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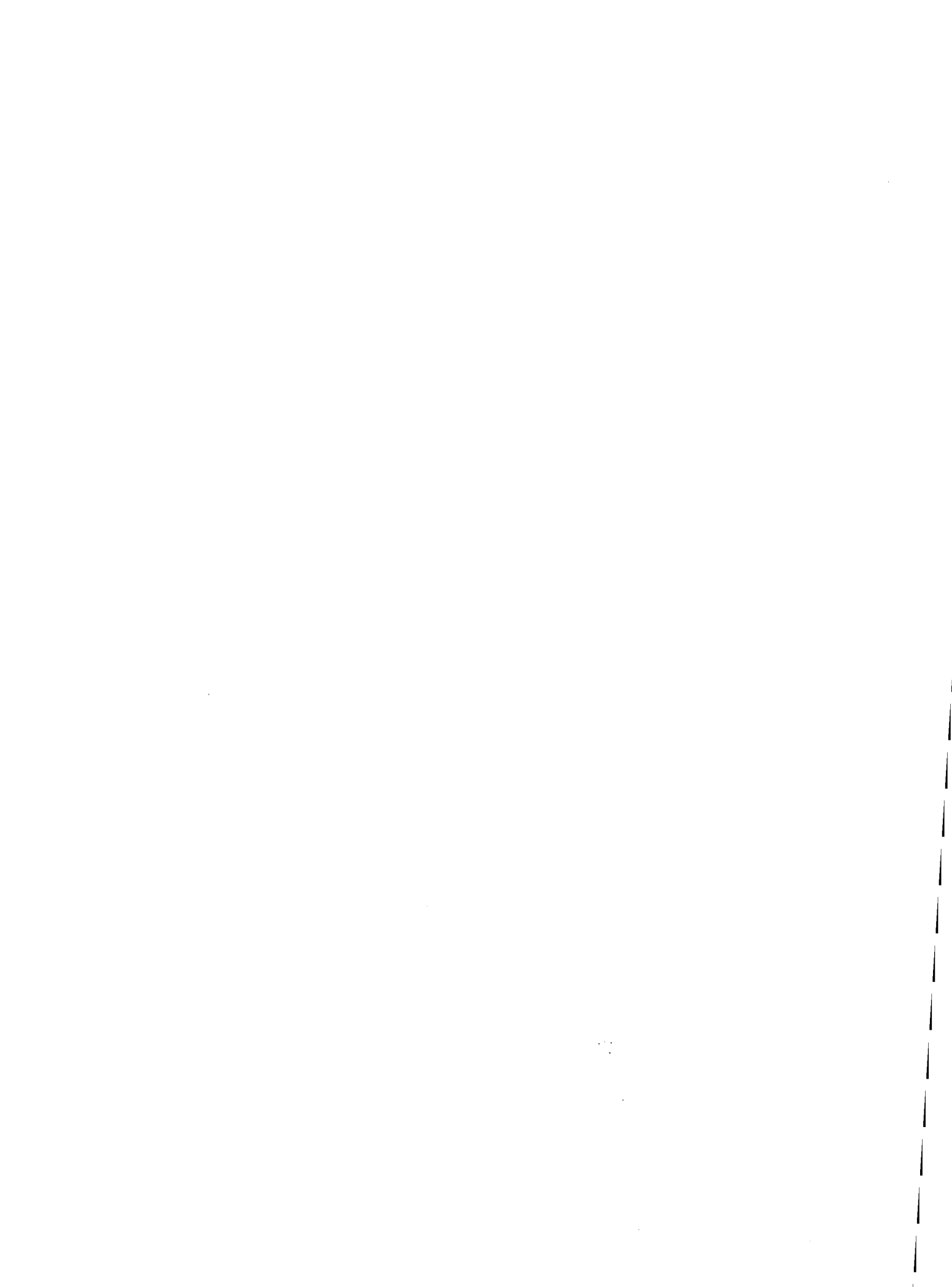
**The relationships among coping strategies, trait anxiety, and
performance in collegiate softball players**

Finch, Laura Marie, Ph.D.

The University of North Carolina at Greensboro, 1993

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THE RELATIONSHIPS AMONG COPING STRATEGIES, TRAIT ANXIETY,
AND PERFORMANCE IN COLLEGIATE SOFTBALL PLAYERS

by

Laura Marie Finch

A Dissertation Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
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of the Requirements for the Degree
Doctor of Philosophy

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1993

Approved by



Dissertation Advisor

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APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at The University of North Carolina at Greensboro.

Dissertation Advisor Daniel Gould
Committee Members Diana L. Gild
[Signature]
Scott Hinkle

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Efforts have been made to understand more about the psychological characteristics that differentiate between more and less successful athletes, but little research exists examining the relationships between specific coping strategies and performance. The purpose of this investigation was to examine how athletes cope with stress and how their coping strategies influence their performance.

One hundred and forty eight collegiate softball players from 13 teams competing across the Southeastern United States participated in this investigation. They completed the COPE, a questionnaire designed to assess various coping strategies, the Sport Anxiety Scale, a measure of trait anxiety, and a demographic questionnaire. Their coaches also completed a demographic questionnaire assessing each athlete's coping ability, the impact it had on her performance, and the effort it took her to cope.

Results revealed that athletes used a wide variety of coping skills to deal with the stress of sports. Specifically, subjects reported greater use of adaptive and emotion-focused strategies than maladaptive or problem-focused coping strategies. In addition, high trait anxiety levels were related to the type of coping strategy selected.

Stepwise multiple regression analyses suggested 3.3% to 6.3% of the variance in batting performance and fielding average,

respectively, was accounted for by the use of maladaptive coping strategies, specifically mental disengagement and denial. Stepwise discriminant function analyses suggested that coping effectiveness or ability (based on coach and athlete assessment) can be predicted in 56.8% to 84.5% of the cases. These results suggested that a profile of more effective copers includes low trait anxiety, high use of adaptive coping strategies, low use of maladaptive coping strategies, higher self-ratings of coping ability, and more automated coping skills.

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CHAPTER I

INTRODUCTION AND REVIEW OF THE LITERATURE

It's the bottom of the last inning in a championship game. A team is down by one run, there are two outs, and a runner on third. How does the batter perform in this situation? Some athletes thrive in these competitive situations and others seem to buckle under the competitive pressure.

Most coaches have certain clutch hitters they hope would be at the plate in this type of situation because they know there is a high probability of the athlete delivering the needed hit. Unfortunately, sometimes a hitter who does not cope with stress effectively is at the plate. For some reason, this type of athlete is unable to succeed in this stressful situation.

Statistics from Major League Baseball lend credence to the notion that some athletes perform better than others in pressure-filled situations ("Pressure on," 1991). Given comparable batting averages going in, some batters hit successfully almost 40% of the time in stressed-filled, bottom of the last inning situations whereas others hit successfully less than 20% of the time. These statistics imply that some athletes are able to raise their batting average in these critical game situations whereas other athletes

perform worse than they normally do, given that most Major League Baseball players usually hit successfully approximately 3 out of 10 times.

What is it that separates the clutch hitters who rise to the occasion from those individuals who do not? Physical skill is a viable factor, but physiological and biomechanical factors are generally similar in athletes competing at comparable levels (Patmore, 1986). Thus, at an advanced level, the differences in physical ability between athletes are usually small. Something outside of the physical domain is impacting the athletes' ability to perform successfully.

One likely explanation for the difference in performance between athletes who succeed in stressful situations from those who do not is the athletes' ability to cope with the situation and the ways in which they cope. Elite sport has been described as an "experiment" in which the athlete's ability to cope with stress is the primary influence in determining the quality of the athlete's performance (Patmore, 1986). A recent study of Olympic athletes supports this notion. Orlick and Partington (1988) found that a large number of the athletes did not perform up to their potential because they were unable to cope with the distractions that disrupted their performance.

Hence, a need exists to develop a better understanding of the ways in which athletes cope with stress and how these coping

strategies influence performance. A plethora of research exists in sport psychology describing the stress faced by athletes (e.g., Cohn, 1990; Gould, Horn, & Spreemann, 1983b; Pierce & Stratton, 1981; Scanlan, Stein, & Ravizza, 1991), but little research has been completed on understanding the coping process and its relationship to performance, or the role various personality characteristics such as trait anxiety may have in influencing coping and performance. Thus, this investigation is designed to fill this void by examining the coping process in collegiate athletes and the relationship of various coping strategies to athletes' performance. Specifically examined in this study will be the variety and magnitude of coping strategies used by athletes, the relationship between an athlete's trait anxiety and selected coping strategies, if performance can be predicted from the type of coping strategies the athlete is using, and the coping, trait anxiety, and performance differences between effective and ineffective copers.

This literature review addresses the various constructs that are salient to an understanding of the coping process and its relationship to performance. First, the concepts of stress, arousal, and anxiety will be delineated and their relationship to performance explained via various theories concomitant to the anxiety-performance relationship. Then, coping and the coping process will be examined as will the assessment of coping and the relationship of various personality characteristics to coping and

performance. Finally, the sport psychology research on the coping strategies of athletes will be reviewed.

Understanding Stress, Arousal, and Anxiety

Before a discussion of the coping process and coping strategies can begin, the concepts of stress, arousal, and anxiety must be defined because these factors are what precipitate the need for coping. Stress, arousal, and anxiety are familiar to professionals in a variety of disciplines. Researchers in fields as diverse as psychology, medicine, the sport sciences, physiology, and sociology have made significant contributions to the body of literature on stress and coping. While this diversity has led to a plethora of phenomena studied and ideas expressed, it also has its disadvantages (Finch, 1988). One of the long-standing problems in understanding stress and coping is that researchers are inconsistent in their use of these and related terms; these concepts are often used interchangeably without regard for the theoretical distinctions between them (Lazarus & Folkman, 1984; Gould & Krane, 1992; Houston, 1987). To avoid confusion, it is important to provide operational definitions for these and related terms.

Stress

Physiological, cognitive, behavioral, and sociological theories all have been applied to the study of stress. Hence, stress has been defined in a variety of ways. The three most common categories of definitions include: (1) stimulus-based definitions; (2) response-

based definitions; and (3) intervening process definitions (Houston, 1987). These three categories will be elaborated upon below.

Stimulus-based definitions of stress. Stimulus-based definitions focus on stimuli or situations that typically disrupt or disturb the individual. Examples of such stimuli or situations include illness, natural disasters, a birth or death, hunger, marriage, and being laid off at work. One of the major criticisms of such definitions is that individuals respond differently when faced with a similar stressor (Lazarus & Folkman, 1984; McGrath, 1970). Some people will have an adverse reaction to such stimuli while others have a positive or neutral reaction. For example, some athletes become withdrawn and silent prior to competition while others become very anxious and nervous. Moreover, other athletes are highly energized and eager to engage in competition. In this example, the objective situation is the same (competition), but each athlete has a different response. Thus, in stimulus-based definitions of stress, it is difficult to determine exactly what the stress is because not all individuals respond the same to equivalent objective situations (Houston, 1987).

Response-based definitions of stress. Response-based definitions of stress focus on the state or condition of the individual being disturbed. Selye's (1956) now historic definition of stress defined stress as the nonspecific response of the body to any demand made upon it. Thus, unlike stimulus-based

definitions of stress, it is not what stimulates the disturbance that is salient to the researcher, but rather how the individual responds to the disturbance. Usually, in a response-based orientation, the disturbed condition (or stress) is assessed in terms of a physiological response such as heart rate or respiration rate. A problem with such response-based definitions is that comparable physiological responses such as elevated heart rate can be associated with a variety of meanings for the individuals involved (Houston, 1987). For example, elevated heart rate could be indicative of physical exertion, fear, anger, or excitement. Response-based definitions are unable to delineate between such differences in meaning.

Intervening-process definitions of stress. As is evident, stimulus-based and response-based definitions of stress have weaknesses. The use of process definitions has helped to elucidate the inconsistencies between these various definitions of stress. Intervening-process definitions of stress focus on the process that occurs between the stimulus condition that impacts the individual and the potential response of the individual to the situation (Houston, 1987).

Thus, in order to understand stress, the process of how stress develops must be understood. McGrath (1970) has developed a four stage model that helps to explain the stress process. The first stage consists of an objective, environmental situation or demand

placed upon the individual, for example, an athletic competition. The second stage consists of the individual's perception of this demand. For example, some athletes will perceive an athletic competition as challenging whereas another athlete may perceive it as threatening. The responses of the individual represent the third stage of McGrath's model. Possible responses to the athletic competition and the athlete's subsequent perception include increased heart rate, butterflies in the stomach, feelings of anxiousness, and eagerness to play. The fourth and final stage of the stress process is the consequences resulting from the response exhibited in stage three, for example successful athletic performance or impaired performance.

The aforementioned stages are representative of the stress process. In this view, stress occurs when a substantial imbalance exists between the perceived demands placed on the individual and his or her perceived capability to deal with the demands of the situation, under conditions when failure to meet the demand has important consequences (McGrath, 1970). Thus, a process definition of stress takes both the stimulus and response into account and places the emphasis on understanding what occurs in the interceding period between the stimulus and response.

It must be noted that demand does not necessarily have to exceed the response capabilities of the individual for the individual to experience stress; there must only be an imbalance (McGrath,

1970). Stress is normally thought of in terms of system overload. However, stress also can occur in underload situations (Martens, 1977; McGrath, 1970; Smith, 1986). Smith (1986) suggests that stress can result not only in situations where demands exceed resources ("overload") but also in situations when an individual's resources greatly exceed the demands placed upon him or her or when the individual is not challenged to use his or her resources. People often begin to feel stagnant or bored when this occurs and thus feel stressed. Hence, how an individual perceives a situation impacts how stressed he or she is by the situation.

Viewing stress as a process entails understanding the cognitive appraisals by the individuals involved. Thus, to understand stress, it is important to take into account the cognitive aspects of the assessment of the stressor and how the individual appraises the stress. Lazarus (1966) emphasizes that stress is not simply out there in the environment. Rather, stress occurs as a function of the vulnerability of the individual and the adequacy of his or her cognitive defense mechanisms. Stress results from the way the person evaluates the stressor's impact on his or her well-being. For example, negative appraisals of the environmental demand such as threat, harm, and loss will lead to negative emotions such as anxiety or depression. Conversely, positive appraisals such as attention, appreciation, and approval yield positive emotions such as acceptance and happiness. Thus, how a

person evaluates and copes with a stressor will determine the amount of stress that person experiences.

To reiterate, this process model of stress emphasizes that the perception of threat is a result of a robust interaction between environmental and personal factors (Lazarus & Folkman, 1984). Thus, the objective situation the individual is involved in does not in itself cause stress nor do stable personality factors predict stress. Instead, whether a person perceives a particular environmental stimulus as stressful depends on personal factors such as the appraisal of the situation or the individual's coping resources and strategies.

Stress versus Arousal and Anxiety

Understanding stress as a process requires that the researcher have clear definitions of the various elements within the process. Further, to understand how the coping process is influenced by the stress process, an awareness of related concepts such as arousal and anxiety is appropriate.

Arousal

Arousal refers to the intensity dimension of behavior (Landers, 1980). It is the level of the physical and mental activity of an individual that ranges from deep sleep to intense excitement (Gill, 1986; Martens, 1977). Arousal contains both a physiological and cognitive component. Thus, arousal can refer to physiological indices such as heart or respiration rate (Hackfort &

Schwenkmezger, 1989) or to mental activation and cognitive intensity (Martens, 1987). Moreover, arousal is neither inherently positive or negative. However, when arousal levels are interpreted as excessively high or low, the individual may experience unpleasant emotional and physical reactions such as anxiety or boredom.

