COPING AND AFFECT IN PERFORMANCE BY YOUTH SWIMMERS: AN INVESTIGATION OF PATTERNS OF COPING.

A THESIS

PRESENTED TO

THE SCHOOL OF PHYSICAL EDUCATION AND ATHLETICS

LAKEHEAD UNIVERSITY

THUNDER BAY, ONTARIO

IN FULFILLMENT OF COURSE P.E. 5901

BY

KIMBERLY ISAAK ©

Spring 1993

ISBN 0-315-97047-2

Dedication

To my parents
Frank and Pat Michelena
Who instilled in me, from a young age,
the importance of a good education.

Acknowledgments

I would like to thank Bill Humby and the members of the 1989 - 1990 Thunder Bay Thunderbolt Swim Club for their participation in this study.

I would also like to thank Dr. Peter Crocker for his invaluable assistance and patience, and Dr. Jane Crossman for her contribution and encouragement.

Finally, I would like to thank my husband, Douglas Isaak, for his emotional support and computer expertise. Without either of these, this thesis would not have been possible.

TABLE OF CONTENTS

TABLES

CHAPTER 1

INTRODUCTION

Purpose of Study

The primary purpose of this study was to examine how young swimmers cope with the stress of sport during competition. Specifically, this study will examine if swimmers use a consistent coping style over three different swim meets. The relationships between cognitive appraisal of task importance and goal frustration and coping will also be explored. Last, appraisal, coping self-reported mood will be examined. Subjects will be young swimmers 10 - 16 years of age who were currently training and competing in Thunder Bay Ontario, on the Thunderbolt swim club.

Introduction

Stress is very much a part of competitive sport (Passer, 1982; Smith & Smoll, 1982; Tierney, 1988), and performance pressures are sometimes placed on children before they are ready to cope with them
(Berryman, 1982; Brower, 1978). Stress research in the area of youth sport focuses primarily on the causes of stress (Scanlan, 1984; Tierney, 1988), the consequences (outcome) of competitive stress (Passer, 1982; Tierney, 1988;), and how to reduce stress (Crocker, Alderman, & Smith, 1988). There is limited research, however, on how children and adolescents actually cope with competitive sport.

Stress can occur at any time during competition when the athlete perceives a difference between the demands of the

competition and his/her performance capabilities (Tierney, 1988). The amount of stress experienced in a particular sport setting will often vary considerably from one child to another (Crocker, 1988). This raises the issue of whether intrapersonal factors account for individual differences of children's (stress) reaction to specific competitive situations (Passer, 1982). These factors could range from stable personality traits like competitive trait anxiety (Martens, 1977) to differences in perceived coping resources (Crocker, 1988).

Stress can have many negative effects on performance (Smith & Smoll, 1982; Tierney, 1988). Cognitive and physical responses to stress can range from worry (Harris & Harris, 1984; Pargman, 1986) and decreases in performance (Hall & Purvis, 1980; Harris & Harris, 1984), to leaving the sport completely (Burton & Martens, 1986; Orlick & Botterill, 1975; Passer, 1982; Tierney, 1988). Physical reaction to stress may include muscle tension, fatigue, "butterflies", nausea, or hyperventilation. Cognitive response may include confusion, forgetting details, inability to concentrate, or resorting to ineffective habits. Individuals will differ on how much their performance will be affected by physical and cognitive responses to stress.

A transaction model of stress and emotion developed by Lazarus defines stress as a relationship between the person and the environment that is appraised by the person as relevant to his or her well-being and in which the person's resources are taxed or exceeded (Folkman & Lazarus, 1985). It is this emphasizes on the relationship between the person and the environment which is critical to Lazarus' theory. The judgement that a particular person - environment relationship is stressful hinges on cognitive appraisal (Lazarus &

Folkman, 1984). Cognitive appraisal of the relationship involves primary and secondary appraisal. Primary appraisal is when the person decides what is happening and what is personally at stake. Coping resources and options are evaluated by the person in secondary appraisal (Folkman & Lazarus, 1985).

There has been a growing recognition that while stress is an inevitable aspect of the human condition, it is coping that makes the difference in adaptable outcome (Lazarus & Folkman, 1984). While it is widely accepted that competitive sport is capable of causing high levels of stress in athletes (Smith, 1984), many coaches and athletes fail to use coping skills in actual sport situation (Crocker,1988). Coping skills (training) will need to be an increasingly significant part in the athlete's overall training (if maximum performance is to be achieved) (Weinberg, 1984). Coping is the efforts used to manage a stressful situation. Lazarus and Folkman (1984) define coping as a 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. This definition refers to coping as process-oriented, rather than trait-oriented. The key aspects of the process approach are that coping is *constantly changing* and occurs as a result of *specific demands.*

The process approach to coping includes what the person actually thinks or does in contrast to what the person would usually do. The actual thought or action is looked at in a specific context and time period. The process approach views coping as a constantly changing effort to manage specific demands appraised as stressful (Lazarus & Folkman, 1984). According to Lazarus and Folkman (1984):

> "The dynamics and change that characterize coping as a process are not random; they are a function of continuous appraisal and reappraisals of the shifting person-environment relationship." (p. 142).

While there is an abundance of research in the area of stress, there is limited information on how athletes actually cope with stress. This is especially true concerning the question how young athletes cope with stress in competitive sport. Coaches may try to develop stress management programs or coping skills training for individual athletes without understanding how the athlete is already coping. In order to develop a program which will be of greatest benefit to the athlete, it is important to understand how young athletes cope with different demands and how coping is related to appraisal and emotion. This study will look at the appraisal, coping and affective processes during and following competitive swimming events.

Delimitations

1. The subjects were young swimmers, ages 10 - 16 years who were currently training and competing with the Thunder Bay Thunderbolt Swim Club.

2. Subjects were asked to complete a modification of Carver's (1989) COPE scales at the beginning of the study.

3. Subjects were asked to complete a modification of Carver's (1989) COPE scales, event importance & stress appraisal, and affect scales following individual events at 3 different swim meets.

4. Testing occurred January - May 1990.

Limitations

1. The subjects volunteering for study were limited to Thunder Bay, were all on the same team, and affected by the same coach(es).

2. The possibility existed that some subjects may drop out of the study.

Definitions

Affect - Positive and negative moods experienced during the event.

Coping - Constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised stressful.

Critical Moment/Time Period - The time elapsing from when the athlete is standing behind the block (prior to the event) to the finish of the event (touching the wall on the final lap).

Event - One individual swimming race.

Negative Affect - General factor of subjective distress and subsumes a wide range of adverse mood states.

Positive Affect - Pleasurable engagement with the environment, reflecting enthusiasm and determination.

Stress - Psychological stress is a relation between the person and the environment that is appraised by the person as exceeding his/her resources.

CHAPTER 2
REVIEW OF LITERATURE

Stress and Sport

There are a tremendous number of children and youth involved in competitive sport. Much of this participation occurs during formative years that have lasting consequences on psycho-social and physical development (Weiss & Gould, 1986). There has been a recognition, however, that there are both benefits and costs to sport participation. Parents and coaches are becoming increasingly concerned about possible psychological harm as performance pressures are placed on children before they are ready or able to cope effectively with the stress of competition (Berryman, 1982; Brower, 1978; Tierney, 1988). Stress has been identified as being the critical process that produces a multitude of adverse consequences in all levels of organized sport (Crocker, 1988; Smith, 1986; Smith & Smoll, 1982).

The stress process can have a multitude of effects on sport participation, performance and enjoyment including high states of worry and apprehension (Pargman, 1986), poor performance (Hall & Purvis, 1980; Harris & Harris, 1984), sport drop-out and/or burn-out (Burton & Martens, 1986; Orlick & Botterill, 1975; Smith 1986). Stress research in youth sport has focused primarily on (a) the sources of stress (e.g., Gould, Horn, & Spreeman, 1983; Scanlan, 1984;), (b) the consequences (outcome) of competitive stress (e.g., Passer, 1982), and (c) how to reduce stress (e.g., Crocker, Alderman, & Smith, 1988; Zeigler, Klinzing, & Williamson,1982). There is limited research, however, on how young athletes actually cope with the

competitive stress and what factors are related to this process. At the present, there is only preliminary evidence concerning how (a) a person's judgment of the situation and consequences (cognitive appraisal), (b) type of coping strategies, and (c) general and self-related affect influences stress relationships and subsequent outcome behaviours such as performance (Crocker, Alderman & Smith, 1988; Vallerand, 1987).

The Concept of Stress

Although the concept of stress has been freely used as an explanatory construct by those involved in sport, there is a lack of agreement on a definition for the term "stress" due to the different orientation of researchers. The concept of stress has meant different things to different persons (Lazarus 1966; Lazarus & Launier, 1978; Paterson & Neufeld, 1987).

> "The disenchantment felt by many scientists with the stress field is certainly understandable when one views two decades in which the term 'stress' has been used variously to refer to 'stimulus' by some workers, 'response' by some workers, 'interaction' by others, and more comprehensive combinations of the above factors by still other workers" (Mason, 1975, p. 29).

Lazarus and his colleagues (Lazarus, 1966, Lazarus & Folkman, 1984) have suggested that stress be used as a collective term for an area of study. Lazarus suggests that stress be considered a rubic consisting of many interrelated variables and processes.

Traditionally, models and theories of stress have been divided into three types: 1) stimulus oriented theories, 2) response oriented

theories, and 3) interactional (transactional) theories (Derogatis, 1982; Lazarus & Folkman, 1984; Mason, 1975). The different assumptions and orientations of these three conceptualization's have had major impact on the direction and findings of stress research. The three conceptualization's will be briefly reviewed.

