful notice of what you are doing wrong. Now imagine yourself doing
the skill correctly. Focus on how your body feels as you go through the different movements involved in performing the skill correctly. Repeat this exercise in slow motion to find and correct any mistakes.

** Try to make all images positive (i.e. winning, being successful) unless you are trying to find out where you are going wrong, so that you are mentally practicing correct, successful skills and outcomes.

Ideal Practice Conditions:

Mental Imagery is practiced best under certain conditions:

1. a setting with no distractions (quiet, comfortable, no one to disturb you).

2. be relaxed - if you are tense it is difficult to focus on and release the images you want.

3. go into a session with the expectation that imagery will be helpful but also be realistic in your expectations (don't expect miracles but expect that you will gain some benefit from using imagery).

4. practice regularly (every day if possible) or imagery will not be of any benefit. You need to practice before competitions or you will not be skilled enough in imagery for it to help your performance.
APPENDIX J: Study 2 Manipulation Checks for Experimental, Placebo, and Control Groups.

MANIPULATION CHECK- FOR EXPERIMENTAL GROUP

(1)a. To what extent have you used any of the coping strategies since they were taught to you?

not at all sometimes frequently

1 2 3 4 5 6 7

(1)b. Which strategies have you used?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

(2) How much do you think using the coping strategies helped to reduce your stress?

not at all moderately very much

1 2 3 4 5 6 7

(3)a. Did you use any different coping skills to deal with stress between the two interviews? (circle)

YES/NO

(3)b. If so, what did you use that was different?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
MANIPULATION CHECK - FOR CONTROL GROUP

(1)a. In the past 6 weeks did you use any coping strategies to try to reduce your stress during games?

<table>
<thead>
<tr>
<th>not at all</th>
<th>sometimes</th>
<th>frequently</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
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<td>6</td>
</tr>
<tr>
<td>7</td>
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</table>

(1)b. If so, which strategies did you use?

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

(2) How much do you think using the coping strategies helped to reduce your stress?

<table>
<thead>
<tr>
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<th>very much</th>
</tr>
</thead>
<tbody>
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<td>6</td>
</tr>
<tr>
<td>7</td>
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</tr>
</tbody>
</table>

(3)a. Did you use any different coping skills to deal with stress between the two interviews? (circle)

YES/NO

(3)b. If so, what did you use that was different?

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
MANIPULATION CHECK- FOR PLACEBO GROUP

(1)a. In the past 6 weeks did you use any coping strategies to try to reduce your stress during games?

<table>
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</table>

(1)b. If so, which strategies did you use?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

(2) How much do you think using the coping strategies helped to reduce your stress?

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>6</td>
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<tr>
<td>7</td>
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<td></td>
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</tbody>
</table>

(3)a. Did you use any different mental (coping) skills between the two interviews? (circle)

YES/NO

(3)b. If so, what did you use that was different?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

(4) To what extent do you feel that the sport psychology sessions you attended had an effect on the stress you experienced during games in the past 6 weeks?

<table>
<thead>
<tr>
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<th>very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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Appendix K: Stepwise Multiple Regression analyses results for the four highest intensity stressors on TSCI and P for males, females, and adults.

Stepwise Multiple Regression of stress intensity variables on Perfect. and TSCI scores, for adults.

<table>
<thead>
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<th>p</th>
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<td></td>
<td>IS2 (CHEAT)</td>
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<td>0.4599</td>
</tr>
<tr>
<td>R² -</td>
<td>0.0223</td>
<td>Adj R² -</td>
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<tr>
<td>F-value -</td>
<td>0.6610</td>
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<td></td>
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<td>0.7761</td>
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<tr>
<td></td>
<td>IS3 (MENER)</td>
<td>2.7420</td>
<td>0.1176</td>
</tr>
<tr>
<td>R² -</td>
<td>0.0637</td>
<td>Adj R² -</td>
<td>0.0145</td>
</tr>
<tr>
<td>F-value -</td>
<td>1.294</td>
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<td></td>
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<td>IS2 (CHEAT)</td>
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<td>0.5266</td>
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<td>IS3 (MENER)</td>
<td>2.7399</td>
<td>0.1214</td>
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<td>IS4 (CALL)</td>
<td>0.6523</td>
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<td>F-value -</td>
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<td>R² -</td>
<td>0.0201</td>
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<td>F-value -</td>
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### MODEL 2 - TSCI

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</table>

R² - 0.0285  Adj R² - 0.0229  F-value - 0.4460

### MODEL 3 - TSCI

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<td>IS2 (CHEAT)</td>
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<td>IS3 (CALL)</td>
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<tr>
<td>IS4 (TEHASS)</td>
<td>0.1310</td>
<td>0.9349</td>
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</table>

R² - 0.0231  Adj R² - 0.0467  F-value - 0.3310

Stepwise Multiple Regression of stress intensity variables on P and TSCI scores, for males.

### MODEL 1 - Perf.

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R² - 0.0401  Adj R² - 0.0135  F-value - 1.505

### MODEL 2 - Perf.

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R² - 0.0485  Adj R² - 0.0083  F-value - 1.206
### MODEL 3 - Perf.

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<td>IS4 (TEHASS)</td>
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R2 = 0.0949  Adj R2 = 0.0432  F-value = 1.835

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### MODEL 1 - TSCI

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R2 = 0.0524  Adj R2 = 0.0261  F-value = 1.991

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### MODEL 2 - TSCI

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R2 = 0.0539  Adj R2 = 0.0140  F-value = 1.349

---

### MODEL 3 - DV = TSCI

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R2 = 0.0606  Adj R2 = 0.0069  F-value = 1.128
Stepwise Multiple Regression of stress intensity variables on P and TSCI scores, for females.

MODEL 1 - Perf.

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R² - 0.0258  Adj R² - 0.0089  F-value - 0.743

MODEL 2 - Perf.

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R² - 0.0404  Adj R² - 0.0119  F-value - 0.772

MODEL 3 - Perf.

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R² - 0.0588  Adj R² - 0.0110  F-value - 0.843

MODEL 1 - TSCI

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R² - 0.0668  Adj R² - 0.0287  F-value - 0.191
### MODEL 2 - TSCI

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R² - 0.0476  Adj R² - 0.0043  F-value - 0.917

### MODEL 3 - TSCI

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R² - 0.0924  Adj R² - 0.0251  F-value - 1.374