Anxiety

It has been suggested that some investigators have identified anxiety as simply excessive arousal (Iso-Ahola & Hatfield, 1986). However, anxiety can be differentiated from arousal. While arousal refers to a state of activation void of negative assessment, anxiety contains a negative component. Anxiety is characterized by feelings of nervousness and tension associated with the arousal of the individual. Thus, when environmental demands are interpreted as threatening, or out of balance for the capabilities of the individual, anxiety occurs.

A further elaboration of anxiety has been offered by Spielberger (1966) who differentiated between anxiety as a global personality trait and as a temporary mood state. Trait-anxiety (A-Trait) is a global personality characteristic which resides within the individual and governs the likelihood of him or her becoming anxious in certain situations. It is a relatively stable disposition to perceive a wide variety of situations as being threatening or dangerous (Spielberger, 1966).

State-anxiety (A-state) represents an immediate emotional state characterized by apprehension and tension. It is a "right-now" reaction that may fluctuate with different situations (Spielberger, 1966). Further, Spielberger's trait-state distinction posits that high trait anxious individuals will respond with greater state anxiety to perceived threatening situations than low trait anxious individuals.

The measurement of anxiety is usually accomplished via the use of self-report questionnaires such as the State-Trait Anxiety Inventory (STAI) developed by Spielberger, Gorsuch, and Lushene (1970). Although there is the concern of social-desirability bias in any self-report measure (e.g., Hackfort & Davidson, 1989; Krane & Williams, 1989), these type of measures assess the cognitive evaluation component that is critical to the understanding of anxiety. That is, traditional physiological measures of anxiety such as heart or respiration rate or galvanic skin response do not encompass an individual's cognitive interpretation of the stressor. Instead, they measure only the physiological response to the stressor. Thus, self-report measures of anxiety are more advantageous than a strict reliance on physiological measures because they help to account for the individual's interpretation of the stressor. Moreover, self-report measures are easier to administer in a field setting than physiological measures which require extensive equipment (Gould & Krane, 1992).

As the field of sport psychology grew, it became evident that the measurement of anxiety was difficult and that traditional measures were inadequate. Thus, Martens (1977) espoused the need for sport-specific measures of anxiety relative to the competitive sport context. He suggested that sport-specific measures of anxiety would be an improvement over non-sport-specific inventories such as the STAI because the areas assessed in sport-specific questionnaires would be more salient to athletes than those found in instruments from general psychology. Therefore, Martens and his colleagues developed sport-specific measures of both trait and state anxiety. The Sport Competition Anxiety Test (1977) and the Competitive State Anxiety Inventory - 2 (1990) have undergone extensive psychometric development and testing and have been utilized in a variety of sport psychology investigations (see Martens, Vealey, & Burton, 1990, for a thorough review of the development and use of these tools). In keeping with advances in general psychological thought, the CSAI-2 assessed both cognitive and somatic state anxiety, as well as a self-confidence component.

Cognitive versus Somatic Anxiety

While the stress process has been explained as multidimensional, so too has the anxiety process. Early conceptions of anxiety viewed anxiety as a unidimensional construct, but recent sport psychology investigations have focused on the multidimensional nature of anxiety (e.g., Burton, 1988; Gould, Petlichkoff, Simons, & Veveva,

1987; Martens, Vealey, & Burton, 1990). This line of multidimensional research emanated from the work of Borkovek (1976) and Davidson and Schwartz (1976) who discriminated between the concepts of cognitive and somatic anxiety.

Cognitive anxiety is the mental component of anxiety and is characterized by negative concerns about performance, inability to concentrate, and disrupted attention (Gould & Krane, 1992; Martens et al., 1990). Somatic anxiety represents the physiological and affective components of anxiety. These perceptions of autonomic bodily reactions are reflected in responses such as rapid heart rate, shortness of breath, clammy hands, butterflies in the stomach, and tense muscles (Gould & Krane, 1992, Martens et al., 1990).

The work of Martens and his colleagues was particularly influential for sport psychology in producing psychometrically sound measures of competitive anxiety (Martens, 1977; Martens, Burton, Rivkin, & Simon, 1980; Martens et al., 1990). Earlier work by Martens (1977) produced a unidimensional measure of competitive trait anxiety, the Sport Competition Anxiety Test (SCAT). However, as researchers began to understand more about the multidimensional nature of anxiety, it was evident that researchers needed multidimensional measures of anxiety. The Competitive State Anxiety Inventory-2 (CSAI-2) was developed to assess cognitive state anxiety, somatic state anxiety, and self-confidence. Additionally, Smith, Smoll and Schutz (1990) recently

developed a multidimensional measure of competitive trait anxiety, the Sport Anxiety Scale (SAS). The SAS measures trait cognitive anxiety, trait somatic anxiety, and concentration disruption. Preliminary research has demonstrated the ability of the SAS to significantly predict scores on the respective scales of the CSAI-2 (Krane & Finch, 1990).

Conclusions about Stress, Arousal, and Anxiety

Stress has been defined as a process which occurs when a substantial imbalance exists between the perceived demands placed on the individual and his or her perceived capability to deal with the demands of the situation, under conditions when failure to meet the demand has important consequences (McGrath, 1970). There are several advantages to viewing stress as a process. These include:

- (1) defining stress as a sequence of events leading to a specific behavior rather than in an emotional context;
- (2) viewing stress in a cyclical, rather than linear, fashion;
- (3) viewing stress as either positive or negative; and
- (4) placing the emphasis on how the individual perceives the situation, not merely the situation itself (Gould & Krane, 1992).

The concepts of arousal and anxiety also are important in understanding the stress process. An awareness of stress and its components is necessary for a number of reasons. First, the

researcher must have operationally defined terms if he or she expects to be able to study and understand the relationship between stress, arousal, anxiety and performance. Second, because stress and its related concepts precipitate the need for coping, a clear discernment of the antecedents of coping is needed so that the coping process itself can be understood. Indeed, athletes' coping behaviors are a crucial variable influencing how they respond to and adapt to stress in sport. People are rarely passive when confronted with stress in sport. Somehow, they seek to cope with this stress by changing the situation or how they assess the situation. It is this coping process that is the focus of this investigation. Also of interest is the relationship between an individual's coping process and performance. Hence, a discussion of the relationship between arousal, anxiety, and performance is warranted.

The Relationship between Arousal, Anxiety, and Performance

Numerous theories and hypotheses have been proposed to explain the relationship between arousal, anxiety, and performance. These views include drive theory, the inverted-U hypothesis, multidimensional anxiety theory, reversal theory, and catastrophe theory. These models demonstrate that, like conceptualizations of stress, the understanding of the arousal-performance relationship has progressed from being simple and one-dimensional to being elaborate and multidimensional. Early

theories examined the arousal-performance relationship in a unidimensional fashion. As more investigations have been completed examining the relationship between arousal, anxiety and performance, it has become increasingly clear that the relationship is multifarious and cannot be succinctly explained by unidimensional theories.

Drive Theory

Drive theory suggests that performance is a product of arousal (or drive) and the dominance of the correct or incorrect response (Hull, 1943). When skills are well learned, the correct response will be the dominant response. Conversely, when skills are not well learned (i.e., in the early stages of skill acquisition), the dominant response will be incorrect. As arousal increases, performance changes in a linear fashion. If the dominant response is correct, increased arousal will increase performance whereas if the dominant response is not well learned, increased arousal will lead to decrements in performance. For example, a volleyball player who has become proficient at the floater serve will usually be consistent with that serve in times of high arousal. However, drive theory posits that if that same player is just learning a new, topspin serve, he or she will be less proficient with it under times of high arousal. Thus, according to drive theory, any increase in arousal brings about a concomitant increase in the dominant response. This theory offered a

rudimentary explanation for the arousal-performance relationship. However, the results of studies utilizing this theory have offered equivocal results, and drive theory has been criticized as being too simplistic to explain complex arousal-athletic performances (Martens, 1971, 1974, Weinberg, 1990).

Inverted-U Hypothesis

While drive theory posited that the arousal-performance relationship was linear, the inverted-U hypothesis suggests that the relationship is curvilinear, or resembles an inverted "U". The inverted-U hypothesis suggests that increases in arousal will bring about increases in performance until an optimal level of performance is reached. Further increases in arousal are thought to tip the balance previously achieved between increased arousal and performance and lead to decreases in performance.

The inverted-U theory has received some empirical support in the sport psychology literature, however, much of the research in this area has been faulted on methodological and interpretational fronts. Moreover, like drive theory, the inverted-U hypothesis has been criticized for not fully explaining the arousal-performance relationship because it does not take into account factors such as individual differences or task difficulty (Landers, 1980, Mahoney & Meyers, 1989; Weinberg, 1990).

Multidimensional Anxiety Theory

As previously mentioned, advances in psychology and sport psychology research have suggested that anxiety is a multidimensional process involving both cognitive and somatic components. This advancement in the understanding of anxiety has led researchers to examine the arousal-performance relationship from a multidimensional perspective.

Multidimensional anxiety theory suggests that cognitive and somatic anxiety independently influence athletic performance in different ways (Burton, 1988). A negative linear relationship is predicted between cognitive state anxiety and performance whereas an inverted-U relationship is predicted between somatic state anxiety and performance.

Because this theory is relatively new, few studies have been completed utilizing it. However, initial results (Burton, 1988; Gould et al., 1987) suggest that a curvilinear relationship exists between somatic anxiety and performance. However, equivocal results have been obtained regarding cognitive anxiety. Burton (1988) found a negative linear relationship between cognitive anxiety and performance whereas Gould and his colleagues (1987) found no relationship. Because of great deal of research utilizing multidimensional anxiety theory has not been completed, the adequacy of the theory is difficult to assess. However, the strength of this approach is its recognition of different anxiety

types and how these distinct types of anxiety impact performance in unique ways (Gould & Krane, 1992).

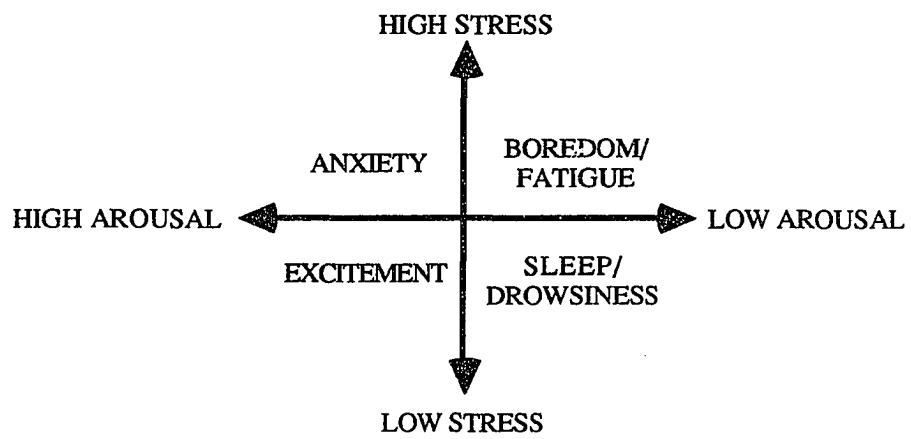
Reversal Theory

Reversal theory, proposed by Apter (1984) and applied to sport psychology by Kerr (1990), assesses the arousal-performance relationship by examining changes, or reversals, in the motivational orientation of the individual. These reversals represent ways in which the individual interprets a situation and the feelings that accompany that situation. Thus, an individual may interpret arousal as pleasant or unpleasant depending on the situation. For example, high arousal may be interpreted as anxiety or excitement and low arousal may be interpreted as boredom or relaxation (Gould & Krane, 1992).

Reversal theory is conceptualized by utilizing two continua: arousal and stress. The intersection of these continua result in 4 quadrants labeled anxiety, excitement, boredom, and relaxation. Thus, an individual's arousal-stress-performance relationship could be represented in 1 of 4 quadrants depending on the interpretations the individual makes (See Figure 1).

Changes in interpretations, or reversals, impact which quadrant the individual is in and how he or she performs. Apter (1984) defines these varying interpretations as different metamotivational states or modes. The telic mode is characterized by seriousness, orientations towards a goal, and arousal seeking.

Figure 1. Reversal Theory Arousal-Stress Continua



Conversely, the paratelic mode is characterized by playfulness, an activity orientation, and arousal avoidance. Thus, changes in modes from the telic state to the paratelic state are considered reversals. For example, an individual jumping off a 10 meter diving board for the first time is likely highly aroused and anxious and thus in a telic mode. However, as the individual becomes more proficient at jumping from the 10 meter board, the anxiety reverses and becomes excitement in the paratelic mode.

Little sport psychology research has been completed utilizing reversal theory. However, the advantage of utilizing reversal theory to understand the arousal-performance relationship is the emphasis this theory places on the individual's interpretation of the situation and how changes in this interpretation can impact stress and performance.

Catastrophe Theory

The catastrophe theory was applied to the study of anxiety in sport as researchers became increasingly dissatisfied with the inverted-U and multidimensionality theories (Hardy & Fazey, 1987). Catastrophe theory, a three-dimensional model, is somewhat of a hybrid of these two aforementioned theories. That is, catastrophe theory is similar to the inverted-U theory in that it too predicts that increases in arousal bring about increases in performance, up to an optimal level. However, instead of the gradual decline in performance that is predicted in performance

after arousal increases too much, catastrophe theory predicts a dramatic decline in performance after the optimal point of arousal is reached.

Catastrophe theory's similarity to multidimensional theory occurs in the delineation between cognitive state anxiety and somatic state anxiety (labelled physiological arousal in catastrophe theory). Cognitive anxiety is thought to mediate the effects of physiological arousal and determines whether the effect of physiological arousal is smooth and small, large and catastrophic, or somewhere in between (Hardy, 1990). Thus, catastrophe theory makes 2 predictions about the relationship between anxiety and performance:

- (1) When cognitive anxiety is low, the relationship between physiological arousal and performance should resemble a mildly inverted-U shaped curve; and
- (2) When cognitive anxiety is high, the effect of physiological arousal on performance can be either positive or negative, depending on how high cognitive anxiety is (Hardy & Fazey, 1987; Hardy, 1990).

Thus, catastrophe theory predicts that somatic anxiety is not necessarily detrimental to performance, but will be associated with catastrophic effects when cognitive anxiety is high.

The advantage of utilizing catastrophe theory to understand the complex arousal-performance relationship is that the theory

looks jointly at the unique, yet related, effects of both cognitive and somatic anxiety. Moreover, catastrophe theory recognizes that increases in anxiety rarely lead to a gradual decline in athletic performance but are instead represented by dramatic and rapid decreases in performance. Because of its complexity and newness, little research in sport psychology has been completed utilizing catastrophe theory. However, preliminary research finds support for catastrophe theory (Hardy & Parfitt, 1991), suggesting its viability in future research examining the arousal-anxiety-performance relationship.

Coping and the Coping Process

Like the definition of stress and the understanding of the arousal-performance relationship, the definition of coping has been diverse and evolving. Early definitions of coping focused on animal experimentation models and psychoanalytic ego models (Houston, 1987; Lazarus & Folkman, 1984). More recent models view coping as a dynamic process that involves an interaction between the individual and the environment that varies over time and situations (Folkman & Lazarus, 1985).

Animal Experimentation Models of Coping

The animal experimentation model of coping emphasized the unidimensional concept of drive and the individual's need to meet, or satisfy, that drive. Coping was defined as acts that control aversive conditions and thereby lower the drive. Research

utilizing this orientation focuses largely on avoidance and escape behaviors. For example, early understandings of coping were accomplished in animal studies by examining how animals coped with an aversive stimuli such as excessive temperature, electrical shock, or loud noise. However, the animal model of coping has been chastised as being too simplistic to adequately account for human behavior because it lacks the cognitive-emotional component that is salient in current psychological thought (Lazarus & Folkman, 1984).