Stimulus Oriented Theories

According to the stimulus approach, it is aspects of the environment that are demanding or disorganized for the individual which causes the stress (Derogatis, 1982; Lazarus & Folkman, 1984). Stress stimuli are most commonly thought of as events impinging on the person.

> "Models based on this reasoning focus measurement efforts on the characteristics of the individual's environment (e.g., life events, time demands, external and internal conditions) and attempt to utilize instruments that will accurately reflect cumulative environmental stress" (Derogatis, 1982, pp. 272).

Major changes affecting a large number of people (i.e., earthquake or war), major changes affecting one or a few people (i.e., death of a love one or loss of a job), and daily hassles are typically cited as stress stimuli (Lazarus & Cohen 1977). This is clearly represented in the life events research which changes in one's life (e.g., loss of a job, marriage) were linked to changes in psycho-social and health functioning (Holmes & Rahe, 1967).

The application of the stimulus model to sport is reflected in the work of Kerr and Minden (1988). They attempted to account for sport injuries by assessing "stressful" life events. They suggested that

gymnasts who have experienced more life stressors tend to incur more injuries and more severe injuries. The question of how life stress leads to injury arise here. Two possible answers were proposed by Kerr and Minden (1988). The first suggestion is that stressful life events demand some attention, thus leaving less attention for the task at hand, while the other explanation is that life stressors may tax or exceed the athlete's energy resources, rendering him or her fatigued and therefore susceptible to injury.

In the stimulus model of stress, certain kinds of situations or events are accepted as inherently stressful, while others are not. Individual differences are not considered in the stimulus model. It is as if the person is a passive victim of environmental events.

A strong limitation with the stimuli model is that there are always individual differences in the quality, intensity, and duration of reaction to the same environmental event (Glass & Singer, 1972). When stress is conceptualized from the stimulus orientation, there is a tendency to disregard the individual's interpretive meaning of the event. That is, the individual is viewed as a passive, non-thinking organism simply buffeted around by environmental forces.

Response Oriented Theories

Response oriented theories define stress as being the response of the individual (changes in the autonomic nervous system) to the events of the environment (Derogatis, 1982; Lazarus & Folkman, 1984). Response theories use the pattern and amplitude of emotional responses, or changes in physiological functions, to evaluate levels of stress (Derogatis, 1982; Spielberger, Gorsuch, & Lushene, 1970). According to the response model, stress arises from the manner in

which the individual responds to the presumed danger.

When stress is defined by response, there is no way of identifying what will be a stressor and what will not. The loss of a pair of swim goggles moments before a race may be a catastrophic event for one swimmer and only a minor annoyance for another. One must wait for the response. The emphasis of this model is upon the reaction to the event, rather than the objective nature of the event emphasized in the stimulus model.

Transactional Model

The transactional model defines stress as a relationship between the environment (stimulus) and the person (response), which considers both the characteristics of the individual and the nature of the event. Four basic assumptions of the transactional (interactional) model are: 1) behaviour is a function of a continuous and bidirectional process of person-situation interaction; 2) the individual is an intentional, active agent in the process; 3) motivational, emotional, and cognitive variables play important determining roles on the person side; and 4) the psychological meaning that the situation has for the person is an essential determining factor of behaviour (Endler & Magnusson, 1976; Lazarus & Launier, 1978). The individuals active participation and perception of the situation are focal to this model. Several different type of relationships occur between the person and the environment (Lazarus, Averill, & Opton, 1970). Harm/loss, threat, and challenge are three stress relevant relationships (Lazarus & Launier, 1978).

Specific Framework of the Transactional Model

The transactional model rejects the notion that stress is caused solely by stimulus events or "stressors". This model also rejects the view that stable personality factors are strong predictors of stress. In this sense, people cannot be classified as good or bad copers. An athlete may be attempting to cope but the selected coping strategies may be ineffective, inefficient, or inappropriate for the situation. The model approaches coping as a process and coping should not be confused and confounded with outcome.

Cognitive appraisal and coping resources are two factors which are extremely important to the transactional model (Lazarus & Folkman, 1984). How the athlete perceives the situation and his/her ability to cope with the demands, plus the perceived consequences of success or failure, will strongly influence the stress process. Studies using physical active populations have suggested that the participant's appraisal processes have important affective and behavioural consequences (McAuley & Duncan, 1989; Robinson & Howe, 1989; Vallerand, 1987). These appraisal processes mediate the selection and application of cognitive and behavioural coping strategies and have a major impact on emotional experiences.

> "A cognitive appraisal reflects the unique and changing relationship taking place between a person with certain distinctive characteristics (values, commitments, styles of perceiving and thinking) and an environment whose characteristics must be predicted and interpreted." (Lazarus & Folkman, 1984; p 24).

Cognitive appraisal is divided into primary appraisal and

secondary appraisal (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Lazarus & Folkman, 1984). During primary appraisal the individual evaluates if any important goals or physical health are at stake in the situation. According to Lazarus and Folkman (1984) primary appraisal can be three different types. The first is termed irrelevant, where there is no response. The individual has no investment in the outcome and the situation has no implication for the person's well-being. There is no value, need or commitment in the situation and nothing will be lost or gained. The second primary appraisal is benign-positive, where the outcome is appraised as positive if it will persevere or enhance well-being. Emotions such as joy, love, and happiness are characteristics of this appraisal. The third primary appraisal is stressful, which include harm/loss, threat and challenge. Harm/loss refers to injury or damage already done, such as injury or illness, damage to self- or social esteem, or loss of a loved person. Threat refers to harms or losses which have not yet occurred, but are anticipated. The chance for anticipatory coping distinguishes threat from harm/loss. Challenge refers to an opportunity for growth, mastery or gain.

In secondary appraisal the person evaluates what, if anything, can be done to manage the situation (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Folkman, 1984; Lazarus & Folkman, 1984). The individual evaluates what resources and options are available. The question, "what can I do?" is asked. This question becomes very important when the primary appraisal is stressful (harm/loss, threat, or challenge).

The two types of appraisals (primary & secondary) also influence each other. The knowledge that one can overcome a

potential danger may make that danger moot; and the knowledge that one is in danger typically mobilizes a search for information about or an evaluation of what can and cannot be done (Janis, 1974). Secondary appraisal is important in shaping the coping activities of the individual under stress, as well as in shaping the primary appraisal process itself (Lazarus & Launier, 1978).

Coping refers to cognitive and behavioural efforts to manage (master, reduce, or tolerate) the internal and/or external (person and/or environment) demands that are appraised as taxing or exceeding the resources of the individual (Lazarus & Folkman, 1984). Lazarus and Folkman (1984) argued that coping is process-oriented rather than trait-oriented because coping is constantly changing to manage specific demands and conflicts. A critical difference between trait-oriented and process-oriented approaches is the importance of the psychological and environment context in which coping takes place (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Coping as a process is concerned with what the individual *actually* thinks or does, as opposed to what the individual usually does or should do (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Lazarus & Folkman, 1984). The dynamics and change that characterize coping as a process are a function of continuous appraisal and reappraisal of the ever changing person-environment relation.

Another difference between the process and trait approaches is that the process approach is studied within a specific context. Coping thoughts and actions are always directed toward particular conditions. Change in coping thoughts and behaviour as a stressful situation unfolds is a critical part of the process approach (Folkman &

Lazarus, 1985) where as trait-oriented approaches describes coping as a static measure (Lazarus & Folkman, 1984).

Coping is not a single act, but rather a constellation of many strategies that are constantly changing (Meichenbaum, 1985). Initial typologies of coping have suggested that coping strategies may be categorized into two broad functional dimensions (Folkman & Lazarus, 1980; Lazarus & Folkman, 1984). The distinction between these two dimensions, emotion-focused coping and problem focus coping is an important one. Problem-focused coping refers to cognitive and behavioural efforts used to change or alter a stressful situation, while emotion-focused coping involves efforts aimed at reducing or managing the emotional distress that is associated with the situation (Folkman & Lazarus, 1980).

Emotion-focused and problem-focused coping have been shown to be used in most stressful situations (Folkman & Lazarus, 1980). Although these two functions have been widely recognized (Kahn et al., 1964; Mechanic, 1962; Folkman & Lazarus, 1980), recent research has shown this distinction is too simple (Folkman & Lazarus, 1985; Folkman et al., 1986; Carver, Scheier, & Weintraub, 1989). Carver, Scheier & Weintraub (1989) argued that coping includes more distinct functions. These include: 1) active coping, 2) planning, 3) suppression of competing activities, 4) restraint coping, 5) seeking social support-instrumental, 6) seeking social support-emotional, 7) positive reinterpretation & growth, 8) acceptance 9) turning to religion, 10) focus on & venting emotions, 11) denial, 12) behavioural disengagement, 13) mental disengagement, and 14) alcohol-drug disengagement. Clearly, coping is a multifaceted and complex process.

An example from a sporting situation may help explain the

basic tenets of Lazarus's theory. A swimmer preparing for an important event may "feel ready" for the race during warm-up. Just prior to the swim, the swimmer learns that a certain swimmer, who usually wins the event, will be swimming in the next lane. The swimmer must appraise whether the opponent (stimulus) is threatening or a challenge. Threat emphasizes the potential harm (negative) while challenge emphasizes the possibly risk, but also the chance for mastery or gain (positive) (Lazarus & Launier, 1978). Once the event is appraised, coping mechanisms would be triggered through secondary appraisal. The swimmer must now decide how to swim the race.

Task Importance, Goal Interruption & Coping

In order to understand individual differences in the stress process, the cognitive appraisal which occurs during and immediately after between the encounter must be taken into account. Appraisal refers to the evaluative process that influences a situational encounter with meaning for the person. Lazarus and Folkman (1984) stated,

> "Cognitive appraisal can be most readily understood as the process of categorizing an encounter, its various facets, with respect to its significance. *Appraisal* is largely evaluative, focused on meaning of significance" (p. 31).