Psychoanalytic Ego Psychology Models of Coping

The psychoanalytic ego psychology model of coping primarily focuses on the role that cognitions play in the way people cope with stress. Behavior is not ignored in psychoanalytic ego psychology coping models, but it is treated as less salient than cognitions (Lazarus & Folkman, 1984). In this model, coping is defined as the realistic and flexible thoughts and behaviors that individuals utilize to solve problems with the intent of reducing stress. Moreover, coping has been described in terms of defense mechanisms employed by the individual (Houston, 1987). These defense mechanisms are usually organized into a hierarchy of strategies that progress from immature to mature mechanisms.

The weakness of the psychoanalytic ego psychology models is that coping is viewed as a style or personality trait (e.g., Type A copers, repressors, conformists, obsessive-compulsives) rather

than as a dynamic process or interaction between various coping styles and the environment. That is, critics of the psychoanalytic ego psychology coping model have suggested this view of coping is unidimensional, and that coping is too complex to be viewed as simply another personality trait. Moreover, both the animal and psychoanalytic models underestimate the complexity and diversity of coping strategies used by individuals. Thus, like stress, coping must be understood as a process rather than simply a response to stress.

Process Models of Coping

Unhappy with the limitations of existing definitions of coping, Lazarus and Folkman (1984) offered a definition of coping that addressed the limitations of the previous approaches. They defined coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). Thus, coping is a response or group of responses used with the intent to reduce or avoid psychological stress (Houston, 1987).

This definition has several advantages over previous ones. First and foremost, it focuses on coping as a process rather than a trait. Second, this definition excludes automatized behavior by limiting coping to stressors that are perceived as exceeding a person's capabilities. Lazarus and Folkman (1984) argue that a conceptualization of the coping process must be limited to

effortful or purposeful reactions to stress. This limitation excludes reflexive, instinctive, or automatic reactions to the environment because without this limitation, almost any response to the environment could be considered a coping behavior. Some researchers (e.g., Compas, 1987) have suggested that some purposeful responses to stress may become automatic over time and with repetition. Although these types of coping strategies are no longer under conscious control, they are still considered planned adaptive behavior (Compas, 1987).

The third advantage of the process definition is that in order to delineate coping strategies from the outcome of these strategies, emphasis is placed on efforts to manage stress regardless of how the efforts work. Coping is not limited to successful undertakings in dealing with stress but includes any purposeful attempt to manage stress regardless of its effectiveness (Compas, 1987).

Finally, coping is not equated with mastery because many sources of stress cannot be mastered. Rather, the emphasis is placed on management of the situation. That is, an individual cannot master a natural disaster such as a tornado, but he or she can cope with it (manage it) by utilizing coping strategies such as acceptance or problem solving.

In summary, coping is a complex process related to stress. Coping is related to executing a response to a threat which involves primary appraisal of a potential threat and secondary appraisal

which involves bringing to mind a potential response to the perceived threat. Coping is the actual process of executing that response to the perceived threat. Coping refers to efforts, both cognitive and behavioral, geared towards managing environmental and internal demands and conflicts that affect an individual or exceed his or her resources (Coyne, Aldwin, & Lazarus, 1981).

Forms of Coping

A number of taxonomies have been developed to describe the various forms of coping that individuals utilize. The most predominant taxonomy was developed by Lazarus and Folkman (1984) who described emotion-focused and problem-focused forms of coping. They contend it is important to differentiate between coping aimed at regulating or modifying the problem causing the distress and coping implemented for the purpose of managing emotional responses to the problem.

Problem-focused coping refers to efforts geared toward changing or managing the stressor. Problem-focused forms of coping are usually embraced when the individual deems the situation to be amenable to change (Folkman & Lazarus, 1980; 1985) or within the individual's control (Forsythe & Compas, 1987). Examples of problem-focused coping include developing plans and implementing action to modify the stressor. If an individual resolves the trouble through problem-focused coping

strategies, the threat or stress diminishes considerably (Lazarus & DeLongis, 1983).

Emotion-focused coping refers to efforts directed at regulating emotional response to the stressor and includes attempts to decrease, increase, or reappraise emotional distress. Emotion-focused forms of coping are often employed when the individual judges that nothing can be done to change or modify the distressful situation or when the situation seems beyond the person's control (Forsythe & Compas, 1987). Examples of emotion-focused coping strategies include attentional avoidance, denial, reinterpretation, wishful thinking, and religious faith. Thus, coping efforts are geared toward controlling the emotional response (Folkman & Lazarus, 1980; Folkman & Lazarus, 1985). If an individual utilizes emotion-focused coping, the objective situation remains the same, but a more benign, less threatening, emotional situation is created (Lazarus & DeLongis, 1983).

This distinction is not meant to imply that people use exclusively problem-focused or emotion-focused coping; indeed, most people will engage in a combination of the two strategies (Scheier & Carver, 1987). Individuals generally utilize both emotion- and problem-focused forms of coping in conjunction with each other, but one type of coping may be more prevalent than another depending on the situation being appraised (Lazarus & Folkman, 1984).

The type of coping strategy an individual chooses is often reflective of the characteristics of the stressful event and the individual's cognitive appraisal of the event. Indeed, research has suggested that coping strategies appear to differ for events appraised as controllable versus uncontrollable (e.g., Folkman & Lazarus, 1980; Forsythe & Compas, 1987; Parkes, 1984; Stone & Neale, 1984). What has not been determined, however, is which strategies are most effective in coping with which types of stress at what points in time (Compas, 1987).

In a study examining ways of coping with major and daily stress in college students, Forsythe and Compas (1987) found that subjects used more problem-focused strategies when faced with stressful events perceived as controllable and more emotion-focused coping strategies when faced with stressful events perceived as uncontrollable. Using emotion-focused coping strategies helped the subjects to alleviate their reactions to the stressor and reduce stress in uncontrollable situations. This match between problem-focused coping and controllable events and emotion-focused coping and uncontrollable events was described as a "goodness of fit" between strategies and situations.

In a study of middle-aged men and women, Folkman and Lazarus (1980) found similar results regarding the congruency between the controllability of the stressful event and the use of problem-focused versus emotion-focused forms of coping.

Moreover, the subjects utilized both forms of coping in virtually every stressful situation assessed. This provides support for the contention that coping is a multifaceted process. This study not only provides support for the goodness of fit hypothesis but provides indirect support for the idea that coping processes stay similar as people age. That is, both college-aged and middle-aged subjects showed similar congruency between the controllability of the stressful event and the type of coping strategy employed.

Interestingly, Forsythe and Compas (1987) found subjects reported higher levels of distress when a "goodness of fit" between stressor and coping strategy did not occur. That is, if subjects relied on emotion-focused coping strategies when the stressful event was controllable, higher levels of distress were reported. Conversely, subjects reported higher levels of distress if they relied on problem-focused coping strategies when the situation was out of their control. This pattern supports the goodness of fit hypothesis because individuals appear to attempt to change those stressors that they believe they can control (problem-focused coping) and adapt to those they believe they cannot change (emotion-focused coping) (Forsythe & Compas, 1987).

The aforementioned research demonstrates that the appraisal (determining the controllability) of the stressful situation is extremely important and is often a critical determinant in the coping process (Folkman & Lazarus, 1980, Lazarus & Folkman,

1984). That is, if a person appraises the situation as one in which he or she has some control, it will be appraised differently than if the individual deems he or she has no control over the situation. Another possible explanation suggests that an individual's locus of control orientation (external vs. internal) may impact his or her appraisal of a stressful event and determine what types of coping strategies are utilized.

To summarize appraisal theory, in threatening situations that are appraised as holding few possibilities for beneficial change, individuals will generally utilize emotion-focused forms of coping. Conversely, in situations where the potential exists for amelioration of the stress by action, individuals will generally employ problem-focused coping to alter the situation causing the distress. Thus, how an individual copes with stress depends on how he or she appraises the stressful situation (Folkman, 1984). Effective copers know when to appraise a situation as uncontrollable and therefore abandon coping efforts aimed at changing the situation. Additionally, effective copers know when to change their coping strategies to emotion-focused to help them tolerate or accept the stressful situation (Folkman, 1984).

In summary, coping styles have been examined from two differing, yet related, perspectives (Compas, 1987). In one perspective, coping is assumed to be consistent across a wide variety of stressful situations, similar to a personality trait. An

example of understanding coping with this conceptual perspective is assessing coping in a variety of situations and expecting individuals to exhibit similar coping patterns regardless of the situation. However, preliminary research has indicated that utilizing the same, consistent set of coping strategies is inadequate to meet the varying demands presented by different types of stressful situations (Compas, Forsythe, & Wagner, 1988). It is apparent that no single coping style or strategy is adaptive in all situations.

In the second perspective, coping strategies are again assumed to be consistent across a wide variety of situations, but may possibly vary as features of the environment or cognitive appraisals of the environment change (Compas, 1987). An example of understanding coping with this conceptual perspective is examining coping by looking at the interaction between the controllability of the situation and the coping behaviors the individual utilizes. This perspective is congruent with that of Lazarus and Folkman (1984) who contend that coping is a complex, dynamic process that changes over time and situations.

Measurement of Coping Strategies

In order to understand the coping process and the types of coping that individuals use, coping efforts must be measured and analyzed. To accomplish this, Lazarus and Folkman (1984) developed the Ways of Coping Checklist (WOCC) to assess the

thoughts and actions used by individuals while coping with what they perceive to be stressful situations. The inventory contains 68 items based on the multidimensional view of coping espoused by the developers. In addition to the 68 coping items, the WOCC contains four items which allow the respondent to appraise his or her current serious stressor in terms of four dimensions (could change or do something about the situation, accept or get used to the situation, need to know more about the situation before you could act, or had to hold self back from doing what you wanted to do). These four appraisal items assess the person's evaluation of his or her coping options or the degree to which the individual feels that something can or cannot be done to alter the distressful person-environment relationship (Lazarus & Folkman, 1984)

Subjects respond in a yes-no manner to a series of statements assessing how they thought, felt, or what they did to cope with the various demands of a specific stressor. Factor analyses on the checklist revealed a seven factor solution including one problem-focused coping subscale, five emotion-focused subscales, and a mixed problem-focused and emotion-focused subscale. These factors included:

- (1) problem-focused coping (e.g., made a plan of action and followed it);
- (2) wishful thinking (e.g., wished you could change the situation);
- (3) growth (e.g., changed or grew as a person in a good way);

- (4) minimize threat (e.g., making light of the situation);
- (5) seeks social support (e.g., talked to others, accepted their sympathy);
- (6) blamed self (e.g., felt responsible for the problem); and
- (7) mixed scale (e.g., refused to believe it happened, sought advice).

While a great deal of research has been completed utilizing the Ways of Coping Checklist, recent conceptualizations of coping have suggested that the WOCC may be too simplistic. That is, while the WOCC is conceptually sound, new measures must be developed that provide a more detailed understanding of the coping process. In particular, while recognizing that the distinction between emotion-focused and problem-focused coping is important, some researchers suggest that it is too simplistic (Carver, Scheier, & Weintraub, 1989). That is, the complexity of coping behaviors within both the problem-focused and emotion-focused domains is too complex to be understood with this bidimensional classification. For example, denial and positive reinterpretation of events are both forms of emotion-focused coping, but they are very different from each other. This difference in coping strategies may have important implications in how successful an individual is in coping with a stressor (Carver, Scheier, & Weintraub, 1989).

To address this concern, Carver, Scheier, and Weintraub (1989) developed a 13 factor inventory (designated the COPE) to assess a broader base of coping strategies. COPE contains 52 items which

encompass a multidimensional view of coping. Subjects respond to the COPE on a 1-4 Likert scale (1 = didn't do a lot - 4 = did a lot) indicating the degree to which they used a particular strategy to cope with a stressor. Each of the 13 factors includes four items.

These factors included:

- (1) active coping (e.g., taking active steps to remove or circumvent stressor or alleviate its effects);
- (2) planning (e.g., thinking about how to cope with a stressor);
- (3) suppression of competing activities (e.g., putting other projects aside, trying to avoid being distracted by other events, in order to deal with the stressor);
- (4) restraint coping (e.g., waiting until an appropriate opportunity);
- (5) seeking social support for instrumental reasons (e.g., seeking advice, assistance, or information);
- (6) seeking social support for emotional reasons (e.g., getting moral support, sympathy, or understanding);
- (7) focusing on and venting of emotions (e.g., tendency to focus on whatever distress one is feeling and venting feelings);
- (8) behavioral disengagement (e.g., reducing one's efforts to deal with the stressor);
- (9) mental disengagement (e.g., distracting efforts that keep the individual from thinking about the behavioral dimension or goal with which the stressor is interfering);

- (10) positive reinterpretation and growth (e.g., coping aimed at managing distress emotions rather than dealing with the stressor per se);
- (11) denial (e.g., reports of refusal to believe that the stressor exists or trying to act as if the stressor is not real);
- (12) acceptance (e.g., accepting the reality of the situation);
- (13) turning to religion (e.g., turning to a higher force in times of stress)

These 13 COPE scales tend to correlate in conceptually meaningful ways. One cluster of coping strategies is made up of what Carver, Scheier, and Weintraub (1989) consider theoretically adaptive modes of coping (active coping, planning, suppression of competing activities, restraint coping, seeking of social support for instrumental reasons, seeking of social support for emotional reasons, positive reinterpretation and growth, acceptance, and turning to religion). A second cluster of coping strategies is composed of what are theoretically maladaptive modes of coping (focus on and venting of emotions, denial, behavioral disengagement, and mental disengagement).

Preliminary analyses indicates that the factor structure of the COPE remains stable while assessing both dispositional and situational coping strategies. Additionally, the COPE demonstrates adequate validity and reliability. Although it is a relatively new measure and not as frequently used as the Ways of Coping

Checklist, the diversity of coping strategies measured by the COPE indicates that it may provide a more accurate measure of coping strategies than the previously used Ways of Coping Checklist.

The Impact of Personality Characteristics on the Coping Process

A variety of personality factors such as hardiness, Type-A personality, anxiety, approach/avoidance, locus of control, self-esteem, optimism/pessimism, and social desirability have been shown to interact with individuals' coping strategies to influence the way they cope with a stressor. The personality characteristics that have been consistently to influence coping in a variety of settings include locus of control, trait anxiety, and approach/avoidance. Because trait anxiety has already been discussed, approach/avoidance strategies will be elaborated upon below.

Repressors/Avoiders versus Approachers

When faced with a stressful situation, some individuals will approach it and utilize appropriate action to manage the problem and reduce the stress. Conversely, other individuals will avoid the situation, even if avoidance increases the stress. This tendency to either advance or retreat has been shown to be salient when examining coping. These characteristics have been labelled "avoidance" and "approach" coping styles (Roth & Cohen, 1986). Approachers have been defined as individuals whose personality orients them towards threatening situations whereas avoiders are individuals who are oriented away from threatening situations.

Coping strategies themselves have also been labelled along the approach/avoidance dimension. Approach strategies allow for appropriate action and/or the possibility for noticing and taking advantage of changes in a situation that might make it more controllable. Approach strategies also allow for ventilation of affect. Avoidant strategies are useful in that they may reduce stress and prevent anxiety from becoming crippling (Roth & Cohen, 1986). It also has been suggested that avoidance strategies are better than approach strategies if the situation is uncontrollable, whereas approach strategies are better if there is potential control in the situation. Thus, a possible link exists between an individual's approach or an avoidance style and an individual's locus of control.

Research indicates that an important factor in coping effectiveness is the fit between coping style (e.g., approach or avoidance) and certain demands of the situation (Roth & Cohen, 1986). Further evidence for the goodness of fit hypothesis is also provided by research utilizing the approach/avoidance distinction. Miller and Mangan (1983) compared surgery patients who preferred to avoid stressful situations with those who tended to seek it out, or approach it. Half of the 40 subjects were identified as information seekers, or monitors, and half were identified as information avoiders, or blunters. The two treatment conditions consisted of a higher amount of presurgical information and a low amount of information. Results demonstrated that patients whose treatment

condition was consistent with their preferred coping strategy had less distress than those patients with a discrepancy between the two. That is, blunterns (avoiders) were less aroused with low information and monitors (approachers) were less aroused with high information.