Importance of the game and situation within the game can influence a young athlete's stress during competition (Hanson, 1967; Passer; 1981; Spielberger, 1973). Research suggests that the greater

the (appraised) importance of an event or goal, the greater the amount of stress when the event or goal is threatened or compromised (Janis & Mann, 1977; Lazarus & Folkman, 1984; Paterson & Neufeld, 1988). Paterson and Neufeld (1988) proposed that being unable to reach an important goal (goal interruption) would lead to predictable stress responses. Increases in anxiety, frustration, and distress are expected with goal interruption. As the appraisal of importance changes, we expect to see different coping strategies used by the athlete (Folkman & Lazarus, 1985; Walsh, 1989).

Emotions (Affect) & Coping

Emotions depend on appraisal of the importance of the person-environment interaction for the individual's well-being and the available options for coping (Lazarus, Averill & Opton, 1970; Lazarus & Folkman, 1984). The way a person copes with the demands of a stressful event makes a difference in how he or she feel emotionally. The coping processes which are generated during a stressful situation are associated with changes in a wide range of emotions (Folkman & Lazarus, 1988). It is the cognitive appraisal of the environment and one's ability to mange the demands which produces the emotional response (Lazarus & Folkman, 1984).

Folkman and Lazarus (1985) found that significant changes in emotions occurred over the time course of a college exam. They found the intensity of threat (i.e., worried, fearful, and anxious) and challenge (i.e., confident, hopeful, and eager) emotions digressed significantly from the period before and immediately following the exam to the period after the results of exam were known. Harm (i.e.,

angry, sad, and disappointed) and benefit/mastery-gain (i.e., exhilarated, happy, and relieved) emotions increased significantly from before the event to immediately following, but before results of the event were known. Lazarus and Folkman (1988) argue that "coping processes that are generated during the heat of a stressful encounter are associated with changes in a wide range of on going emotions and both problem-focused and emotion-focused forms of coping are associated with changes in emotions" (p. 474). Challenge and benefit emotions are associated with problem-focused coping, while threat and harm emotions are linked with emotion-focused coping (Folkman & Lazarus, 1985, 1988).

The relationship between emotion and coping in a stressful situation is bidirectional with each affecting the other. Folkman and Lazarus wrote,

> "The behavioural flow begins with a transaction that is appraised as harmful, beneficial, threatening, or challenging. The appraisal process generates emotion. The appraisal and its attending emotions influence coping processes, which in turn change the person-environment relationship. The altered person-environment relationship is reappraised, and the reappraisal leads to a change in emotion quality and intensity" (1988, p. 466).

Consistency of Coping

Although the dominate approach used to measure coping has been to assess coping as a trait across a variety of stressful situations, coping traits are often poor predictors of the way people actually cope in different situations (Folkman & Lazarus, 1985; Folkman & Lazarus, 1980; Lazarus & Launier, 1978). Lazarus and his

colleagues argued that coping can not be examined as a trait measure across domains. Individual coping may vary across domains (e.g., work, sport, family), and at different time periods within a specific domain (Folkman & Lazarus, 1985).

> "The complexity of the ways people cope is especially evident in the wide range of coping strategies used at each stage. On the average, subjects used between six and seven different types of coping. People do indeed cope with a single stressful encounter in complex ways" (Folkman & Lazarus, 1985, p. 158).

While research show that people use different coping responses in different domains (Folkman & Lazarus, 1980), there is limited research on consistency of coping responses within a specific domain. Folkman & Lazarus (1985) investigated coping within a specific event at three different times and found that different coping strategies were used at the different times. It was not clear, however, whether individuals would use the same or similar coping strategies in the same sequence in the same context at a different time (measured in the same domain). People may have a preferred coping style in a particular domain. In understanding how an individual copes in a specific domain, will aid in assessment and development of coping skills training. Also, if individuals do prefer a certain type of coping within a specific domain, coping can than be used as a predictor of the amount of stress in a specific situation. This study will address these issues.

Measurement of Coping

Folkman and Lazarus (1980,1985) developed the Ways of Coping Check-list (WCC) measurement based on emotion-focused and problem- focused coping. The WCC was developed on both empirical and rational grounds, using the general two dimensions of coping as conceptual guide. The measure consists of 66 items, each which describe a cognitive or behavioural action.

The Ways of Coping Check-list appeared to be a promising measure for application in the sporting field. Crocker (In press) attempted to develop a sport specific coping instrument by modifying the WCC. His data indicated there are several conceptual and measurement limitations, making the WCC suspect in measure coping in a sport setting. However, other authors have recently used modifications of the WCC to measure coping in sport, although the modifications have not been published (Madden, Kirby & McDonald, 1989; Madden, Summers & Brown, 1990). Madden, Kirby and McDonald (1989) assumed that athletes have prefered styles of coping and such styles were related to injuries and level of ability. Although the authors claimed the coping instrument was rooted in Lazarus's model, procedurally, they asked subjects how they generally coped.

Carver, Scheier, and Weintraub (1989) developed an instrument to measure coping using Lazarus's model of stress and a model of behavioural self-regulation as guidelines. The COPE instrument is an improvement on the WCC in that it is more theoretically grounded, has improved item clarity, and has increased the number of scales to assess logically distinct coping functions. Despite the strengths of COPE, it was developed with a non-athletic

population which will cause limitations in using it to assess coping in athletes.

Present Research

Presently there is very little research on the coping process with sporting populations. The literature indicates that several issues are unresolved or lack empirical verification in the sport domain. These issues involve consistency of coping, appraisal - coping relations, and coping - affect relations. This study will investigate if young swimmers use a coping style to manage performance related stress. It will examine the consistency of coping strategies used by an individual across several events. Coping immediately after the event and coping during a one week period after the event will be investigated. If there is a lack of consistency, the study will examine if the appraisal of task importance and goal interruption are related to systematic changes in coping. Lastly, the study will examine the relation between coping negative affect.

Hypotheses

1. There will not be consistency in coping strategies across swim meets.

2. Coping will change as a function of the appraisal of task importance and goal interruption. As goal interruption and task importance increase, there will be an increase in emotion-focused coping strategies such as focus on and venting of emotions, humour, behavioural disengagement, wishful thinking, and self-blame.

3. Affect will be systematically related to coping. Negative affect will be positively associated with emotion-focused strategies such as seeking social support for emotional reasons, denial, behavioural

disengagement, wishful thinking, and self-blame. Negative affect will be negatively associated with problem-focused strategies such as active coping, planning, seeking social support for instrumental reasons, and training.

CHAPTER 3

METHODOLOGY

Subjects

The sample for this study were 25 swimmers between the ages of 10 - 16 years who were currently training and competing with the Thunder Bay Thunderbolts Swim Club at the time of the study. The athletes ranged from first year age group through national level swimmers.

Measures

Coping

A modification of Carver's 1989 COPE scales was used to study the coping process used by young athletes during and following competition. The COPE scales was modified for swimming. Wording was also modified so children were able to better understand the scales (see Appendix B). The original COPE scale demonstrated strong internal consistency (.92-.45) using Cronbach's alpha with only one scale falling below .62. (Carver, Scheier & Weintraub, 1989).

The COPE scales contain 13 scales and uses a 4 point scale. The modified COPE scales (ACOPE) contain 14 scales (see Appendix B). The ACOPE scales include active coping, planning, suppression of competing activities, seeking social support for instrumental and emotional reasons, positive reinterpretation and growth, acceptance, focus on and venting of emotions, denial, behavioural disengagement, humour, training, wishful thinking, and self-blame. ACOPE eliminated two scales used in COPE (turning to religion and alcohol-drug disengagement) and added three new scales (training, wishful

thinking, and self-blame). The former scale was added because of its relevance to post-event coping. The latter scales were found by Crocker and Bouffard (1989) to be strongly related to negative emotions. To allow a more or less continuous distribution, ACOPE was scored on a five point scale: 1 = Very little/not at all, 2 = A little, 3 = Somewhat, 4 = Much,
5 = Very much

Cognitive Appraisal

Two areas of appraisal, event importance and goal interruption, were assessed. The following items were used for the appraisal of event importance:1) This event was important to me, 2) I valued this event, 3) This was a major (significant) event for me, 4) This event was meaningful for me (see appendix B). The following items were used for task interruption: 1) I was able to meet my swimming goal, 2) I swam according to my race plan, 3) I accomplished what I set out to do in this race, 4) I reached the goal I set for this event (see Appendix C). The four items for the task importance scale was scored on a five point scale: 1 = Very little/not at all, 2 = A little, 3 = Somewhat, 4 = Much, 5 = Very much. This scale was reversed for the appraisal of goal interruption.

Affect

Watson, Clark and Tellegen's (1988) "Positive Affect Negative Affect Schedule" (PANAS) was used to measure positive and negative affect (see Appendix D). Pleasurable engagement with the environment is a reflection of one's positive affect. Negative affect is a general factor of distress and subsumes a broad range of adverse

mood states (Watson, 1988). The positive affect scale consists of the following terms; active, alert, attentive, determined, enthusiastic, excited, inspired, interested, proud, and strong. In contrast, the terms comprising the negative affect scale consist of afraid, ashamed, distressed, guilty, hostile, irritable, jittery, nervous, scared and upset. PANAS was scored on a five point Likert scale: 5 = Strongly agree, 4 = Slightly agree, 3 = Neither agree nor disagree, 2 = Slightly disagree,
1 = Strongly disagree. The PANAS scale has a high internal consistency reliability (PA = .89; NA = .85) (Watson, Clark, Tellegen, 1988).

Procedures

The members of the TBT swim club were given a letter asking for volunteers to participate in a study examining how young athletes cope with the stress of competition. Parents' consent was obtained for the athletes who wished to volunteer. Before the study began, athletes were informed about the intent and procedures of the study. Athletes were given the option to have their individual data given to the coaches. The athletes were assessed four times. The first time was used to familiarize the subjects to the protocol and to assess the psychometric properties of the measures. The other three assessments were used to evaluated the experimental hypotheses.

For the experimental analysis coping, appraisal and affect were assessed for three events, at three different competitions (meets). Each competition was divided into three separate assessments. The first assessment, about 30 minutes before a race, asked subjects to rate event importance. The second assessment measured coping, task

interruption and affect the athlete experienced during a race identified by the athlete as important. The eight relevant coping scales assessed include active coping, planning, suppression of competing activities, positive reinterpretation and growth, focus on and venting of emotions, humour, wishful thinking, and self-blame. Due to the nature of swim meets, most questionnaires were completed within 10 minutes after the event. The completion of the coping scale so soon after the event allowed the swimmer to respond with what they actually did for this individual event. The third assessment occurred one week after the event. During this assessment, athletes were asked how they had coped in response to the swimming event during the past week. The coping scales during the third assessment include active coping, planning, suppression of competing activities, seeking social support for instrumental and emotional reasons, positive reinterpretation and growth, acceptance, focus on and venting of emotions, behavioural disengagement, humour, training, wishful thinking, and self-blame.

The assessments occurred during and following three different swim meets between April - June 1990.

CHAPTER 4

RESULTS

Psychometric Properties

The internal consistency for each dependent measure was assessed using Cronbach's alpha (Cronbach, 1951). The data came from the meet used to familiarize subjects to protocol.The individual scales for the modified ACOPE demonstrated adequate reliability with the exception of denial (see Table 1). This scale was dropped from any further inferential data analysis. The separate scales from the Positive Affect Negative Affect Schedule also demonstrated good internal consistency. Cronbach's alpha were α = .80 and α = .84 for Positive Affect and Negative Affect, respectively. The appraisal scales of task importance and goal interruption also demonstrated strong reliability. Cronbach's alpha were α = ..84 for task importance and α = .91 for goal interruption.

Experimental Analysis

While previous research has showed that people use different coping responses in different domains (Folkman and Lazarus, 1980), this study investigated coping responses within a specific domain (swimming). Following Lazarus and Folkman's arguments, it was expected that subjects would not demonstrate a consistent coping style across the three swim meets.

The descriptive data (see Tables 2 & 3) indicated that some coping strategies were used more often than others. During the meets, active coping, planning and positive reinterpretation and

growth strategies were often used by many subjects. On the other hand, humour and focus on and venting emotions strategies were seldom reported. Coping scores for the measure taken one week following each meet indicated that training, acceptance, active coping, planning, and positive reinterpretation and growth were often reported. Again, humour, focus on and venting emotions, and wishful thinking were not reported as often. It should be noted that the variance for each scale was high, indicating the marked influence of individual differences in coping.

To address the question of consistency of coping, the data for each scale was analysed by generalizability theory. With this analysis it is possible to obtain estimates of variance due to person, situation (swim meet) and the interaction of person and situation (Morrow, 1989). The subject generalizability coefficient (variance component) was calculated using the following formula:

$$\frac{MSs - MSsd}{D}$$

where MSs = between subjects mean square

MSd = meets (treatment) mean square

MSsd = residual mean square

D = number of meets

S= number of subjects

The interaction component (subjects x meets) is the residual mean square (MSsd).

Plugging the active coping scale into this formula results in the following:

$$= \frac{27.179 - 4.68}{3}$$

$$= \frac{22.499}{3}$$

$$= 7.49$$

Similar steps were used to calculate the variance component for the meet generalizability coefficient:

$$\frac{MSd - MSsd}{S}$$

Plugging the active coping scale into this formula results in the following:

$$= \frac{3.014 - 4.68}{24}$$

$$= \frac{-1.66}{24}$$

$$= -.06\ (0)$$

The percentage of variance is calculated using the following formula:

$$\frac{\text{variance component}}{\text{total variance component}}$$

where total variance component = subject variance component + meet variance component + interaction component

Calculating the interaction component for the active coping scale results in the following:

$$\text{subjects} = \frac{4.68}{7.49 + 0 + 4.68}$$

$$= \frac{4.68}{12.17}$$

$$= .384\ (38\%)$$

According to generalizability theory, high consistency will be reflected in a low person by situation interaction variance component. Low consistency is shown in a high person by situation interaction variance component.

The results from the swim meet data indicated that swimmers generally varied coping strategies from meet to meet. (see Table 4). Four coping scales (planning, suppression of competing activities, focus on and venting emotions, and humour) have relatively high interaction variance components. Three scales (positive reinterpretation and growth, wishful thinking and self-blame) showed relatively balanced variance components between the person and the interaction term. The scale of active coping showed evidence of relative stability across the three meets.

The results from the week measure indicated low person x situation interaction variance components in 10 of the 13 scales. The three scales with a high interaction variance component are humour, wishful thinking and self-blame (see Table 5). The apparent consistency is not surprising in that subjects are asked to aggregate coping responses over a week period.

Appraisal

Consistency of task importance and goal interruption were also analysed using generalizability theory. The results for task importance shows a moderately low person x situation (meet) variance component, but a high situation (meet) variance component. This suggests that most swimmers rated one meet to be very important and a second meet to be moderately important. There is an extremely high person x situation variance component for goal interruption, suggesting goal interruption varied across subjects across the three meets. All obtained generalized coefficients for both appraisal scales are presented in Table 6.

Coping and Appraisal Relationships

Since a lack of consistency for most types of coping across the three meets was found, several strategies were used to determine if changes in task importance and goal interruption were systematically related to changes in coping. Correlation coefficients between coping scales and both appraisal factors were calculated for each meet. The results indicate a lack of consistent linear relationship between appraisal and coping (see Table 7). For example, self-blame is highly related to goal interruption for meets 1 & 2, but this relationship disappears in meet three.

A second strategy to determine if coping is related to appraisal was to recode the data according to the level of appraisal (see Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen,1986). For each analysis, the independent variable of appraisal (either task importance or goal interruption) was formed by ranking the

appraisal from low to high (3 levels). The dependent variable consisted of the subject's scores on each coping scale for those appraisals. Independent ANOVAs with repeated measures were calculated for each coping scale (see Appendix I). None of the analysis revealed significant effects. Mean scores for the recoded data are presented in Tables 8 and 9 for goal interruption and task importance, respectively.

Appraisal and Affect Relationships

Paterson and Neufeld (1987) argued that the appraisal of goal threat (interruption) and task importance would be related to experienced stress. They argue that "the more important a goal, the greater the (anticipatory) stress when it is threatened." (p. 406). We attempted to extend their position to determine if task importance and perceived goal interruption would be related to post event affect. Hierarchical regressions were conducted to test these predictions. Pearson product-moment correlations, beta weights, and multiple regression R values are reported in Table 10. The analyses are reported for each meet.

Meet One

First task importance was entered into the regression equation, followed by goal interruption and then the interaction of task importance and goal interruption. This regression indicated that goal interruption significantly changed the prediction of negative affect (R^2 change =.24, $p<.05$). For the next analysis goal interruption was entered first, followed by the task importance and the interaction

term. This regression indicated task importance did not significantly change the prediction of negative affect (R^2 change =.009, p>.5). The addition of the interaction term did not significantly add to the prediction of negative affect over the main-effect terms.

Meet Two

First goal interruption was entered into the regression equation, followed by task importance and then the interaction of task importance and goal interruption. This regression indicated that task importance did not significantly change the prediction of negative affect (R^2 change = .061, p>.05). For the next analysis task importance was entered first, followed by the goal interruption and the interaction term. This regression indicated that goal interruption significantly changed the prediction of negative affect (R^2 change =.195, p<.05). The addition of the interaction term did not significantly add to the prediction of negative affect over the main-effect terms.

.Meet Three

Both regressions were again looked at for meet three. For the first regression, task importance was entered first, followed by goal interruption and the interaction term. This regression indicated that goal interruption significantly changed the prediction of negative affect (R^2 change =.201, p<.05). For the second regression, goal interruption was entered first, followed by task importance and the interaction term. Again, task importance did not significantly change the prediction of negative affect (R^2 change =.0001, p>.05). The

addition of the interaction term did not significantly add to the prediction of negative affect over the main- effect terms.

The regression analysis strongly suggest that goal interruption is a strong predictor of post-event negative affect. Task importance, surprisingly, does not make an significant contribution to this relationship. An examination of scatterplots indicated the relationships were not adversely affected by possible curvilinear relationships.

Table 1

Internal consistency for Coping Scales from pilot study

Scale	Cronbach's Alpha
Active Coping	.74
Planning	.80
Suppression of Competing Activities	.81
Seeking Social Support for Instrumental Reasons	.85
Seeking Social Support for Emotional Reasons	.88
Positive Reinterpretation & Growth	.83
Acceptance	.75
Focus on & Venting Emotions	.85
Denial	.37*
Humour	.94
Training	.75
Wishful Thinking	.61
Self-Blame	.80

Note: * This scale was dropped from further analysis.

Table 2

Descriptive Statistics for Coping Scales for one hour measures for three separate swim meets.