Like other coping strategies, evidence exists suggesting that while some people have a strong preference for either approach or avoidance coping styles, most individuals will not rely exclusively on one style (Roth & Cohen, 1986). Rather, individuals will alternate between the two orientations depending on the situation or even as they cope with a single situation.

The Relationship between Coping Behaviors and Performance

The aforementioned research suggests that a number of investigations have been conducted concerning the types of coping strategies individuals utilize and different personality characteristics that impact coping. Surprisingly, little research has been completed looking at the relationship between coping behaviors and their relationship to performance. Anderson (1976) examined this relationship by studying perceived stress, coping behaviors, and organization performance of 90 entrepreneurs following a natural disaster (a flood) under the assumption that the flood damage would contribute to abnormal stress levels. Results indicated that individuals who perceived high stress exhibited substantially different coping strategies than individuals perceiving moderate or low stress.

Additionally, problem-solving behaviors were related to perceived stress in an inverted-U manner. That is, as perceived stress increased, problem-solving behaviors increased up to an optimal point at which further increases in perceived stress brought about a decrease in problem-solving behaviors. A linear relationship was discovered between emotional coping behaviors and perceived stress; as perceived stress increased, emotional coping behaviors also increased. Although causal interpretations must be made with caution, it may be suggested that, in the short run, problem-solving coping strategies are related to better performance under low stress, but as stress increases (and performance decreases), emotion-focused coping strategies dominated (Anderson, 1976).

Sport Psychology Research on Coping with Stress in Sport

As previously mentioned, there is a dearth of literature on coping with stress in sport. Sources of stress in athletes have been investigated (e.g., Cohn, 1990; Gould, Horn, & Spreemann, 1983b; Pierce & Stratton, 1981; Scanlan, Stein, & Ravizza, 1991) as have the psychological characteristics that differentiate between more and less successful performers (e.g., Gould, Horn, & Spreemann, 1983a; Gould, Weiss, & Weinberg, 1981; Highlen & Bennett, 1979; Mahoney & Avenier, 1977). Moreover, the relationship between stress and performance has been investigated (e.g., Burton, 1988; Gould, Petlichkoff, Simons, & Vevera, 1987; Krane, 1990; Martens et al, 1990). However, the process of coping with the stress of

athletic situations is a relatively new area of study within sport psychology; only a limited number of investigations have been reported which assess coping strategies utilized by athletes.

It was not until recently that investigators attempted to understand the coping process utilized by athletes while facing stress. Madden and his colleagues (Madden, Kirkby, & McDonald, 1989; Madden, Summers, & Brown, 1990) have recently completed investigations examining the coping styles of competitive middle distance runners as well as the influence of perceived stress on coping with competitive basketball.

Madden, Kirkby, and McDonald (1989) modified the WOCC into a sport-related checklist of coping strategies, the Ways of Coping with Sport (WOCS). Preliminary analyses on the WOCS revealed a similar, but sport related, factor structure as that of the WOCC. The eight factors on the Ways of Coping with Sport included:

- (1) problem-focused coping;
- (2) seeking social support;
- (3) general emotionality;
- (4) increased effort and resolve;
- (5) detachment;
- (6) denial;
- (7) wishful thinking; and
- (8) emphasizing the positive.

A sample of 21 elite middle distance runners responded to the WOCS by indicating how they would cope if they experienced a slump in personal competition form. Items reflecting seeking social support, increased effort and resolve, and problem-focused coping were the coping strategies most consistently reported by the runners.

The age of the runners was a moderate predictor of whether the runners would utilize problem-focused strategies suggesting that problem-focused strategies may be a function of experience over time. Older athletes may have developed more problem-focused coping strategies than younger athletes.

The authors also suggested that the degree to which athletes would use emotionality (e.g., express anger, take a risky chance) as their coping strategy was predicted by the number of injuries experienced by the athletes. Moreover, female athletes indicated a higher propensity for utilizing emotional coping responses than male athletes.

Madden, Summers, and Brown (1990) continued their line of research on coping strategies with an evaluation of the influence of perceived stress on coping with competitive basketball. One hundred and thirty three basketball players completed the Stressful Situations in Basketball Questionnaire (SSBQ) designed by the authors to determine the perceived degree of stress experienced across a range of situations found in competitive

basketball. The athletes also completed the Ways of Coping with Sport checklist. Preliminary factor analyses again demonstrated that the WOCS yielded a similar, but sport related, factor structure as the WOCC.

Results indicated that athletes reporting low levels of perceived competitive stress also reported less use of a number of coping strategies than athletes reporting high levels of perceived competitive stress. Highly stressed athletes reported using increased effort and resolve, and more wishful thinking, general problem-focused coping, and emotionality than low-stressed athletes. These results are consistent with the tenets of Lazarus and Folkman (1984) suggesting that if perceived stress is low, then the need to implement coping strategies ought to be low.

The work of Madden and his colleagues (Madden, Kirkby, & McDonald, 1989; Madden, Summers, & Brown, 1990) is important in that it began to explore the role that coping plays in sport. This preliminary work in sport psychology suggests that the coping process in athletes can be understood through the application of the principles of general psychology and coping. However, these studies have several limitations which must be addressed.

The first limitation is that the instruments developed to assess coping in a sport setting were not psychometrically developed and tested. A strength of the instruments is that they were designed to be sport-specific. However, beyond the two aforementioned

studies with limited sample sizes, the instruments never underwent rigorous psychometric testing. Hence, the validity and reliability of the assessment tools previously utilized to examine coping in sport are questionable.

Secondly, the athletes were asked to assess how they would cope in hypothetical situations as opposed to how they coped in a stressful situation they actually experienced. Moreover, no time-frame was placed on the situation. Thus, an athlete could be responding to a situation that occurred years ago rather than a situation that is currently salient and fresh in his or her mind. To fully understand coping, individuals must be asked how they coped with situations that actually happened, not how they might cope with a situation that may occur. Additionally, the assessed situation should have occurred recently so that a clear conceptualization of the coping strategies utilized can be gained.

While the aforementioned studies have looked at the influence of stress on coping and the coping styles of athletes, Smith, Smoll, and Ptacek (1990) examined the way in which coping skills serve as a moderating variable influencing the relationship between life stress and subsequent athletic injuries in adolescents. Subjects were 424 high school varsity athletes. They completed instruments measuring life experience, social support, and psychological coping skills. The coaches also completed an injury

assessment indicating which athletes had suffered injuries that restricted their athletic participation.

Unlike the research of Madden, Kirkby, and McDonald (1989), social support and coping skills were not found to be individually correlated with injuries. However, the results suggested a strong conjunctive relationship between social support and coping skills in increasing vulnerability to the impact of major negative life events. Thus, athletes low in both coping skills and social support exhibited a significant stress-injury relationship.

The work of Smith, Smoll, and Ptacek (1990) has provided sport psychologists with a preliminary understanding of how coping skills may influence stress in sport. Research by Williams and Krane (1992) has provided preliminary support for the role various personality characteristics play in determining an individual's coping style and its effect on performance. The personality characteristics assessed in this study included social desirability, defined by Crowne and Marlowe (1960, 1964) as the need to obtain approval by responding in a culturally appropriate and acceptable manner, and competitive trait and state anxiety.

The purpose of the Williams and Krane study (1992) was to examine performance differences between individuals with four different coping styles. These four coping styles, as defined by the researchers and based on previous research (Weinberger, Schwartz, & Davidson, 1979), were:

- (1) low-anxious (low Marlowe-Crowne social desirability scores, low anxiety scores);
- (2) repressors (high Marlowe-Crowne, low anxiety);
- (3) high-anxious (low Marlowe-Crowne, high anxiety); and
- (4) defensive high anxious (high Marlowe-Crowne, high anxiety).

Thus, truly high anxious and low anxious athletes exhibited low social desirability scores whereas repressors had elevated social desirability scores. This suggests that repressors' self-report of low-anxiety may actually be incorrect.

The category of repressors is of particular interest as it relates to coping. Repressors were those who self-reported low anxiety but also reported high social desirability, or a desire to present themselves in a positive manner. It was posited that their repressiveness and preoccupation with avoiding awareness of anxiety would interfere with their coping ability and increase their feelings of anxiety. This coping style is similar to the one of avoidance proposed by Roth and Cohen (1986). Repressors were suggested to utilize a coping style oriented away from threat and a denial or minimalization of distress and negative emotions.

In the Williams and Krane (1992) investigation, 112 female collegiate golfers were assessed on their defensiveness (as measured by the Marlowe-Crowne Social Desirability Scale), competitive trait and state anxiety (SCAT and CSAI-2, respectively), and golf performance at a tournament. Results

suggested that repressors report higher self-confidence than truly low-anxious subjects and that high-anxious and defensive high-anxious subjects reported the highest cognitive anxiety and lowest self-confidence. No support was found for the hypothesis that repressors would have lower cognitive anxiety than truly low-anxious athletes. Unlike the results of previous research (e.g., Weinberger, Schwartz, & Davidson, 1979), the results of this study did not suggest that employing a repressive (avoidance) coping style deters effective performance.

The aforementioned studies utilized traditional, positivistic research methods to investigate coping strategies and sport. In an effort to gain a deeper, more holistic understanding of the coping process in sport, especially at the elite level, Gould and his colleagues (Gould, Eklund, & Jackson, 1993; Gould, Finch, & Jackson, 1993) utilized qualitative research methodologies and analyses (e.g., structured interviews, inductive content analysis, triangulation of data themes via team consensus). These types of methodologies and analyses enabled the researchers to acquire a more in-depth understanding of the athletes' experience than traditional research methods would have allowed. Another goal of these studies was to explore the differences in coping strategies between more and less successful performers.

In the first study (Gould, Eklund, & Jackson, 1993), all 20 members of the U.S. Olympic wrestling team were interviewed

regarding how they coped with the stress they encountered during their 1988 Olympic experience in Seoul. The investigators used a guided interview to ensure that all the wrestlers were asked the same questions, in the same order, with the same probes. To interpret the data, an inductive content analyses was completed utilizing the information gathered in the interviews (750 pages of interview text). These analyses allowed the research team to develop general dimensions of coping strategies from the unique strategies offered by the wrestlers.

The results indicated that four general dimensions of coping strategies emerged from 40 unique data themes. These general coping dimensions were:

- (1) thought control strategies;
- (2) task focus strategies;
- (3) emotional control strategies; and
- (4) behavioral based strategies.

Thought control strategies were the most often reported (in 80% of transcripts) and were defined as efforts by the wrestlers to impose order or constraint on their thought processes. Examples included blocking distractions, perspective taking, positive thinking, and prayer.

Task focus strategies were reported in 40% of the transcripts (Gould, Eklund, & Jackson, 1993). These strategies reflected efforts by the wrestlers to control their thought content by focusing on

the task at hand and concentration on their goals. Thus, by focusing on the immediate task and the steps required to achieve the task, the wrestlers were able to ignore the implications of past and present performance outcomes.

Efforts by the wrestlers to control their feeling state or activation level were labelled emotional control strategies (Gould, Eklund, & Jackson, 1993). The use of emotional control strategies was reported by 40% of the wrestlers. Examples of emotional control strategies included arousal control (e.g., relaxation, breathing control, music) and visualization.

Behavioral based strategies emerged as the final coping dimension (Gould, Eklund, & Jackson, 1993). Behavioral based strategies were defined as coping efforts characterized by overt behavioral responses. Forty percent of the wrestlers used behavioral based strategies to cope with the stress of performing at the Olympic Games. Examples of behavioral based strategies included changing or controlling the environment (e.g., separating self from others, making plans to avoid irritants, distracting self with other activities, surrounding self with positive people) and following a predetermined familiar routine that helped the wrestler minimize uncertainty and focus his attention.

In an effort to integrate their results with other completed research on coping, the researchers (Gould, Eklund, & Jackson, 1993) attempted to deductively categorize the coping strategy

themes into the taxonomy of problem- versus emotion-focused coping proposed by Lazarus and Folkman (1984, Folkman & Lazarus, 1980; 1985). However the data, perhaps because of their qualitative nature, did not deductively fit into this framework's categories, although both problem- and emotion-focused strategies were often used simultaneously. This leads further credence to the concept that coping is a diverse, multifaceted process.

Gould, Eklund, and Jackson (1993) were also interested in examining potential differences in coping strategies between medalists and non-medalists. Cautioning that the small sample did not allow for traditional statistical analyses, they were still able to find meaningful differences in coping strategies between the two groups. For example, positive thinking, utilization of a narrow, more immediate focus, and changing the environment were more prevalent among medalists than non-medalists. The salient conclusion, however, was that the strategies of the medalists seemed to be more internalized, well practiced, and automatic than those of the non-medalists. Conversely, the coping strategies of the non-medalists were not as well developed and thus lacked the buffering effect of the medalists' coping strategies.

Utilizing a similar methodology as the aforementioned wrestling study, Gould, Finch, and Jackson (1993) examined the coping strategies of U.S. national champion figure skaters. Data were gathered from interviews with 17 national champions and

analyzed in an inductive manner using qualitative methodologies. A coping strategy was defined as any method the skaters used to deal with a stressor to lessen the stressors negative impact.

Unlike previous studies of coping in sport, this study looked at the coping strategies athletes used over their entire athletic career rather than just during one event, such as the Olympic Games. To accomplish this goal, the skaters' careers were divided into two periods: Phase 1, the time spent as a senior level skater but preceding their national championship; and Phase 2, the time from after they won their first national championship. This demarcation provided the researchers with an idea of how coping strategies may develop over time, or change as the athlete progresses in his or her career.

The results indicated that the skaters utilized a diverse group of coping strategies (Gould, Finch, & Jackson, 1993). This large number of coping strategies is congruent with the work of Carver, Scheier, & Weintraub (1989) who suggested that the emotion-focused versus problem-focused distinction of Folkman and Lazarus (1980, 1985) is too simplistic. Seventeen general dimensions or categories of coping strategies emerged in Phase 1 and 13 general dimensions emerged during Phase 2 of the skaters' careers. Those coping strategies cited by at least 40% of the skaters in Phase 1 included: social support (e.g., coach support, talked with friends and family), mental preparation and anxiety

management (e.g., relaxation, visualization, sport psychologist), positive mindset and belief (e.g., positive attitude, positive self-talk), and hard work ethic (e.g., work hard, just do it). In Phase 2, rational thinking and self-talk, positive focus and orientation, social support, time management and prioritization, precompetitive mental preparation and anxiety management, training hard and smart, and isolation and deflection (e.g., don't let it get to me, block out expectations, avoid or screen media) were the most often cited coping strategies.

This diversity of strategies indicates that successful athletes utilize a variety of different methods to cope with stress. Few specific differences were found between the coping strategies of repeat national champions and those skaters who did not successfully defend their title. This lack of meaningful differences in specific strategies is similar to the results of the wrestling study (Gould, Eklund, & Jackson, 1993) and lends support to the notion that more successful performers may have automatized the coping process.

Many of the identified strategies were similar to those identified in other sport coping research (e.g., social support, positive focus, precompetitive mental prioritization and anxiety management), however, other identified strategies were specific to skating such as strategies to cope with skating politics, judges, working with partners, and securing funding. Not all coping

strategies were positive, however. Examples of undesirable coping strategies, labelled reactive behaviors, included bulimic behavior, alcohol consumption, excessive anger, and sleeping more than usual (Gould, Finch, & Jackson, 1993).

When coping strategies were compared across the two phases of the skaters' careers, a large number of common strategies were evident (e.g., social support, positive thinking, precompetitive mental preparation and anxiety management, hard work ethic). Thus, coping strategies seemed stable over the skaters' careers but may vary according to the situation (Gould, Finch, & Jackson, 1993).

A synthesis of the work by Gould and his colleagues (Gould, Eklund, & Jackson, 1992; Gould, Finch, & Jackson, 1993) suggest that coping is a complex process involving a variety of stressors. Similar to the work of previous researchers (e.g., Compas, 1987; Folkman & Lazarus, 1985), the preliminary study of coping in sport suggests that coping efforts are not limited to one set of strategies. Instead, the coping process is complex and multifaceted and involves a variety of different strategies from monitoring cognitions to altering behaviors and the environment.

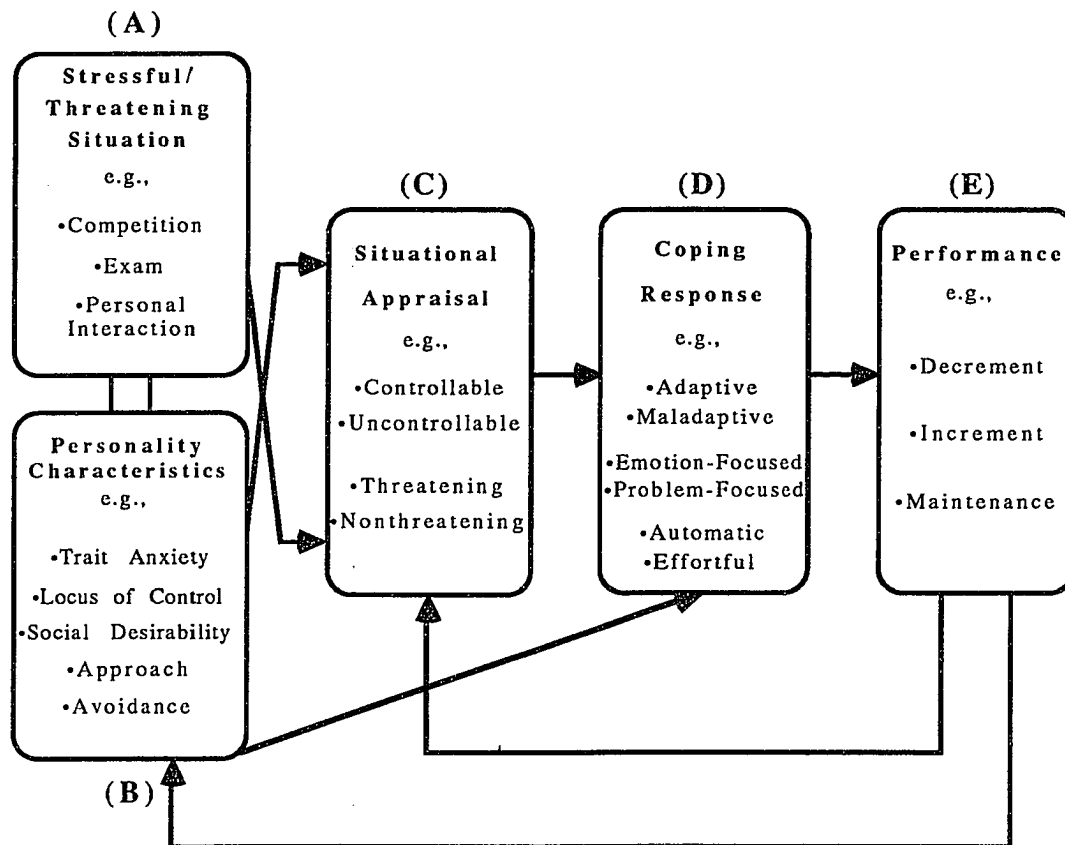
A Proposed Model for Understanding the Relationship between Personality, Situation Appraisal, Coping, and Performance

This review of literature suggests that a variety of personality and situational factors coalesce to influence how an individual chooses to cope with a stressful or challenging situation and how

the choice of coping response influences performance. The model presented in Figure 2 is proposed as a way of understanding and summarizing the links between these various constructs. The purpose of this model is to summarize the current research and suggest possible links and predictions to be tested in future research.

An inspection of this model suggests that the stressful or threatening situation (A) and various personality characteristics (B) influence how the individual appraises the situation (C). For example, a stressful/threatening situation such as a competition against a rival and personality characteristics such as an athlete's trait anxiety, and locus of control influence how he or she appraises the situation. Different situations will be appraised differently by each athlete. This situation appraisal then leads to the various coping responses (D) that the individual utilizes to deal with the situation. A direct link also exists between personality characteristics (B) and coping responses (D). For example, highly trait anxious athletes may frequently utilize maladaptive coping strategies regardless of how they appraise the situation. Their high levels of trait anxiety may prevent them from adopting adaptive coping strategies or appraising stressful situations as controllable. The coping responses (D) in turn influence how the individual performs (E) in the face of the stressful/threatening situation. For example, athletes who utilize

Figure 2. A Proposed Model for Understanding the Relationship between Personality, Situation Appraisal, Coping, and Performance



maladaptive coping strategies may perform worse than athletes who utilize adaptive coping strategies. Finally, performance outcome (E) may loop back into the model and influence various personality characteristics (B) and the appraisal of the stressful situation (C). For example, athletes who experience performance success may be more likely to demonstrate lower anxiety in the future when confronted with similar stressful situations or may appraise a future stressful situation differently depending on the type of coping strategies initially selected.

While the model is useful in summarizing the literature, the links between the various components need to be further tested and explored to determine the types of relationships as well as strength of the various links. Moreover, additional links or components could be discovered through further research.

Statement of the Problem

While efforts have been made to understand more about the psychological characteristics that differentiate between more and less successful athletes, a paucity of research exists examining the relationship between the specific coping responses of athletes and athletic performance. Only recently have efforts been made to understand more about the actual strategies athletes use to cope with the stress of the athletic environment (e.g., Gould, Eklund, & Jackson, 1993; Gould, Finch, & Jackson, 1993; Madden, Kirkby, &

McDonald, 1989; Madden, Summer, & Brown, 1990; Smith, Smoll, & Ptacek, 1990; Williams & Krane, 1992).

These efforts provided a preliminary understanding of the coping processes athletes utilize within sport and suggest that athletes utilize a variety of problem-focused and emotion-focused strategies to cope with stressful situations. Moreover, these studies have shown strong ties to the general psychology literature on coping (e.g., Carver, Scheier, & Weintraub, 1989; Lazarus & Folkman, 1984). While it is important to have a descriptive understanding of the various coping strategies athletes utilize, a more practical concern for coaches, athletes, and sport psychologists is understanding the relationship between coping strategies and athletic performance and to identify what factors discriminate between athletes who cope better with the stress of athletics from those who do not cope as well.

Current literature has not examined the complex relationships between coping strategies, personality characteristics (specifically trait anxiety), and athletic performance. Instead, preliminary studies have focused on understanding what types of coping strategies athletes' utilize (a descriptive approach) rather than attempting to build conceptual links between certain coping strategies and performance. For example, does a link exist between the type of coping strategy an athlete chooses and how well that athlete performs? The descriptive approach has added

depth to our knowledge of methods of coping with stress in sport. However, additional research is needed that will enrich our understanding of the interaction between coping strategies, personality characteristics and their relationship to performance.

Methodological considerations are an additional concern with the current literature on coping processes in sport. Some of these studies utilized retrospective methods requiring athletes to remember coping strategies from as many as six years past. Other studies have asked athletes to assess how they would cope with a hypothetical situation as opposed to a situation they are actually experiencing. To more fully comprehend coping strategies, assessments of coping should occur as close to the competitive situation as possible and reflect stressful situations with which athletes have actually had to cope.

Lastly, the majority of participants in the aforementioned studies have been primarily elite athletes capable of competing successfully at the international level. While these studies have offered researchers insight into the coping strategies utilized by elite athletes, little is known about the coping strategies of less elite, yet highly skilled, athletes. Age, physical and emotional maturity, and experience may all impact coping strategies and performance.

In summary, a small number of studies have examined the coping process in sport and in so doing developed a preliminary knowledge base. However, a need exists to conduct further

research which assesses additional psychological factors and their influence on coping and performance in sport.

Purposes

The purpose of this investigation was to better understand how athletes cope with stress and how their coping strategies influenced their performance. This study examined coping strategies as they related to performance and trait anxiety as it related to coping strategies. This overall purpose was examined by addressing the following four subpurposes:

- (1) Assessing the coping strategies employed by collegiate softball players dealing with a self-perceived stressful situation;
- (2) Examining the relationship between coping and trait anxiety, and the subcomponents of trait anxiety (cognitive trait anxiety, somatic trait anxiety, and concentration disruption);
- (3) Determining the relationship between specific coping strategies used and athletic performance;
- (4) Examining the effect of the above factors in discriminating between more and less successful copers.

This study sought to broaden the current base of knowledge in the area by rectifying the aforementioned methodological concerns to explore the relationships between coping strategies, personality characteristics, and performance. A more thorough understanding of coping strategies will not only assist athletes in dealing better

with the stress of competitive sport, but also offer insights as to how coaches and sport psychologists can best aid athletes in their quest to perform at their own optimal level.

Hypotheses

The first purpose of this investigation was to determine the types of coping strategies utilized by collegiate athletes in dealing with a self-perceived stressful situation. Based on the work on Carver, Scheier, & Weintraub (1989) and Folkman and Lazarus (1985), it was expected that athletes would exhibit a variety of coping strategies in response to a self-perceived stressful situation, and the mean coping strategy scores reported by the athletes would parallel the means scores on the 13 predetermined factors assessed by the COPE.

The second purpose of this study was to examine the role that competitive trait anxiety and its subcomponents played in determining an individual's way of coping. Competitive trait anxiety was chosen for further study because, based on previous research, it seemed to suggest a conceptual basis for individuals selecting a particular coping strategy. It was hypothesized that competitive trait anxiety would be related to the type of coping strategies selected. Specifically, trait anxiety would be positively correlated with maladaptive coping strategies (e.g., focus on and ventilation of emotion, denial, behavioral and mental disengagement), and inversely correlated with adaptive coping

strategies (e.g., active coping, positive reinterpretation, restraint coping, and growth). No previous research has looked at the relationship between multidimensional trait anxiety (somatic anxiety, cognitive anxiety, and concentration disruption) and coping strategies, thus the nature of these subscale correlations was unknown.

Additionally, it was hypothesized that a negative relationship would exist between athletes' problem-focused coping scores (active coping, planning, suppression of competing activities, restraint coping, seeking social support for instrumental reasons) and competitive trait anxiety. Moreover, a positive relationship was hypothesized to exist between athletes' emotion-focused coping scores (seeking social support for emotional reasons, focusing on and venting of emotions, positive reinterpretation and growth) and competitive trait anxiety.

The third purpose of this study was to examine the role that certain coping strategies have on an athlete's performance. It was hypothesized that coping scores (based on scores on 13 COPE factors) would significantly predict softball performance (a composite of 3 batting averages, and fielding average).

The fourth purpose of this study was to identify psychological factors and types of coping strategies utilized by athletes which discriminated between more and less effective copers. It was hypothesized that athletes identified as more effective copers (by

self-assessment and by their coaches) would utilize more adaptive coping strategies (active coping, planning, suppression of competing activities, restraint coping, seeking of social support for instrumental and emotional reasons, positive reinterpretation and growth, acceptance, and turning to religion) than athletes identified as less effective copers (who would use maladaptive strategies of focus on and venting of emotions, denial, and behavioral and mental disengagement). Moreover, it was hypothesized that more effective copers would have lower trait anxiety scores, more automatized coping responses, and better softball performances than less effective copers.

CHAPTER II

METHOD

Sample Characteristics

One hundred and forty eight Division I softball players representing 13 collegiate teams competing throughout the southeastern United States participated in this investigation. Five of the teams were either regionally or nationally ranked throughout the 1991-1992 season. This allowed for a balance in scheduling difficulty, overall ability, and success (outcome) level.

Each subject completed a Human Consent form (Appendix A). Precautions were taken to ensure that all data remained confidential. To accomplish this, all questionnaires were number coded so that the confidentiality of individual names and teams was maintained. All data are reported in group form; no references are made to individual athletes or specific teams.

Instrumentation

Demographics

Each athlete completed a demographic questionnaire (Appendix B) assessing background information including name, age, position(s), class year, and years of competitive softball experience.

Coping Ability and Coping Automaticity

The demographic questionnaire also contained four questions regarding the athlete's estimate of her coping skills. Athletes responded to 11-point Likert scales assessing their ability to cope with stress in softball (general coping ability) and the degree to which their coping strategies were automatized (coping effort).

Two questions regarding the effect of the athlete's coping ability on her softball performance (specifically hitting and fielding) were also included on the questionnaire. While not used statistically in this study, these questions were included to mentally prepare the athlete for the questions that followed which assessed the types of coping strategies used.

A score of 1 indicated the athlete generally did not cope well with stress at all, let stress impact her performance, and utilized coping strategies that were not automatized. Conversely, a score of 11 indicated the athlete generally coped extremely well with stress, did not let stress impact her performance, and utilized automatized coping strategies. These assessments of coping ability and its relationship to performance are contained in the demographic questionnaire (Appendix B).

The head coach also completed comparable measures for each athlete reflecting how well the coach thought each athlete coped with stress during the season, how the athlete's ability to cope with stress impacted her performance, and how automatized the

athlete's coping strategies were (Appendix D). Thus, two measures of coping ability were determined, one by the athlete and one by the coach.

An 11-point Likert scale was used in these assessments of coping skills to provide a broad range of available scores for athlete and coach ratings. Previous discussions with college coaches indicated a wider scale would allow them to more accurately assess their athletes' coping abilities in relation to each other.

Coping Strategies

Coping strategies utilized by the athletes were assessed via the COPE scale developed by Carver, Scheier, and Weintraub (1989) (Appendix C). This inventory was chosen based on two reasons. First, previous literature indicated the COPE accurately assesses individual's dispositional and situational coping strategies (Carver, Scheier, & Weintraub, 1989). Secondly, other researchers (D. Burton, personal communication, February 27, 1992) who have used both the Ways of Coping Checklist (Lazarus & Folkman, 1984) and the COPE suggest that the COPE provides a more diverse and accurate assessment of coping strategies than the WOCC and is the most helpful measure of coping strategies currently available.

The COPE contains 52 items to which the athletes responded on a 1 to 4 scale indicating the degree to which they used a particular

coping strategy in a self-perceived stressful situation. Respondents choices were:

- (1) I usually don't do this at all;
- (2) I usually do this a little bit;
- (3) I usually do this a medium amount; and
- (4) I usually do this a lot.

Subjects have 13 different scores on the COPE, one for each coping factor. Individual factor scores ranged from 4 - 16 with the total range of scores for the entire COPE ranging from 52 - 208. Thus, lower scores indicated a low degree of usage for a particular coping strategy whereas higher scores indicated a high degree of usage for a particular coping strategy.

Previous factor analyses of the COPE indicated a 13 factor structure with generally acceptable internal consistency (all Cronbach's alphas above .60) and test-retest reliability (range of r 's between .46 and .86). Moreover, the COPE has demonstrated both convergent and discriminant validity when correlated with other pertinent scales (Carver, Scheier, & Weintraub, 1989).

The athletes were asked to recall an episode, related to softball, that occurred within the spring 1992 season that they found particularly demanding or that disturbed or troubled them in some way. The subjects then described the recalled situation at the beginning of the COPE and responded to the COPE with this

situation in mind. These instructions correspond with Carver et al.'s (1989) situational instructions for the COPE.

Trait Anxiety

Trait anxiety was measured with the Sport Anxiety Scale (Smith, Smoll, & Schutz, 1990), a multidimensional measure of competitive trait anxiety (Appendix E). The Sport Anxiety Scale (SAS) includes 21 items and measures individual differences in somatic anxiety and in two classes of cognitive anxiety: worry and concentration disruption. Subjects responded to the items reflecting how they commonly react to competition on a 4-point Likert scale from 1, not at all, to 4, very much so. Scores on each subscale range from 7 to 28 for worry, 9 to 36 for somatic anxiety, and 5 to 20 for concentration anxiety. A higher score indicates higher anxiety.