Scale	Mean	Std. Dev.	Std. Error	Skewness
Active Coping				
Time 1	13.13	2.89	.59	-.60
Time 2	12.58	3.73	.76	-.72
Time 3	12.46	3.78	.77	-.75
Planning				
Time 1	12.88	3.87	.79	-.12
Time 2	11.46	4.04	.83	-.48
Time 3	12.29	3.45	.70	-.49
Suppression of Competing Activities				
Time 1	11.71	3.98	.81	.25
Time 2	10.75	3.35	.68	-.23
Time 3	9.75	3.14	.64	.46
Positive Reinterpretation & Growth				
Time 1	13.75	4.19	.86	-.58
Time 2	11.42	3.61	.74	.40
Time 3	10.17	3.17	.65	.33
Focus on & Venting Emotions				
Time 1	7.92	4.78	.98	1.36
Time 2	8.88	3.89	.80	.15
Time 3	9.75	4.27	.87	.33
Humour				
Time 1	6.38	3.60	.73	1.42
Time 2	8.04	3.97	.81	.72
Time 3	7.58	3.27	.67	.11
Wishful Thinking				
Time 1	10.38	4.34	.89	.65
Time 2	10.67	4.10	.84	.06
Time 3	10.92	4.13	.84	-.05
Self-Blame				
Time 1	10.42	4.55	.93	.47
Time 2	10.71	3.57	.73	-.17
Time 3	8.50	2.74	.56	.89

Table 3

Descriptive Statistics for Coping Scales for week measures for three separate swim meets.

Scale	Mean	Std. Dev.	Std. Error	Skewness
Active Coping				
Time 1	13.56	3.69	.74	-.51
Time 2	13.42	4.57	.94	-.61
Time 3	13.95	4.76	1.04	-.67
Planning				
Time 1	11.32	3.82	.77	-.31
Time 2	13.33	4.08	.83	-.95
Time 3	14.05	4.77	1.04	-.66
Suppression of Competing Activities				
Time 1	10.16	4.02	.80	.72
Time 2	11.96	4.64	.95	-.19
Time 3	12.38	4.35	.95	-.02
Seeking Social Support for Instrumental Reasons				
Time 1	9.16	4.32	.86	.36
Time 2	9.92	3.80	.78	.02
Time 3	10.10	4.29	.94	.04
Seeking Social Support for Emotional Reasons				
Time 1	8.80	4.14	.83	.69
Time 2	9.04	4.31	.88	1.06
Time 3	9.76	4.77	1.04	.74
Positive Reinterpretation & Growth				
Time 1	12.64	4.58	.92	-.17
Time 2	13.30	4.66	.97	-.52
Time 3	12.71	4.55	.99	-.11
Acceptance				
Time 1	14.64	3.96	.79	-.26
Time 2	15.25	4.84	.99	-.88
Time 3	15.29	5.09	1.11	-.80

Table 3 (con't)

Scale	Mean	Std. Dev.	Std. Error	Skewness
Focus on & Venting Emotions				
Time 1	7.32	4.07	.81	1.33
Time 2	6.71	3.47	.71	1.35
Time 3	7.19	3.42	.75	1.25
Humour				
Time 1	7.00	3.80	.76	1.13
Time 2	6.58	3.59	.73	1.00
Time 3	4.81	1.50	.33	2.32
Training				
Time 1	14.32	4.58	.92	-.13
Time 2	13.50	4.88	1.00	-.57
Time 3	14.24	5.38	1.17	-.49
Wishful Thinking				
Time 1	8.56	3.36	.67	.81
Time 2	8.63	4.12	.84	.90
Time 3	8.76	3.27	.71	.36
Self-Blame				
Time 1	10.12	4.61	.92	.30
Time 2	10.21	3.93	.80	.30
Time 3	9.48	3.71	.81	-.001

Table 4

Estimated Variance Components for Each Coping Scale Swim Meet Measure

Coping Scale	Source of Variance (1)	Variance Component	Percentage of Variance
Active Coping	S	7.49	61
	M	0	0
	SM	4.68	38
Planning	S	5.51	38
	M	.14	1
	SM	8.89	61
Suppression of Competing Activities	S	1.52	12
	M	.51	4
	SM	10.80	84
Positive Reinterpretation & Growth	S	5.66	34
	M	2.98	18
	SM	7.90	47
Focus on Venting Emotion	S	5.86	31
	M	.39	2
	SM	12.25	66
Humour	S	.34	2
	M	.21	1
	SM	12.79	95
Wishful Thinking	S	9.20	52
	M	0	0
	SM	8.37	48
Self-Blame	S	5.32	36
	M	1.09	7
	SM	8.31	56

(1) Note: S: Subject; M: Meet; SM: Subject x Meet.

Table 5

Estimated Variance Components for Each Coping Scale at the Week Measure

Coping Scale	Source of Variance (1)	Variance Component	Percentage of Variance
Active Coping	S	14.63	75
	M	0	0
	SM	4.68	24
Planning	S	14.12	66
	M	2.04	09
	SM	5.30	24
Suppression of Competing Activities	S	12.36	58
	M	.91	04
	SM	7.93	37
Seeking Social Support for Instrumental reasons	S	1.28	66
	M	.42	02
	SM	5.46	31
Seeking Social Support for Emotional Reasons	S	16.27	78
	M	.32	02
	SM	4.19	20
Positive Reinterpretation & Growth	S	15.25	69
	M	0	0
	SM	6.55	30
Acceptance	S	12.36	53
	M	0	00
	SM	10.56	46
Focus on Venting Emotion	S	7.91	58
	M	0	00
	SM	5.71	41

(1) Note: S: Subject; M: Meet; SM: Subject x Meet.

Table 5 (con't)

Coping Scale	Source of Variance (1)	Variance Component	Percentage of Variance
Humour	S	3.45	33
	M	.42	04
	SM	6.69	63
Training	S	14.55	57
	M	0	00
	SM	10.75	42
Wishful Thinking	S	4.81	34
	M	0	00
	SM	9.22	66
Self-Blame	S	7.06	43
	M	0	00
	SM	9.42	57

(1) Note: S: Subject; M: Meet; SM: Subject x Meet.

Table 6

Estimated Variance Components for Appraisal Scales.

Coping Scale	Source of Variance (1)	Variance Component	Percentage of Variance
Task Importance	S	3.72	12
	M	15.76	50
	SM	12.12	38
Goal Interruption	S	.61	03
	M	0	0
	SM	20.69	97

(1) Note: S: Subject; M: Meet; SM: Subject x Meet.

Table 7

Correlation between Coping Scales and Appraisal Scales

	APPRAISAL					
	Meet 1		Meet 2		Meet 3	
COPING	TASK	GOAL	TASK	GOAL	TASK	GOAL
Active Coping	.32	.37	.08	-.05	.35	-.12
Planning	.35	.03	.11	.08	.54*	-.03
Suppression of Competing Activities	.34	.25	.10	.05	.12	.09
Positive Reinterpretation and Growth	.23	.39	.01	.16	.38	.33
Focus on and Venting of Emotions	.09	.27	-.19	.05	.30	-.31
Humour	-.02	-.08	-.12	.05	.40	-.25
Wishful Thinking	.03	.54**	-.03	.30	.36	-.07
Self-Blame	.16	.70**	-.14	.64**	.18	.12

* Significant at p>.01 **Significant at p>.001

Table 8

Mean scores for ACOPE scales during meets evaluated having High, Medium and Low goal interruption

ACOPE	HIGH	MEDIUM	LOW
Active Coping	10.92	11.58	11.33
Planning	11.54	11.54	12.29
Suppression of Competing Activities	13.13	13.50	13.17
Positive Reinterpretation & Growth	12.38	11.83	12.46
Focus On & Venting of Emotions	15.5	15.67	14.67
Humour	16.63	16.13	17.25
Wishful Thinking	13.88	12.92	13.25
Self-Blame	15.08	13.13	14.17

Table 9

Mean scores for ACOPE scales during meets evaluated having High, Medium and Low task importance

ACOPE	HIGH	MEDIUM	LOW
Active Coping	10.73	11.32	11.68
Planning	10.86	12.55	11.86
Suppression of Competing Activities	12.77	13.82	13.32
Positive Reinterpretation & Growth	11.91	13.18	11.73
Focus On & Venting of Emotions	16.05	14.68	15.23
Humour	17.14	16.09	16.50
Wishful Thinking	14.14	13.09	12.55
Self-Blame	14.82	13.64	14.14

Table 10

Pearson product moment correlations, standardized beta weights, and multiple R values from regression equation predicting negative affect from task importance and goal interruption appraisals.

Prediction of negative affect	r	B	R
meet 1			
TASK IMPORTANCE	.13	.17	
GOAL INTERRUPTION	.48	.49*	.51
$F(2,20)=3.6$, $p<.05$, $R^2=.26$			
meet 2			
TASK IMPORTANCE	-.28	-.25	
GOAL INTERRUPTION	.46	.44*	.52
$F(2,21)=3.9$, $p<.05$, $R^2=.27$			
meet 3			
TASK IMPORTANCE	-.07	.005	
Goal INTERRUPTION	.45	.45*	.45
$F(2,21)=2.7$, $p<.10$, $R^2=.21$			

Note: r= zero-order correlation; B= Standardized Beta weight; R= multiple correlation; * Regression coefficient significant at $p<.05$.

CHAPTER 5
DISCUSSION

The present study was designed to examine how young competitive swimmers cope with the stress associated with competition and the training period following competition. The study sought to investigate whether swimmers used a consistent coping pattern of strategies across three swim meets. The study also examined the relation between appraisal and coping plus appraisal and affect.

The main hypothesis was that there would not be a consistency in coping strategies used by the young swimmers across the three meets (events). It was also hypothesized that coping would change as a function of the appraisal of task (event) importance and goal interruption. The discussion of results will address the consistency of coping, the relationship between coping and appraisal, and the relationship between affect (emotions) and appraisal. Implications for practical application and future research will also be included.