The SAS has been shown to have adequate internal reliability and construct validity (Smith, Smoll, & Schutz, 1990). Cronbach's alphas were .88 for the 9-item somatic anxiety factor, .82 for the 7-item worry factor, and .74 for the 5-item concentration disruption factor and .93 for the entire scale.

The SAS has also demonstrated moderate to high correlations with other measures of competitive trait anxiety such as the Sport Competition Anxiety Test (SCAT). These correlations are $r = .80$ for somatic anxiety, $r = .66$ for cognitive anxiety, and $r = .47$ for concentration disruption, with an overall correlation of .81 for the total

scale. Moreover, preliminary research has demonstrated the ability of the SAS to significantly predict scores on the respective scales of the Competitive State Anxiety Inventory-2, a multidimensional measure of competitive state anxiety (Krane & Finch, 1990).

Performance

The multitude of batting and fielding averages common with the sport of softball offered a variety of standardized performance measures to the investigator. A composite of 3 batting performance averages (batting average, slugging percentage, and on-base average) and fielding average were used to assess the softball players' overall performance.

Slugging percentage, on-base percentage, and batting average were averaged to gauge the batter's overall performance at the plate and on the bases. Slugging percentage represents the total bases achieved by the batter divided by his or her total plate appearances. The higher the slugging percentage, the higher the number of extra base hits by the hitter, and/or the longer the runner stays on base without getting thrown out. On-base percentage reflects the percentage of time of total plate appearances the hitter reaches first base, regardless of how he or she gets there. On-base percentage includes reaching base on hits, walks, and being hit by a pitch. The batting average is the percentage of times a player gets a hit versus the total number of at bats. Batting average is similar to the on-base percentage but

does not include reaching base on walks or hit pitches. Fielding average is calculated by dividing the total number of fielding errors by the number of fielding attempts.

Utilizing three batting averages in conjunction with the fielding average allowed for a more accurate picture of the player's overall performance over time. The three batting averages take into account various games situation such as sacrifices, extra base hits, getting hit by a pitch (automatic first base) and walks. For example, just utilizing batting average as the only measure of performance did not take into account the individual who is frequently asked to sacrifice bunt or who reads pitches well and reaches base on walks (which, although not counted as a hit, still is a positive aspect of performance since the batter is now a base runner).

Procedure

The coaches were contacted by the investigator and the purposes and procedures of the investigation were explained to him or her. If permission was granted by the coach to utilize his or her team in the study, a time for data collection (at one of four major collegiate softball tournaments throughout the southeastern United States in the Spring of 1992) was arranged, and a packet of information containing scheduling confirmation, instructions, and instrumentation was sent to the head coach to familiarize the coach with the investigation.

Data collection coincided with the last 1-3 weeks of the 1991-1992 collegiate softball season. A standardized set of instructions was memorized by the investigator and recited to the subjects before data collection (Appendix F). Each softball team was met separately; that is, no data were collected from more than one team at a time.

In order to minimize confounding effects from competition, no data were collected within two hours pre-or post competition. Moreover, to minimize a fatigue effect while the athletes were completing the assessments, the COPE and Sport Anxiety Scale questionnaires were counterordered within the packet each athlete received. This method of counterordering ensured that a random half of the sample completed the COPE first and the SAS last, and the other random half of the sample completed the SAS first and the COPE last.

It took approximately 30 minutes for both the athletes and the coaches to complete the assessments. All athletes and coaches were informed their participation was voluntary and that all information would be kept confidential (See Appendix A for Informed Consent Form). It was stressed that although the athlete's name appeared on the demographic questionnaire, this was only for the purpose of matching her game statistics with her responses. In order to maintain confidentiality, all athletes were

given an envelope in which they sealed their answers before returning the questionnaires to the investigator.

Seven of the coaches completed their questionnaires on-site. Six of the coaches chose to complete their assessments after they had returned to their respective campuses. Thus, appropriate follow-up was done at the end of each team's season to obtain all the questionnaires. At this time, season-ending statistics were obtained and final coach assessments were collected.

CHAPTER III

RESULTS

The data from this investigation were analyzed in four phases, each phase pertaining to one of the stated purposes. The first phase of the analysis consisted of the calculation of descriptive statistics on all variables assessed. Then, in the second phase, correlations between trait anxiety and coping strategies were examined. The third phase consisted of multiple regression analyses assessing relationships between coping strategies and softball hitting and fielding performance. Finally, in the fourth phase, group differences in coping, coping responses, and trait anxiety between more and less effective copers were examined via discriminant function analyses.

Phase 1 - Descriptive Statistics

Demographic data. One hundred and forty eight Division I softball players representing 13 collegiate teams competing throughout the southeastern United States participated in this study. The athletes ranged in age from 17 to 22 years with a mean age of 19.95 years (SD = 1.2). They had an average of 11.03 years (SD = 2.7) of experience playing softball.

Athletes from all college class years were present in the sample. First year students comprised 24.3% of the sample ($\underline{n} = 36$). Sophomores comprised 19.6% of the sample ($\underline{n} = 29$). Members of the junior class consisted of 32.4% of the sample ($\underline{n} = 48$) and seniors were represented in 23.6% of the sample ($\underline{n} = 35$). Hence, an almost equal distribution was achieved between upperclass students (56.1% juniors and seniors) and underclass students (43.9% first years and sophomores) in this sample.

The athletes were asked to designate their primary position, that is, the position they played the majority of the time. Players representing all nine softball positions were present in the sample, as were designated hitters. Pitchers (18.9% of sample) and catchers (13.5%) comprised approximately one-third of the sample. This distribution was anticipated because most collegiate softball teams carry at least two pitchers and two catchers on their rosters. Infielders comprised 35.1% of the sample (1st base = 7.4%; 2nd base = 10.1%; 3rd base = 8.8%; shortstop = 8.8%). Outfielders comprised 29.7% of the sample (left field = 11.5%; center field = 8.1%; right field = 10.1%). The final 2.7% of the sample consisted of designated hitters.

Team and coach data. Thirteen college softball teams participated in this study. The teams won an average of 31.77 games during the 1991-92 collegiate softball season ($\underline{SD} = 13.44$, $\underline{R} = 9-60$) and lost an average of 20.07 games ($\underline{SD} = 5.75$, $\underline{R} = 7-29$).

Five of the teams (38.5% of teams or 34.45% of the sample of individual athletes) were either regionally or nationally ranked during the 1991-92 season. The coaches of the sampled teams had an average of 9.07 years of coaching experience (SD = 5.08; R = 2-17 years) and had played softball themselves for an average of 15.60 years (SD = 4.78).

Coping ability. Two measures of coping ability, or effectiveness, were calculated, one made by the athlete and one made by the coach. Athletes responded to an 11-point Likert scale assessing their ability to cope with stress in softball. Low scores indicated that the athlete generally did not cope well with stress. Conversely, higher scores indicated that the athlete generally coped extremely well with stress. The head coach completed comparable measures for each athlete reflecting how well the coach thought each athlete coped with stress during the season. Mean ratings of coping ability as assessed by the athletes equalled 7.46 (SD = 2.04) signifying a moderately successful coping ability. Mean coach ratings of athlete coping ability were slightly lower (M = 6.80, SD = 2.15) but still rated as moderate. Pearson correlations between athlete and coach ratings of coping ability equalled +.351 ($p < .01$).

Coping automaticity. Two measures of coping automaticity, or the conscious effort required to cope, were calculated, one made by the athlete and one made by the coach. Athletes responded to

an 11-point Likert scale assessing how automatic their coping skills were. High scores indicated that the athlete did not have to think a great deal about coping, and that coping was automatic and required no conscious effort. Conversely, lower scores indicated that the athlete thought a great deal about coping, and that coping required a deliberate effort and a great deal of thought. The head coach completed comparable measures for each athlete reflecting how well the coach thought each athlete's coping skills were automated and the effort required to cope. Mean ratings of coping automaticity as assessed by the athletes equalled 6.01 (SD = 2.60) signifying moderately automatic coping skills. Mean coach ratings of athlete coping automaticity were slightly higher (M = 6.24, SD = 2.54) and thus still rated as moderate. Pearson correlations between athlete and coach ratings of coping automaticity equalled +.231 ($p < .001$).

Athlete softball performance statistical data. During the 1991-1992 season, the athletes played in an average of 40.8 games (SD = 15.6), had an average of 99.4 at bats (SD = 61.0), and connected on a mean of 28.4 hits (SD = 21.7). In the field, an average of 5.8 errors were committed by each player over the course of the season (SD = 5.4).

Standard softball performance statistics were utilized in this study. Of particular interest to this investigation were batting average (M = 244.33, SD = 92.69), slugging percentage (M = 307.58,

SD = 134.56), on-base percentage (M = 316.31, SD = 98.34), and fielding average (M = 929.99, SD = 95.45). The three batting averages take into account various game situations such as sacrifices, extra base hits, getting hit by a pitch (automatic first base) and walks. Because of the high correlations (See Table 1) between the three measurements of batting performance, an average of the three was used as one performance measure (batting performance M = 289.41, SD = 101.59). Utilizing the three batting averages in conjunction allowed for a more accurate picture of the player's overall offensive performance over time. Fielding average was not strongly related to either of the three batting measures, thus it was used as a separate performance measure.

Athlete Softball Performance Self-Rating Data. Athletes responded to an 11-point Likert scale assessing how they performed (batting and fielding) while coping with the self-perceived stressful situation they described on the COPE. High scores indicated that the athlete performed extremely well or above average while coping with the stressful situation. Conversely, lower scores indicated that the athlete performed poorly or below average while coping with the stressful situation. Mean ratings of batting performance as assessed by the athletes equalled 6.14 (SD = 2.56) signifying moderate performance while coping with a stressful situation. Mean ratings of fielding

Table 1

Pearson Product-Moment Correlations among Softball
Performance Variables and Means for Softball Performance
Measures

	Batting Average	Slugging %	On-Base %	Batting Performance	Fielding Average
Batting Average (<u>M</u> = 244.3, <u>SD</u> = 92.7)	1.0000	.9097**	.7839**	.9588**	.1980*
Slugging % (<u>M</u> = 307.6; <u>SD</u> = 134.6)		1.0000	.7377**	.9563**	.2003*
On-Base % (<u>M</u> = 316.31, <u>SD</u> = 98.3)			1.0000	.8868**	.2641**
Batting Performance (<u>M</u> = 289.4, <u>SD</u> = 101.6)				1.0000	.2294**
Fielding Average (<u>M</u> = 929.9, <u>SD</u> = 95.5)					1.0000

* $p < .05$

** $p < .01$

performance were slightly higher ($M = 6.90$, $SD = 2.53$) and thus still rated as moderate.

Correlations among performance measures. Pearson correlations between athlete softball performance self-ratings and athlete softball performance statistical data are presented in Table 2. As the table indicates, correlations between respective performance measures, while significant ($p < .01$), are low in magnitude ($r = +.39$ between batting measures; $r = +.29$ between fielding measures). Thus, softball performance statistical data (i.e., batting performance average and fielding average) were used in the remaining analyses because they provided performance measures that accounted for different games situations throughout the stressful situation. Moreover, they were thought to be a stronger indication of actual softball performance because the majority of stressful situations described by the athletes were of a long duration (e.g., recovering from injury, conflict with coach, batting slump) as opposed to a short-term stress.

Trait anxiety. Trait anxiety was measured by the Sport Anxiety Scale (SAS) developed by Smith, Smoll, and Schutz (1990). The SAS measures three subcomponents of trait anxiety: trait cognitive anxiety, trait somatic anxiety, and concentration disruption and also gives a total trait anxiety score for each athlete. A principal components factor analysis with varimax rotation revealed a similar factor structure to that of Smith et

Table 2

Pearson Product-Moment Correlations among Self-Ratings of Softball Performance and Means for Self-Ratings of Softball Performance

	Batting Performance	Fielding Average	Self-Rating Batting	Self-Rating Fielding
Batting Performance (<u>M</u> = 289.4, <u>SD</u> = 101.6)	1.0000	.2294**	.3863**	.0256
Fielding Average (<u>M</u> = 929.9, <u>SD</u> = 95.5)		1.0000	.1522	.2892**
Self-Rating Batting (<u>M</u> = 6.14; <u>SD</u> = 2.5)			1.0000	.3457**
Self-Rating Fielding (<u>M</u> = 6.90; <u>SD</u> = 2.5)				1.0000

** $p < .01$

al. (1990) with comparable factors loadings for each question (Please see Appendix G for factor loadings for the SAS). The three subcomponents of trait anxiety accounted for 60.4% of the variance in this investigation, whereas Smith et al. (1990) reported 53% of the variance accounted for in their developmental work on the SAS. The internal consistencies of the SAS subscales were also comparable to Smith et al. with Cronbach's alpha levels all above .70. (Cronbach's alpha for the 7-item cognitive anxiety scale = .894, 9-item somatic anxiety scale = .909, and 5-item concentration disruption scale = .716).

The athletes' mean total trait anxiety score equalled 41.29 (SD = 10.34). Averages on the subscales were as follows: trait cognitive anxiety = 16.12 (SD = 5.12); trait somatic anxiety = 17.54 (SD = 5.85); and concentration disruption = 7.63 (SD = 2.22). Interestingly, these levels of trait anxiety are lower than those reported for other female college athletes (Krane, 1990) and high school male and female athletes (Smith et al., 1990) and slightly higher than those reported for college male athletes (see Table 3).

COPE factor analysis. Coping styles were assessed via the COPE (Carver, Scheier, & Weintraub, 1989). To recall, the COPE is a 13-factor measure (with four questions per factor) which assesses a variety of different coping styles. In accordance with the procedures employed by Carver et al. (1989), the athletes' responses to the COPE were subjected to a principal components

Table 3

Mean Trait Anxiety Levels as Measured by the Sport Anxiety Scale

	Total Anxiety	Cognitive Anxiety	Somatic Anxiety	Concentration Disruption
Female College Softball	41.29 (SD = 10.35)	16.12 (SD = 5.12)	17.54 (SD = 5.85)	7.63 (SD = 2.22)
Female College Soccer*	44.06 (SD = 10.22)	18.00 (SD = 4.80)	18.53 (SD = 5.00)	8.53 (SD = 2.67)
Female High School**	44.54 (SD = 12.12)	16.21 (SD = 4.79)	19.97 (SD = 6.66)	8.36 (SD = 2.75)
Male College Football**	40.86 (SD = 9.99)	14.17 (SD = 4.47)	18.98 (SD = 5.48)	7.71 (SD = 2.21)
Male High School**	43.44 (SD = 10.81)	15.23 (SD = 4.34)	19.82 (SD = 5.71)	8.39 (SD = 2.91)

*From Krane, 1990

**From Smith, Smoll, & Schutz, 1990

factor analysis, using an oblique rotation to allow for correlations among variables. A principal components factor analysis was used in order to determine if the large number of variables (52) could be reduced into a smaller number of a priori factors (13) and also to extract the maximum variance from the data set (Tabachnick & Fidell, 1989).

The principal components factor analysis with oblique rotation yielded 13 factors with eigen values greater than 1.0 (see Table 4). An eigen value greater than 1.0 was the accepted minimum value for the retention of items in the factor analysis (Tabachnick & Fidell, 1989). The majority of factor loadings (63.4%) were above .63 and thus were considered significant for interpretation of the results. Comfrey (1973) suggests that factor loadings in excess of .71 are considered excellent, .63 very good, .55 good, .45 fair, and .32 poor.

This 13-factor solution accounted for 68.1% of the variance. Of these 13 factors, 8 were identical in composition to the a priori designation set forth by Carver and his associates (1989). These eight identical factors and the percent of total variance accounted for included:

-
- (1) Behavioral disengagement [16.3%];
 - (2) Religion [12.0%];
 - (3) Acceptance [9.8%];
 - (4) Denial [6.3%];

Table 4

COPE Factor Structure, Eigen Values, and Percent of Total Variance Accounted with OBLIQUE Rotation

FACTOR 1--22.6% Eigen Value = 7.98	FACTOR 2--16.3% Eigen Value = 5.78	FACTOR 3--12.0% Eigen Value = 4.29
<u>PLANNING AND ACTION</u>	<u>BEHAVIORAL DISENGAGEMENT</u>	<u>RELIGION</u>
# Loading	# Loading	# Loading
05 .3958	08 .7404	07 .9101
17 .5779	21 .6545	16 .9559
22 .6891	31 .7612	42 .9317
28 .6800	44 .4520	52 .8560
33 .3514		
41 .7247		
48 .4417		
50 .4527		
FACTOR 4--9.8% Eigen Value = 3.47	FACTOR 5--6.3% Eigen Value = 2.25	FACTOR 6--5.1% Eigen Value = 1.84
<u>ACCEPTANCE</u>	<u>DENIAL</u>	<u>INSTRU. SOCIAL SUPPORT</u>
# Loading	# Loading	# Loading
11 .6602	06 .4897	04 .6641
18 .6227	23 .6970	12 .7890
38 .8166	34 .8241	26 .7517
46 .6353	49 .6420	39 .7869
FACTOR 7--5.0% Eigen Value = 1.75	FACTOR 8--4.8% Eigen Value = 1.73	FACTOR 9--4.0% Eigen Value = 1.39
<u>RESTRAINT</u>	<u>SHARING EMOTIONS</u>	<u>MENTAL DISENGAGEMENT</u>
# Loading	# Loading	# Loading
09 .5177	03 .8519	02 .5592
19 .1980	10 .5752	14 .5790
35 .8640	15 .7027	27 .6954
43 .5390	20 .4339	37 .6584
	24 .8457	
	30 .5842	
	40 .64425	
	45 .6675	
FACTOR 10--5.0% Eigen Value = 1.75	FACTOR 11--4.8% Eigen Value = 1.73	FACTOR 12--4.0% Eigen Value = 1.39
<u>SUPPRESSION OF COMPETING ACTIVITIES</u>	<u>GROWTH</u>	<u>POSITIVE REINTERPRETATION</u>
# Loading	# Loading	# Loading
13 .4051	01 .7659	25 .6793
29 .6413	51 .7961	32 .7153
36 .1880		
47 .7268		

- (5) Instrumental social support [5.1%];
- (6) Restraint [5.0%];
- (7) Mental disengagement [4.0%]; and
- (8) Suppression of competing activities [3.8%].

The a priori scales of active coping and planning loaded as one scale in both this investigation and Carver et al.'s (1989) developmental investigation of the COPE, even though the developers intended them to be two separate scales. Although Carver et al. (1989) assigned these items a priori to two, distinct scales, the eight questions continued to load together on one factor. This ninth factor, named planning and action, accounted for 22.6% of the total variance.

A second deviation from the a priori designations involved items reflecting emotions. These 8 questions loaded together on one factor, incorporating the a priori factors of focus on and venting of emotions and seeking social support for emotional reasons. This loading stands in contrast to that of Carver et al. (1989) in which all 8 items pertaining to social support loaded together. This tenth factor, named sharing emotions, accounted for 4.8% of the total variance.

A final deviation from the expected designations concerned the splitting up of an a priori factor. The a priori factor of positive reinterpretation and growth split into two factors. Two questions representing positive reinterpretation loaded highest on Factor 11

and accounted for 2.5% of the total variance. Two questions representing growth loaded highest on Factor 12 and accounted for 2.4% of the variance. Although this differs from Carver et al.'s (1989) a priori designated factor structure, it is not without precedent. These items split into two factors in the third phase of the COPE's development. However, Carver and his colleagues (1989) kept the four-item factor intact throughout the measure's development.

The 13th factor contained two questions, both of which had higher, more coherent loadings on other factors. Therefore, the loadings on this factor were disregarded in favor of the higher loadings on other factors. Thus, the final factor structure for the collegiate softball sample included 12 factors accounting for 68.1% of the variance. While the factor structure revealed in this investigation is not exactly identical to the a priori designation set forth by Carver et al., it is very similar to the loadings their research revealed, including double loading of some factors and splitting of other factors.

Information concerning the internal consistency of the COPE comes from examination of the reliability of each of the factors. Cronbach's alpha reliability coefficients were calculated for each of the twelve COPE factors identified in this study (see Table 5). In general, these reliability levels were acceptably high, with only

Table 5

Comparisons between Sample of College Softball Players and Carver et al. (1989) Sample of College Students on Cronbach's Reliability Coefficients, Means, and Standard Deviations for COPE Subscales (based on adjusted total score to account for number of questions per factor)

	Softball Players/Students	College Students	Softball Players/Students	College Students	Softball Players/Students	College Students
COPE SCALE*	Cronbach's α		Mean		SD	
Planning and Action	.85/**		10.75/**		2.74/**	
Sharing Emotions	.89/**		10.42/**		3.13/**	
Suppress. Competing Activit.	.60/.68		9.23/9.92		2.64/2.42	
Restraint Coping	.57/.72		8.62/10.28		2.58/2.53	
Instrumental Social Support	.81/.75		9.70/11.50		3.60/2.88	
Positive Reinterpretation	.69/**		10.74/**		1.01/**	
Growth	.67/**		12.99/**		.83/**	
Acceptance	.71/.65		11.04/11.84		3.09/2.56	
Religion	.94/.92		8.47/8.82		4.04/4.10	
Denial	.67/.71		5.71/6.07		2.13/2.37	
Behavioral Disengagement	.79/.63		5.74/6.11		2.39/2.07	
Mental Disengagement	.65/.45		7.17/9.66		2.66/2.46	

* Determined by oblique factor analysis completed on softball players' responses to the COPE.

** Carver et al (1989) numbers are unavailable because of differing a priori factor structure between the two studies.

one falling significantly below .6, and comparable to those found by Carver et al.

Table 5 also contains the means and standard deviations of the athletes' responses to each of the coping subscales. An examination of these means reveals a similarity to the types of coping styles used by the subjects in Carver et al.'s study of situational coping styles (1989).

Correlations among the COPE subscales (totals of the items comprising each scale) are displayed in Table 6. Once again, the correlations in the present study are similar to those in the original COPE development. These results suggest that the subscales are not strongly intercorrelated.

In summary, strong similarities exist between the factor loadings, scale means and reliabilities, and scale correlations of the responses in this investigation to those reported in Carver et al.'s work. Even though 4 factors were not identical to the COPE's a priori factor structure, the strength and pattern of factor loadings is very similar between the two studies. Based on these similarities, the 12-factor structure developed from the current responses (as opposed to the 13-factor a priori structure) will be used throughout the remaining statistical analyses.

Types of Coping Strategies Used by Collegiate Softball Players.

In the previous descriptive statistics section it was shown that overall, the athletes responded to the COPE in much the same way

Table 6
Pearson Product-Moment Correlations among COPE Subscales

COPE SCALES	1	2	3	4	5	6	7	8	9	10	11	12
1. Planning and Action	1.00	.25**	.59**	.18*	.35**	.32**	.32**	-.14	.28**	-.09	-.37**	-.05
2. Sharing Emotions		1.00	.18*	.28**	.56**	-.01	.08	.01	.02	.10	.19*	.29**
3. Suppression of Competing Activ.			1.00	.16	.31**	.14	.31**	-.14	.17	.02	-.22**	.04
4. Restraint Coping				1.00	.23**	.14	.12	.14	.19*	.13	.20*	.30**
5. Instrumental Social Support					1.00	.12	.07	.03	-.01	-.01	-.01	.04
6. Positive Reinterpretation						1.00	.33**	.33**	.25**	.04	-.07	.08
7. Growth							1.00	.07	.24**	.02	-.19*	.09
8. Acceptance								1.00	-.06	-.02	.19*	.05
9. Religion									1.00	.12	-.06	.13
10. Denial										1.00	.36**	.40**
11. Behavioral Disengagement											1.00	.36**
12. Mental Disengagement												1.00

* p ≤ .05

** p ≤ .01

as the college students used as subjects during the COPE's development. Further inspection of Table 5 shows the coping strategies most and least used by the players. Scores range from 4-16 for each factor.

The means in this table are adjusted for the number of questions in each factor. For example, the new COPE factors of planning and action and sharing emotions consist of 8 questions each and positive reinterpretation and growth consist of two questions each. In order to account for the differences in the number of questions per factor, the means were either multiplied or divided by two, depending on the circumstances. This adjustment allowed for all factors to be compared on a 4 item per factor basis.

Based on these adjustments, the most frequently used coping strategies included:

- (1) growth (adj. \underline{M} = 12.91; \underline{SD} = .8329);
- (2) acceptance (\underline{M} = 11.04, \underline{SD} = 3.09);
- (3) planning and action (adj. \underline{M} = 10.75, \underline{SD} = 3.00);
- (4) positive reinterpretation (adj. \underline{M} = 10.74, \underline{SD} = 1.01);
- (5) sharing emotions (adj. \underline{M} = 10.42, \underline{SD} = 3.49); and
- (6) instrumental social support (\underline{M} = 9.70, \underline{SD} = 3.60).

The least frequently used coping strategies included:

- (1) denial (\underline{M} = 5.71, \underline{SD} = 2.13);
- (2) behavioral disengagement (\underline{M} = 5.74, \underline{SD} = 2.39);
- (3) mental disengagement (\underline{M} = 7.17, \underline{SD} = 2.66); and
- (4) religion (\underline{M} = 8.47, \underline{SD} = 4.04).

Thus, the majority of the most frequently used coping strategies would be considered adaptive whereas the majority of the least frequently used coping strategies would be considered maladaptive. This supports the adjusted totals for adaptive and maladaptive coping strategy means. The adjusted total mean score for adaptive coping strategies equalled 10.15 whereas the adjusted total mean score for maladaptive coping strategies equalled 7.11. Examination of the adjusted total mean scores based on the problem-focused vs. emotion-focused coping dichotomy suggests that athletes engaged in emotion-focused coping strategies ($M= 9.88$) slightly more than they engaged in problem-focused coping strategies ($M= 8.53$).

Phase 2 - Relationships between Coping Strategies and Trait Anxiety

The purpose of the second phase of the investigation was to examine the relationships between coping strategies and trait anxiety. Pearson product-moment correlation coefficients were calculated between the 12 COPE subscales (total subscale scores as determined by the factor analysis of athletes' responses to the COPE), total trait anxiety, and the three trait anxiety subscales (cognitive trait anxiety, somatic trait anxiety, and concentration disruption) to determine the degree of relationship between these variables. To aid in understanding and summarizing coping strategies, previous research has grouped coping strategies in two ways: (1) maladaptive vs. adaptive coping strategies; and

(2) problem-focused vs. emotion-focused coping strategies. Thus, based on these coping strategy groupings, the 12 COPE subscales revealed in this research will be related to trait anxiety.

Relationships between maladaptive vs. adaptive coping strategies and trait anxiety. Overall, intercorrelations between the variables were low and in the expected directions (see Table 7). Positive ($p < .001$) relationships were found between total trait anxiety and maladaptive coping strategies (e.g., denial, behavioral disengagement, mental disengagement), with correlation coefficients ranging from $+0.19$ to $+0.27$. Thus, the hypothesis that maladaptive coping strategies would be positively correlated with total trait anxiety was supported although the correlations were low in magnitude.

Similar relationships were found between the subcomponents of trait anxiety and maladaptive coping strategies (See Table 7). Positive relationships ($p < .001$) were found between maladaptive coping strategies and the trait anxiety subcomponents of cognitive anxiety ($r = +0.156$ for denial; $r = +0.280$ for behavioral disengagement; $r = +0.171$ for mental disengagement) and concentration disruption ($r = +0.320$ for denial; $r = +0.385$ for behavioral disengagement; $r = +0.443$ for mental disengagement). The correlations between somatic trait anxiety and maladaptive coping strategies were also positive ($r = +0.128$ for denial; $r = +0.019$ for behavioral disengagement; $r = +0.028$ for mental disengagement), but they were not significant.

Table 7

Pearson Product-Moment Correlations among Adaptive and Maladaptive Coping Strategies, Total Trait Anxiety, and Trait Anxiety Subscales

ADAPTIVE COPING STRATEGIES	TOTAL TRAIT ANXIETY	COGNITIVE TRAIT ANXIETY	SOMATIC TRAIT ANXIETY	CONCENT. DISRUPT.
1. Planning and Action	-.07	-.11	.05	-.24**
2. Sharing Emotions	.17*	.19*	.12	.04
3. Suppression of Competing Activities	-.04	-.09	.04	-.10
4. Restraint Coping	.08	.05	.05	.13
5. Instrumental Social Support	-.05	-.02	-.02	-.10
6. Positive Reinterpretation	-.10	-.11	-.05	-.06
7. Growth	.01	-.08	.12	-.07
8. Acceptance	.03	.11	-.05	-.01
9. Religion	.17*	.12	.20*	-.02

MALADAPTIVE COPING STRATEGIES	TOTAL TRAIT ANXIETY	COGNITIVE TRAIT ANXIETY	SOMATIC TRAIT ANXIETY	CONCENT. DISRUPT.
10. Denial	.22**	.16	.13	.32**
11. Behavioral Disengagement	.23**	.28**	.02	.39**
12. Mental Disengagement	.19**	.17*	.03	.44**

* $p \leq .05$

** $p \leq .01$

Correlations between specific adaptive coping strategies (i.e., planning and action, suppression of competing activities, instrumental social support, positive reinterpretation) and total trait anxiety were negative and thus in the hypothesized direction. Analysis of the trait anxiety subcomponent correlations reveals a similar trend with a significant negative relationship ($p < .001$) existing between concentration disruption and the new planning and action COPE factor.

Correlations between other a priori adaptive coping strategies (i.e., restraint, acceptance, religion, and growth) and total trait anxiety were positive. These relationships were not in the expected direction, thus this portion of Hypothesis 2 was not supported. In terms of the subcomponents of trait anxiety, a positive relationship ($r = .174$, $p < .001$) was found between trait cognitive anxiety and the new COPE factor of dealing with emotions.

Relationships between problem-focused vs. emotion-focused coping strategies and trait anxiety. Overall, intercorrelations between the variables were low and in the expected directions (see Table 8). Positive relationships were found between total trait anxiety and two of three emotion-focused coping strategies (i.e., sharing emotions [$p < .001$] and growth). Thus, the hypothesis that emotion-focused coping strategies would be positively correlated with total trait anxiety was supported. A positive relationship

Table 8

Pearson Product-Moment Correlations among Problem-Focused and Emotion-Focused Coping Strategies, Total Trait Anxiety, and Trait Anxiety Subscales

EMOTION-FOCUSED COPING STRATEGIES	TOTAL TRAIT ANXIETY	COGNITIVE TRAIT ANXIETY	SOMATIC TRAIT ANXIETY	CONCENT. DISRUPT.
1. Sharing Emotions	.17**	.19*	.12	.04
2. Positive Reinterpretation	-.10	-.11	-.05	-.06
3. Growth	.01	-.08	.12	-.07
PROBLEM-FOCUSED COPING STRATEGIES	TOTAL TRAIT ANXIETY	COGNITIVE TRAIT ANXIETY	SOMATIC TRAIT ANXIETY	CONCENT. DISRUPT.
4. Planning and Action	-.07	-.11	.05	-.24**
5. Suppression of Competing Activities	-.04	-.09	.04	-.10
6. Restraint Coping	.08	.05	.05	.13
7. Instrumental Social Support	-.05	-.02	-.02	-.10

* $p \leq .05$

** $p \leq .01$

($r = .19$, $p < .001$) was also found between the trait anxiety subcomponent of cognitive anxiety and sharing emotions. The relationship between the emotion-focused coping strategy of positive reinterpretation was negative and thus in an unexpected direction.