Consistency of Coping

Analysis of coping strategies used by swimmers within a race across swim meets provided general support for Lazarus's and Folkman's (1984) argument that coping is not consistent trait. The findings of the generalizability theory indicated there was low consistency of coping strategies used by the swimmers in an event across the three meets and that a variety of strategies were used at each swim meet. The active coping scale showed to have relatively

high consistency, which was reflected in a low person by situation interaction variance component (see Table 4). The consistent use of active coping (I tried real hard to do something about my swimming. I tried different things to improve or swim my best. I did what had to be done, one step at a time. I took direct action to overcome the challenge.) may be due to the nature of the sport. Of the swimmers who participated in this study, several had expressed the desire to try to become top level competitors in the sport of swimming. These young swimmers were encouraged to explore ways to improve their swimming on a daily basis as a part of their training. The findings of this study also do not support the argument that people use one style of coping within a specific domain. Folkman and Lazarus (1985) argued that because the way people cope with a stressful situation is an elaborate process, to assess coping as a unidimensional trait would seriously under-represent and distort the nature of actual coping process.

Week Measure

While this study tried to capture what the athlete "actually did" rather then what they "usually do", there was a strong consistency of coping strategies reported for the week measure. The athletes may have responded with what they "usually do" rather then what they did for to cope over the course of the week. This may be due to the fact that the athletes were asked to compound a full week of coping into one measure. A second interpretation may be that the athletes used a relatively consistent coping style in practice. Swim practices tend to be highly regimented with the athletes doing numerous

repetitions. There is a pattern followed consistently over the season with modifications made over time to attempt to peak for selected meets. The other interpretation is that athletes had to aggregate coping strategies over the week. That is, they may have used a number of strategies but they generally employed a specific set of coping strategies.

Coping and Appraisal

How the athlete perceives situational demands, personal ability, plus the perceived consequences of success or failure, will strongly influence the stress process (Lazarus & Folkman, 1984). It was expected that as the appraisal of importance changed, there would be a change in the coping strategies used by the athletes. Past research suggests that that as the importance of a goal increases the stress associated with that goal will also increase (Janis & Mann, 1977; Paterson & Neufeld, 1987). Paterson & Neufeld (1987) argued that the increase in stress may be an adaptive response in that as the importance of the goal increases, the individual may increase their efforts to reach the goal. Folkman and Lazarus (1980) found that appraisal was a major determinant of coping in a middle age community sample. They found that how an event was appraised and it's context turned out to be the strongest situational factors in accounting for coping strategies used in a stressful situation.

This study does not appear to support the hypothesis that coping will change as a function of appraisal of task importance and goal interruption across the three meets. The relationship between coping and appraisal was examined by two means. Simple

correlations were used between raw scores of coping scale(s) and appraisal scale(s). The correlations between ACOPE scales and task importance showed only one significant relation between appraised task importance and planning at one meet. The correlation between ACOPE scales during the meets and goal interruption showed a significant relation between goal interruption and self-blame at two meets. There is also a significant relation between goal interruption and wishful thinking at one meet (See Table 7). Appraisal data was then recoded into high, medium and low. ANOVAs were used to compare mean scores for each ACOPE scale. No significant relationships were found when the data was recoded (See Appendix I & Appendix J). There was enough variability in the appraisal scores between subjects over the three meets. While further analysis of clustering coping strategies into second order categories (i.e. problem-focused behavioural, problem-focused cognitive, emotion-focused behavioural and emotion-focused cognitive) may have shown more predictable relationships, the appropriate factor analysis was not possible due to small number of subjects in the study.

In this study a relationship between coping and appraisal was apparent but why the young swimmers varied coping strategies across the three meets was not determined. This raises several questions concerning appraisal and coping in young athletes. First, what is affecting coping strategies used by young athletes? This study suggests that it may not be task importance or goal interruption. For young athletes there maybe other factors to considersuch as age and experience in the sport. Young and less experienced swimmers often turn to their coaches and parents for

approval of their performance. The reaction given by coaches and parents may play a strong role in the perceived outcome of the race by the swimmer. Also, do (young) people need to be taught coping strategies and/or is it a skill that is acquired as a person gets older? Majority of the swimmers in the study had not received any formal training of coping strategies. As swimmers learn what works best for them during competition, they might be more likely to use one or two strategies consistently.

Affect and Appraisal

Emotions are products of how an individual appraises his or her situation. Folkman and Lazarus (1985) argue that emotions can be used as a diagnostic tool because emotions reveal the intensity and quality of how and an individual thinks they are coping with the situation. As a person's appraisal of a situation changes, there will also be a change in the person's emotions. It is the cognitive appraisal of the situation and one's ability to manage the demands which produces the emotional response (Lazarus & Folkman, 1984).

This study looked at the relation between appraisal (goal interruption and task importance) and negative affect. As the young swimmers perceived they were not reaching their goal(s) for the particular event, they reported an increase of negative emotions. Goal interruption was a good predictor of negative affect. Task importance did not contribute to predication of negative affect (See Table 10). The findings in the present study do not support the argument that task importance would be related experienced stress.

However, the present study was able to account for only 20% - 30% of the variance.

Practical Implication

This study examined how young swimmers cope with stress during and following three different competitions (meets). Understanding how young athletes cope is important in the development of stress-management programs to help limit and deal with the distress a young athlete may feel during competition. The swimmers in the present study reported using strategies that showed a desire to take control of their swimming. Active coping and planning strategies were often used by swimmers at both the meet and one week measures. Stress-management training and coping skills programs teach individuals to cope in appropriate ways with the stress and distress of competitive sport (Crocker, 1988). Distress is associated with and can lead to an athlete dropping out of the sport (Passer, 1982). While this study looked at young swimmers as a group, it is important for a coach to understand that each individual has his or her own way of coping with stress.

It is excepted that stress is a part of competitive sport (Passer, 1982; Smith & Smoll, 1982). Many coaches and athletes are often aware of the stress process. Parents, coaches, times and placing in a race have been mentioned often by the young swimmers and their coaches as major sources of stress. Coaches and athletes need to be made aware of various strategies to help control stress and learn to use these coping skills during competition. Coping skills training

programs are designed to teach individuals to cope with the stress associated with sport (Crocker, Aldermen & Smith, 1988).

Swimming uses a very objective measure of winning (time) and the young swimmers uses times as a measure of success or failure. This study demonstrate that the coaches work with young swimmers needs to include practical ways to "do something" or "improve" their swimming. This may include, but not limited to, keeping daily log books which include short term goals, personal seasonal plans for long term goals, nutritional guidelines and helping them learn to evaluate the subjective measures (strokes, starts and turns) as a way to assess success or failure. It is important for the athlete to know what his/her goals are and for the coach to understand individual's goals. Goal setting should be a regular part of training even for the youngest swimmer. The coach should work with the athlete in developing measurable goals, that are challenging, yet realistic. Realistic and multiple goals will allow young swimmers to reduce goal interruption.

Future Research

This study provided some evidence that coping strategies are not used consistently by young swimmers across three different swim meets. Future research should include interviews with the subjects as to why they used different coping strategies. This would help develop appropriate appraisal measures needed for further testing of young athletes.

The number of subjects in the study was small due to the limited number of swimmers training on the Thunderbolt Swim Club

who met the age requirements. A larger more diverse sample would have created more variance on all measures. A larger sample would also allow for appropriate analysis to determine if coping mediates appraisal - emotion relationships.

Future research should also measure specific goals set by young athletes and the interruption of important goals. Determining if pre-event emotion influences post-event emotion also needs to be explored. While this study studied goal interruption as a predictor of negative affect, other post-event attributions (locus, stability, or controllability) need to be examined in their contribution to negative affect.

REFERENCES

Berryman, J. (1982). The rise of highly organized sports for preadolescent boys. In Magill, R., Ash, M., & Smoll, F. (Eds.), Children in sport. (pp.2-15). Champaign, IL: Human Kinetics.

Brower, J. (1978). Little league baseballism; adult dominance in a 'child's game.' In Martens, R. (Ed.), Joy and sadness in children's sports. Champaign IL: Human Kinetics.

Burton, D., & Martens, R. (1986). Pinned by their own goals: An exploratory investigation into why kids drop out of wrestling. Journal of Sport Psychology, 8, 183-197.

Carver, C. & Scheier, M. (1985). Self-consciousness, expectancies, and the coping process. In Field, T., McCabe, P.M., & Schneiderman,N. (Eds.), Stress and coping. New Jersey: Erlbaum.

Carver, C., Scheier, M., & Weintraub, J. (1989). Assessing coping strategies: A theoretically based approach. Journal of Personality and Social Psychology, 56, 2, 267-283.

Crocker, P. (1988). A coping skills approach to emotional control training for athletes. In F. Carre (Ed.), Towards the 21st century. (pp. 196-199). U.B.C. Press.

Crocker, P.R.E. (In press). Ways of coping with stress by competitive athletes. International Journal of Sport Psychology.

Crocker, P., Alderman, R., & Smith, F. (1988). Cognitive affective stress management training with high performance youth volleyball players: effects on affect, cognition, and performance. Journal of Sport and Exercise Psychology, 10, 448-460

Crocker, P.R.E., & Bouffard, M. (1989). Ways of coping by athletes: relationship to appraisal and emotion. Abstract in proceedings of 1989 SCAPPS Conference, Victoria, B.C.

Derogatis, L. (1982). Self-report measures of stress. In L. Goldberger & S. Breznitz (Eds.), Handbook of stress, theoretical and clinical aspects.
(pp. 270-294). New York: The Free Press.

Endler, N., & Magnusson, D. (1976). Toward an interactional psychology of personality. Psychological Bulletin, 83, 956-974.

Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. Journal of Personality and Social Psychology, 46, 4, 839-852.

Folkman, S., & Lazarus, R. (1980). An analysis of coping in a middle-aged community sample. Journal of Health and Social Behavior, 21, 219-239.

Folkman, S., & Lazarus, R. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. Journal of Personality and Social Psychology, 48, 1, 150-170.

Folkman, S., & Lazarus, R. (1988). Coping as a mediator of emotion. Journal of Personality and Social Psychology, 3, 466-475.

Folkman, S., Lazarus, R., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. Journal of Personality and Social Psychology, 50, 992-1003.

Forsythe, G. (1974). Burnout: Psychological or physiological? Swimming Technique, 5, 2-4/20.

Glass, D., & Singer, J. (1972). Urban stress. New York: Academic Press.

Gould, D., Horn, T, & Spreeman, J. (1983). Competitive anxiety in junior elite wrestlers. Journal of Sport Psychology, 5, 58-71.

Hall, E., & Purvis, G. (1980). The relationship of trait anxiety and state anxiety to competitive bowling. In Straub, W. (Ed.), Sport psychology. An analysis of athlete behavior. (pp. 250-256). New York: Mouvement Publications.

Hanson, D. (1967). Cardiac response to participation in little league baseball competition as determined by telementry. Research Quarterly, 38, 384-388.

Harris, D., & Harris, B. (1984). The athlete's guide to sport psychology: Mental skills for physical people. New York: Leisure Press.

Holmes, T. & Rahe, R. (1967). The social readjustment rating scale. Journal of Psychosomatic Research, 11, 213-218.

Janis, I. (1974). Vigilance and decision making in personal crises. In Coehlo, G., Hamburg, D. & Adams, J. (Eds.), Coping and adaptation. New York: Basic Books.

Janis, I. & Mann, L. (1977). Decision making: A psychological analysis of conflict, choice, and commitment. New York: Free Press.

Kerr, G., & Minden, H. (1988). Psychological factors related to the occurrence of athletic injuries. Journal of Sport & Exercise Psychology, 10, 167-173.

Lazarus, R. (1966). Psychological stress and the coping process. New York: McGraw-Hill.

Lazarus, R. (1976). Patterns of adjustment. New York: McGraw-Hill Book Company.

Lazarus, R., Averill, J., & Opton, E. (1970). Toward a cognitive theory of emotion. In Arnold, M. (Ed.), Feelings and emotions. New York: Academic Press.

Lazarus, R., & Cohen, J. (1977). Environment stress. In Altman, I. & Wholwill, J. (Eds.), Human behavior and the environment: Current theory and research. New York: Plenum.

Lazarus, R., & Folkman, S. (1984). Stress, appraisal and coping. New York: Springer Publishing Company, Inc.

Lazarus, R., & Launier, R. (1978). Stress-related transactions between person and environment. In Pervin, L. & Lewis, M. (Eds.), Perspective in interactional psychology. New York: Plenum Press.

Madden, C.C., Kirby, R.J., & McDonald, D. (1989). Coping styles of competitive middle distance runners. International Journal of Sport Psychology, 20, 287-296.

Madden, C.C., Summers, J.J., & Brown, D.F. (1990). The influence of perceived stress on coping with competitive basketball. International Journal of Sport Psychology, 21, 21-35.

Martens, R. (1977). Sport competition anxiety test. Champaign,IL: Human Kinetics.

McAuley, E., & Duncan, T. (1990). Cognitive appraisal and affective reactions following physical achievement outcomes. Journal of Sport & Exercise Psychology, 12, 415-426.

Mason, J. (1975). A historical view of the stress field. Journal of Human Stress, 1, 6-12.

Meichenbaum, D. (1985). Stress inoculation training. New York: Plenum.

Morrow, J. R. (1989). Generalizability theory. In Safrit, M.J. & Woods, T.M. (Eds.), Measurement concepts in physical education and exercise Science. Champaign, IL: Human Kinetics.

Orlick, T., & Botterill,C. (1975). Every kid can win. Chicago: Nelson-Hall.

Pargman, D. (1986). Stress and motor performance: Understanding and coping. New York: Mouvement Publications.

Passer, M. (1981). Children in sport: Participation motives and psychological stress. Quest, 33, 231-244.

Passer, M. (1982). Psychological stress in youth sports. In Magill, R., Ash, M. & Smoll, F. (Eds.), Children in sport. (pp.153-177). Champaign IL: Human Kinetics.

Passer, M. (1983). Fear of failure, fear of evaluation, perceived competence, and self-esteem in competitive-trait-anxious children. Journal of Sport Psychology, 5, 172-188.

Paterson, R. & Neufeld, R. (1987). Clear Danger: Situation determinants of the appraisal of threat. Psychological Bulletin, 3, 404-416.

Scanlan, T. (1984). Competitive stress and the child athlete. In Silva, J. & Weinberg, R. (Eds.), Psychological Foundations of Sport. (pp. 118 -129). Illinois: Human Kinetics Publishers, Inc.

Scheier, M., & Carver, C. (1988). A model of behavioral self-regulation: translation into action. In Berkowitz, L (Ed.), Advances in experimental social psychology. New York: Academic Press.

Sims, J. & Baumann, D. (1972). The tornado threat: coping styles of the north and south. Science, 176, 1386-1392.

Smith, R. (1984). Theoretical and treatment approaches to anxiety reduction. In Silva, J. & Weinberg, R. (Eds.), Psychological foundations of sport. (pp. 157-170). Illinois: Human Kinetics Publishers, Inc.

Smith, R., & Smoll, F. (1982). Psychological stress: a conceptual model and some intervention strategies in youth sport. In Magill, R., Ash, M. & Smoll, F. (Eds.), Children in sport. (pp.178 - 195). Illinois: Human Kinetics Publishers, Inc.

Spielberger, C. (1973). Preliminary test manual for the state-trait anxiety inventory for children. Palo Alto, Ca: Consulting Psychologists Press.

Spielberger, C., Gorsuch, R., & Lushene, R. (1970). Manual for the state-trait anxiety inventory. Palo Alto, Ca: Consulting Psychologists.

Tierney, J. (1988). Stress in age-group swimmers. Swimming Technique, February-April, 9-14.

Vallerand, R. (1987). Antecedents of self-related affects in sport: preliminary evidence on the intuitive-reflective appraisal model. Journal of Sport Psychology, 9, 161-182.

Weinberg, R. (1984). Mental preparation strategies. In Silva, J. & Weinberg, R. (Eds.), Psychological foundations of sport. (pp. 145-156). Illinois: Human Kinetics Publishers, Inc.

Weiss, M. (1986). A theoretical overview of competence motivation. In Weiss, M. & Gould, D. (Eds.), Sport for children and youth. Illinois: Human Kinetics Publishers, Inc.

Ziegler, S., Klinzing, J., & Williamson, K. (1982). The effects of two stress management training programs on cardiorespiratory efficiency. Journal of Sport Psychology, 4, 280-289.

APPENDICES

Appendix A

Coping in Competitive Youth Swimming
CONSENT FORM

Parent(s) or Guardian:
My signature on this form indicates that my child will be allowed to participate in a study by Dr. Peter Crocker and Kimberly Isaak on COPING STRATEGIES USED BY YOUNG ATHLETES IN SPORT and indicates that I understand the following:

1. My child is a volunteer and can withdraw at any time from the study.
2. I have received explanations about the nature of the study, its purpose, and procedures.
3. There is no risk of physical or psychological harm. There may be a minimal emotional discomfort from recalling stressful situations.
4. The individual data my child provides will remain confidential from sources outside of the study.
5. I will be able to reach a contact person during the study if I have any questions or concerns.
6. I will receive a summary of the project, upon request, following the completion of the project.

PARENT OR GUARDIAN'S SIGNATURE

_____

DATE _____

Athlete:
My signature on this sheet means I will participate in the study mentioned above and my parent(s) or guardian have given their permission for me to participate. It also means I understand the following:

1. I can quit the study at any time.
2. There is no chance of getting hurt.
3. I can ask questions about the study if I don't understand or feel comfortable about something in the study.
4. No one except the researchers will know about my answers in the study without my permission.

ATHLETE'S SIGNATURE _____

DATE _____

Appendix B
ACOPE Scales

1= VERY LITTLE/NOT AT ALL
2= A LITTLE
3= SOMEWHAT
4= MUCH
5= VERY MUCH

ACTIVE COPING
I tried real hard to do something about my swimming.
I tried different things to improve or swim my best.
I did what had to be done, one step at a time.
I took direct action to overcome the challenge.
PLANNING
I made a plan of action.
I tried to think about a plan about what to do.
I thought about how I could best handle my swimming challenges.
I thought hard about what steps to take.
SUPPRESSION OF COMPETING ACTIVITIES
I didn't let myself think about anything but swimming.
I dealt only with swimming, even if I had to forgot other things a little.
I tried hard to not let other things get in my way of dealing with my swimming.
I stopped doing other things in order to concentrate on swimming.
SEEKING SOCIAL SUPPORT FOR INSTRUMENTAL REASONS
I talked to someone to find out more about my swimming.
I asked people who had been through the same thing what they did.
I talked to someone who could do something about my swimming.
I tried to get help from someone about what to do about my swimming.

SEEKING SOCIAL SUPPORT FOR EMOTIONAL REASONS

I talked about my feelings with someone.

I tried to get help from my friends and family to deal with my feelings.

I got support and understanding from someone.

I talked to someone about how I felt.

POSITIVE REINTERPERTATION & GROWTH

I tried to grow as a person as a result of my swimming challenge.

I tried to see my swimming in a different way, to make it seem more positive.

I looked for something good in my swimming.

I learned something from the experience.

ACCEPTANCE

I got use to the fact that it happened.

I accepted that it had happened and it could not be changed.

I accepted the truth of the fact that it happened.

I learned to live with it.

FOCUS ON & VENTING OF EMOTIONS

I got upset and let my feelings out.

I knew I got upset.

I let my feelings out.

I felt a lot of upset feelings and I showed those feelings a lot.

DENIAL

I told myself "this performance isn't real."

I didn't believe I swam like I did.

I pretended it hadn't really happened.

I acted as though it had never happened.

HUMOR

I laughed about my swimming.

I made jokes about my swimming.

I kidded around about my swimming.

I made fun of my swimming.

TRAINING

I put more time into my workouts.

I worked harder in practice.

I tried to improve my training.

I tried to increase the quality of my training.

WISHFUL THINKING

I wished the situation would go away OR somehow be over.

I wished I could change what had happened.

I daydreamed or imagined a better time or place than what I was in.

I had fantasies or wishes about how things might turn out.

SELF-BLAME

I criticized or lectured myself.

I blamed myself for the situation.

I took responsibility for what had happened.

I found I was at fault.

Appendix C

Name _____ Age _____

We want to know how important this event is for you. Read each statement and circle the number which best describes how you feel about this event. There are no right or wrong answers; just answer how you honestly feel about this event.

	very little/ not at all	a little	somewhat	much	very much
This event is important to me	1	2	3	4	5
I value this event	1	2	3	4	5
This is a major (significant) event for me	1	2	3	4	5
This event is meaningful for me	1	2	3	4	5

Appendix D

Name _____ Age _____

We want to know about your goals for this event. Read each statement and circle the number which best describes how you feel about your goals for this event. There are no right or wrong answers; just answer how you honestly feel about this event.

	very much	much	somewhat	a little	very little/ not at all
I was able to meet my swimming goal(s).	1	2	3	4	5
I swam according to my . race plan	1	2	3	4	5
I reached the goal(s) I set for this event.	1	2	3	4	5
I accomplished what I set out to do in this race.	1	2	3	4	5

Appendix E

The following words describe how people feel in a sporting situation. We want to know how you feel about the event you have just swam. Read each word and circle the number that best tells how much you feel this way about the event: There are no right or wrong answers; just answer how you honestly feel about the event. Do not spend to much time thinking about any one word.

	very little or not at all	a little	moderately	quite a bit	extremely
1. ACTIVE	1	2	3	4	5
2. AFRAID	1	2	3	4	5
3. ALERT	1	2	3	4	5
4. ASHAMED	1	2	3	4	5
5. ATTENTIVE	1	2	3	4	5
6. DISTRESSED	1	2	3	4	5
7. DETERMINED	1	2	3	4	5
8. GUILTY	1	2	3	4	5
9. ENTHUSIASTIC	1	2	3	4	5
10. HOSTILE	1	2	3	4	5
11. EXCITED	1	2	3	4	5
12. IRRITABLE	1	2	3	4	5
13. INSPIRED	1	2	3	4	5
14. JITTERY	1	2	3	4	5
15. INTERESTED	1	2	3	4	5
16. NERVOUS	1	2	3	4	5
17. PROUD	1	2	3	4	5
18. SCARED	1	2	3	4	5
19. STRONG	1	2	3	4	5
20. UPSET	1	2	3	4	5

Appendix F

Descriptive Statistics for Appraisal Scales
Swim Meet Measure

Scale	Mean	Std. Dev.	Std. Error	Skewness
Task Importance				
Time 1	14.58	3.94	.81	-.19
Time 2	15.17	3.78	.77	-.84
Time 3	16.21	4.20	.86	-1.12
Goal Interruption				
Time 1	10.96	4.80	.98	.46
Time 2	10.25	4.51	.92	.20
Time 3	10.04	4.02	.82	.41

Appendix G

Descriptive Statistics for Affect Scales
Week Measure

Scale	Mean	Std. Dev.	Std. Error	Skewness
Positive Affect				
Time 1	36.00	10.10	2.11	.03
Time 2	34.52	8.65	1.81	.22
Time 3	39.58	10.54	2.42	-1.24
Negative Affect				
Time 1	16.78	6.33	1.32	.63
Time 2	19.09	8.52	1.78	.45
Time 3	16.63	10.35	2.38	2.04

Appendix H

Correlations for for Coping Scales for Swim Meet Measure for Three Separate swim meets.

Active Coping	Meet 1	Meet 2	Meet 3
Meet 1	1.000		
Meet 2	.670	1.000	
Meet 3	.575	.638	1.000

Planning	Meet 1	Meet 2	Meet 3
Meet 1	1.000		
Meet 2	.407	1.000	
Meet 3	.381	.365	1.000

Suppression of Competing Activities	Meet 1	Meet 2	Meet 3
Meet 1	1.000		
Meet 2	.056	1.000	
Meet 3	.192	.134	1.000

Positive Reinterpretation & Growth	Meet 1	Meet 2	Meet 3
Meet 1	1.000		
Meet 2	.475	1.000	
Meet 3	.507	.271	1.000

Focus on Venting Emotion	Meet 1	Meet 2	Meet 3
Meet 1	1.000		
Meet 2	.184	1.000	
Meet 3	.374	.268	1.000

Humour	Meet 1	Meet 2	Meet 3
Meet 1	1.000		
Meet 2	-.102	1.000	
Meet 3	.117	.085	1.000

Wishful Thinking	Meet 1	Meet 2	Meet 3
Meet 1	1.000		
Meet 2	.600	1.000	
Meet 3	.509	.460	1.000

Self-Blame	Meet 1	Meet 2	Meet 3
Meet 1	1.000		
Meet 2	.353	1.000	
Meet 3	.563	.332	1.000

Appendix I
ANOVAs with Repeated Measures for Coping Scale Recoded to High, Medium, Low for Goal Interruption

Active Coping

Source	df	SS	MS	F	P
Subjects	48	244.667	5.097		
Meet	2	4.75	2.375	.455	.637
Subject x Meet	46	239.917	5.216		

Planning

Source	df	SS	MS	F	P
Subject	48	433.333	9.028		
Meet	2	9	4.5	.488	.617
Subject x Meet	46	424.333	9.225		

Suppression of Competing Activities

Source	df	SS	MS	F	P
Subject	48	542.667	11.306		
Meet	2	2.028	1.014	.086	.918
Subject x Meet	46	540.639	11.753		

Positive Reinterpretation & Growth

Source	df	SS	MS	F	P
Subject	48	520	10.833		
Meet	2	5.861	2.931	.262	.771
Subject x Meet	46				

Focus On & Venting of Emotions

Source	df	SS	MS	F	P
Subject	48	604.667	12.597		
Meet	2	15.028	7.514	.586	.561
Subject x Meet	46	589.639	12.818		

Humour

Source	df	SS	MS	F	P
Subject	48	624	13		
Meet	2	15.25	7.625	.576	.566
Subject x Meet	46	608.75	13.234		

Wishful Thinking

Source	df	SS	MS	F	P
Subject	48	388.667	8.097		
Meet	2	11.361	5.681	.693	.505
Subject x Meet	46	377.306	8.202		

Self-Blame

Source	df	SS	MS	F	P
Subject	48	451.333	9.403		
Meet	2	46.083	23.042	2.615	.084
Subject x Meet	46	405.25	8.81		

Appendix J
ANOVAs with Repeated Measures for Coping Scales Recoded to High, Medium, Low for Task Importance

Active Coping

Source	df	SS	MS	F	P
Subject	44	200.667	4.561		
Meet	2	10.212	5.106	1.126	.334
Subject x Meet	42	190.455	4.535		

Planning

Source	df	SS	MS	F	P
Subject	44	402.667	9.152		
Meet	2	31.485	15.742	1.781	.181
Subject x Meet	42				

Suppression of Competing Activities

Source	df	SS	MS	F	P
Subject	44	462.667	10.515		
Meet	2	12.03	6.015	.561	.575
Subject x Meet	42	450.636	10.729		

Positive Reinterpretation & Growth

Source	df	SS	MS	F	P
Subject	44	450.667	10.242		
Meet	2	27.636	13.818	1.372	.265
Subject x Meet	42	423.03	10.072		

Focus On & Venting of Emotions

Source	df	SS	MS	F	P
Subject	44	518	11.773		
Meet	2	20.727	10.364	.875	.424
Subject x Meet	42	497.273	11.84		

Humour

Source	df	SS	MS	F	P
Subject	44	1026	24.136		
Meet	2	124.03	62.015	2.777	.074
Subject x Meet	42	937.97	22.333		

Wishful Thinking

Source	df	SS	MS	F	P
Subject	44	388	8.818		
Meet	2	28.758	14.379	1.618	.199
Subject x Meet	42				

Self-Blame

Source	df	SS	MS	F	P
Subject	44	390.667	8.879		
Meet	2	15.485	7.742	.867	.428
Subject x Meet	42	375.182	8.933		

Appendix K

Correlations for Appraisal and Affect for Swim Meet Measure for Three Separate Swim Meets

	Meet 1				Meet 2				Meet 3			
	Task	Goal	PA	NA	Task	Goal	PA	NA	Task	Goal	PA	NA
Meet 1												
Task	1											
Goal	-.06	1										
PA	.25	-.36	1									
NA	.07	.44	-.32	1								
Meet 2												
Task					1							
Goal					-.07	1						
PA					.18	-.57	1					
NA					-.28	.45	-.52	1				
Meet 3												
Task									1			
Goal									-.06	1		
PA									.29	-.35	1	
NA									-.06	.35	-.24	1