Correlations between three of the four problem-focused coping strategies (i.e., planning and action, suppression of competing activities, and instrumental social support) and total trait anxiety were negative and thus in the hypothesized direction. Moreover, the relationship between the trait anxiety subcomponent of concentration disruption and the new planning and action COPE factor was negative ($r = -.24$, $p < .001$). Correlations between other problem-focused coping strategies (i.e., restraint) and total trait anxiety were positive. This relationship was not in the expected direction, thus this portion of Hypothesis 2 was not supported.

Phase 3 - Relationships between Coping Strategies and Softball Performance

The purpose of the third phase of the study was to examine the role that coping strategies have on an athlete's performance. To reiterate, batting performance was calculated as the mean of the athlete's batting average, slugging percentage, and on-base percentage. Standard fielding percentages were used as the second criterion variable. Two, stepwise linear multiple

regression analyses (one using batting and a second using fielding as criterion variables) were calculated with the 12 COPE factor scores (planning and action, sharing emotions, suppression of competing activities, instrumental social support, restraint, acceptance, positive reinterpretation, growth, religion, denial, behavioral disengagement and mental disengagement) serving as predictor variables.

Batting performance. The regression equation examining coping strategies as predictors of batting performance was significant, $F(1, 137) = 5.74, p < .05$, accounting for 3.32% of batting performance variance. Inspection of Table 9 reveals that the maladaptive coping strategy of mental disengagement was the only significant predictor of batting performance ($\beta = -.200$), indicating that softball players who used mental disengagement as a coping strategy had poorer batting performances than softball players who did not mentally disengage.

Fielding average. The regression equation examining coping strategies as predictors of fielding average was significant, $F(1, 132) = 9.99, p < .01$, accounting for 6.33% of fielding average variance. Furthermore, an examination of Table 10 reveals that the maladaptive coping strategy of denial was the only significant predictor of fielding average ($\beta = -.265$), indicating that softball players who used denial as a coping strategy had poorer fielding averages than softball players who did not use denial.

Table 9

Multiple Regression Predictors of Batting Performance

COPING STRATEGY	Beta	t	p
Mental Disengagement	-.200	-2.40	.018
Religion	--	--	--
Growth	--	--	--
Acceptance	--	--	--
Restraint Coping	--	--	--
Suppression of Competing Activities	--	--	--
Behavioral Disengagement	--	--	--
Planning and Action	--	--	--
Positive Reinterpretation	--	--	--
Denial	--	--	--
Sharing Emotions	--	--	--
Instrumental Social Support	--	--	--

$F(1,137) = 5.74, p < .05$

$R^2 = .040, \text{Adjusted } R^2 = .033$

Table 10

Multiple Regression Predictors of Fielding Average

COPING STRATEGY	Beta	t	p
Denial	-.265	-3.16	.001
Restraint Coping	--	--	--
Religion	--	--	--
Growth	--	--	--
Acceptance	--	--	--
Positive Reinterpretation	--	--	--
Suppression of Competing Activities	--	--	--
Planning and Action	--	--	--
Sharing Emotions	--	--	--
Instrumental Social Support	--	--	--
Behavioral Disengagement	--	--	--
Mental Disengagement	--	--	--

$F(1,132) = 9.99, p < .001$

$R^2 = .070, \text{Adjusted } R^2 = .063$

Phase 4 - Discriminating between More and Less Effective Copers

The purpose of the fourth phase of the study was to identify anxiety levels, types of coping strategies, performance variables, and other coping characteristics that discriminated between more and less effective copers. To recall, two assessments of coping effectiveness were measured, one made by the athlete and one made by the coach. Although significant, a low correlation was found between the athlete and coach coping effectiveness ratings ($r = +.351$, $p < .01$), therefore, separate discriminant functions were calculated for each of the effectiveness ratings.

Because the purpose of this phase of the study was to examine differences between more and less effective copers, the data sets (based on athlete and coach effectiveness ratings) were grouped to achieve maximum differences in coping effectiveness. Analysis of frequency data for the coping effectiveness ratings suggested a bimodal distribution for both data sets, with a decline in frequency occurring in athletes with scores at the median (See Appendix H). Therefore, in an attempt to maximize group differences, all athletes whose coping effectiveness scores equalled the median were dropped from the data set for the discriminant function analyses. The median for both athlete ratings and coach ratings of coping effectiveness equalled seven, thus nineteen athletes with ratings at the median were not included in each data set. This method of achieving maximum

differences was considered the most advantageous in terms of maintaining a meaningful sample size while still maximizing any differences between the groups (T. Martinek, personal communication, March 2, 1993).

Discriminant function based on coach assessment of coping effectiveness. Four stepwise discriminant function analyses were conducted using coach assessment of coping effectiveness as the discriminating variable. The aforementioned data preparation yielded 55 softball players who were deemed to be less effective copers and 74 softball players assessed as more effective copers. Predictor variables for the four separate discriminant function analyses included: (1) three trait anxiety subcomponents (cognitive anxiety, somatic anxiety, concentration disruption); (2) twelve COPE factors (action and planning, sharing emotions, suppression of competing activities, restraint, instrumental social support, positive reinterpretation, growth, acceptance, religion, denial, behavioral disengagement, and mental disengagement); (3) two performance measures (batting performance and fielding average); and (4) two exploratory variables examining coping automaticity/effort.

The first discriminant function based on coach assessment of coping effectiveness using trait anxiety subcomponents as predictor variables was significant (Wilks' lambda = .95, $X^2(2) =$

6.06, $p < .05$). Examination of the standardized discriminant function coefficients and univariate t-tests depicted in Table 11 shows that cognitive trait anxiety and somatic trait anxiety contributed the most to the between group differences in coach's assessment of coping effectiveness. More specifically, the most important discriminating variable between more and less effective copers was cognitive trait anxiety (standardized discriminant coefficient = 1.13). Classification results revealed that 59.6% of the cases could be correctly classified.

The second discriminant function based on coach assessment of coping effectiveness using COPE scores as predictor variables was significant (Wilks' lambda = .84, $X^2(5) = 21.34$, $p < .001$). Examination of the standardized discriminant function coefficients and univariate t-tests depicted in Table 12 shows that sharing emotions, behavioral disengagement, turning to religion, positive reinterpretation, and restraint coping contributed the most to the between group differences in coach's assessment of coping effectiveness. More specifically, the most important discriminating variable between more and less effective copers was sharing emotions (standardized discriminant coefficient = .67). Classification results revealed that 66.0% of the cases could be correctly classified.

The third discriminant function based on coach assessment of coping effectiveness using softball performance measures as

Table 11

Discriminant Function Analysis based on Coach's Assessment of Coping Effectiveness as Discriminant and Trait Anxiety Subcomponents as Predictor Variables and Variable Means of Copers Rated as Effective and Ineffective

VARIABLE	Standardized Disc. Coeff.	F	p	EFFECT. COPERS	INEFFECT. COPERS
Cognitive Trait Anxiety	1.280	4.09	.05	14.8	16.5
Somatic Trait Anxiety	-.669	.11	.74	17.5	17.2

Wilks' Lambda = .95, $X^2(2) = 6.06$, $p < .05$

Table 12

Discriminant Function Analysis based on Coach's Assessment of Coping Effectiveness as Discriminant and COPE scores as Predictor Variables and Variable Means of Copers Rated as Effective and Ineffective

VARIABLE	Standardized Disc. Coeff.	F	p	EFFECT. COPERS	INEFFECT. COPERS
Sharing Emotions	.674	9.80	.01	18.9	22.3
Behavioral Disengagement	.527	6.72	.01	5.1	6.2
Turning to Religion	.511	2.17	.14	7.6	8.6
Positive Reinterpretation	-.434	2.42	.12	5.6	5.1
Restraint Coping	-.290	.01	.91	8.3	8.4

Wilks' Lambda = .84, $X^2(5) = 21.34$, $p < .001$

predictor variables was significant (Wilks' lambda = .96, $X^2(1) = 5.32$, $p < .05$). Examination of the standardized discriminant function coefficients and univariate t-tests depicted in Table 13 shows that fielding average contributed the most to the between group differences in coach's assessment of coping effectiveness. Classification results revealed that 57.5% of the cases could be correctly classified.

The fourth discriminant function based on coach assessment of coping effectiveness using coping automaticity/effort ratings as predictor variables was significant (Wilks' lambda = .55, $X^2(1) = 75.54$, $p < .0001$). Examination of the standardized discriminant function coefficients and univariate t-tests depicted in Table 14 shows that the coach's assessment of the athlete's coping automaticity or effort to cope contributed the most to the between group differences in coach's assessment of coping effectiveness. Classification results revealed that 84.45% of the cases could be correctly classified.

In summary, examination of the means for those variables found to significantly discriminate between more and less effective copers suggests that athletes rated by their coaches as more effective copers:

- (1) have significantly lower cognitive trait anxiety ($\underline{M} = 14.8$ vs. 16.5) and slightly higher somatic trait ($\underline{M} = 17.9$ vs. 17.1);
- (2) focus on and share their emotions less ($\underline{M} = 18.9$ vs. 22.3);

Table 13

Discriminant Function Analysis based on Coach's Assessment of Coping Effectiveness as Discriminant and Softball Performance Measures as Predictor Variables and Variable Means of Copers Rated as Effective and Ineffective

VARIABLE	Standardized Disc. Coeff.	F	p	EFFECT. COPERS	INEFFECT. COPERS
Fielding Average	1.00	5.45	.05	952.6	913.2

Wilks' Lambda = .96, $X^2(1) = 5.32$, $p < .05$

Table 14

Discriminant Function Analysis based on Coach's Assessment of Coping Effectiveness as Discriminant and Coping Automaticity/Effort Ratings as Predictor Variables and Variable Means of Copers Rated as Effective and Ineffective

VARIABLE	Standardized Disc. Coeff.	F	p	EFFECT. COPERS	INEFFECT. COPERS
Coach Assessment of Coping Automaticity/Effort	1.00	103.7	.001	8.3	4.8

Wilks' Lambda = .55, $X^2(1) = 75.54$, $p < .0001$

- (3) engage in less behavioral disengagement (\underline{M} = 5.1 vs. 6.2);
- (4) turn to religion less (\underline{M} = 7.6 vs. 8.6);
- (5) use more positive reinterpretation (\underline{M} = 5.6 vs. 5.1),
- (6) use restraint coping to a slightly lesser extent (\underline{M} = 8.3 vs. 8.4)
- (7) have a significantly higher fielding average (\underline{M} = 952.6 vs. 913.18) and a slightly higher batting performance average (\underline{M} = 302.5 vs. 284.6);
- (8) have coping skills (as rated by the coach) that are more automatized and require less conscious effort than those of less effective copers (\underline{M} = 8.27 vs 4.84).

Discriminant function based on athlete assessment of coping effectiveness. A second group of four, stepwise discriminant function analyses was conducted using athlete assessment of coping effectiveness as the discriminating variable. The aforementioned data preparation yielded 82 softball players who were deemed to be less effective copers and 47 softball players assessed as more effective copers. Predictor variables for the four separate discriminant function analyses included: (1) three trait anxiety subcomponents (cognitive anxiety, somatic anxiety, concentration disruption); (2) twelve COPE factors (action and planning, sharing emotions, suppression of competing activities, restraint, instrumental social support, positive reinterpretation, growth, acceptance, religion, denial, behavioral disengagement, and mental disengagement); (3) two performance measures

(batting performance and fielding average); and (4) two exploratory variables examining coping automaticity/effort.

The first discriminant function based on athlete assessment of coping effectiveness using trait anxiety subcomponents as predictor variables was significant (Wilks' lambda = .91, $X^2(1) = 12.42$, $p < .001$). Examination of the standardized discriminant function coefficients and univariate t-tests depicted in Table 15 shows that cognitive trait anxiety contributed the most to the between group differences in athlete's assessment of coping effectiveness. Classification results revealed that 57.1% of the cases could be correctly classified.

The second discriminant function based on athlete assessment of coping effectiveness using COPE scores as predictor variables was significant (Wilks' lambda = .80, $X^2(8) = 26.7$, $p < .001$). Examination of the standardized discriminant function coefficients and univariate t-tests depicted in Table 16 shows that sharing emotions, positive reinterpretation, restraint coping, turning to religion, behavioral disengagement, instrumental social support, growth, and mental disengagement contributed the most to the between group differences in athlete's assessment of coping effectiveness. More specifically, the most important discriminating variable between more and less effective copers was sharing emotions (standardized discriminant coefficient = .73).

Table 15

Discriminant Function Analysis based on Athlete's Assessment of Coping Effectiveness as Discriminant and Trait Anxiety Subcomponents as Predictor Variables and Variable Means of Copers Rated as Effective and Ineffective

VARIABLE	Standardized Disc. Coeff.	F	p	EFFECT. COPERS	INEFFECT. COPERS
Cognitive Trait Anxiety	1.00	13.10	.001	16.9	13.8

Wilks' Lambda = .91, $X^2(1) = 12.42$, $p < .001$

Table 16

Discriminant Function Analysis based on Athlete's Assessment of Coping Effectiveness as Discriminant and COPE scores as Predictor Variables and Variable Means of Copers Rated as Effective and Ineffective

VARIABLE	Standardized Disc. Coeff.	F	p	EFFECT. COPERS	INEFFECT. COPERS
Sharing Emotions	.727	7.89	.01	18.8	22.0
Positive Reinterpretation	-.539	3.71	.05	5.7	5.1
Restraint Coping	-.437	.26	.61	8.6	8.3
Turning to Religion	.434	2.20	.14	7.5	8.6
Behavioral Disengagement	.420	6.02	.01	5.1	6.2
Instrumental Social Support	-.298	.00	.94	9.7	9.8
Growth	.282	.09	.75	6.4	6.5
Mental Disengagement	.238	4.58	.05	6.5	7.5

Wilks' Lambda = .80, $X^2(8) = 26.72$, $p < .001$

Classification results revealed that 73.0% of the cases could be correctly classified.

The third discriminant function based on athlete assessment of coping effectiveness using softball performance measures as predictor variables was significant (Wilks' lambda = .95, $X^2(1) = 7.01$, $p < .01$). Examination of the standardized discriminant function coefficients and univariate t-tests depicted in Table 17 shows that batting performance contributed the most to the between group differences in athlete's assessment of coping effectiveness. Classification results revealed that 56.8% of the cases could be correctly classified.

The fourth discriminant function based on athlete assessment of coping effectiveness using coping automaticity/effort ratings as predictor variables was significant (Wilks' lambda = .88, $X^2(1) = 15.9$, $p < .0001$). Examination of the standardized discriminant function coefficients and univariate t-tests depicted in Table 18 shows that the coach's assessment of the athlete's coping automaticity or effort to cope contributed the most to the between group differences in athlete's assessment of coping effectiveness. Classification results revealed that 68.0% of the cases could be correctly classified.

In summary, examination of the means for those variables found to significantly discriminate between more and less

Table 17

Discriminant Function Analysis based on Athlete's Assessment of Coping Effectiveness as Discriminant and Softball Performance Measures as Predictor Variables and Variable Means of Copers Rated as Effective and Ineffective

VARIABLE	Standardized Disc. Coeff.	F	p	EFFECT. COPERS	INEFFECT. COPERS
Batting Performance	1.00	7.24	.01	323.7	274.4

Wilks' Lambda = .95, $X^2(1) = 7.01$, $p < .01$

Table 18

Discriminant Function Analysis based on Athlete's Assessment of Coping Effectiveness as Discriminant and Coping Automaticity/Effort Ratings as Predictor Variables and Variable Means of Copers Rated as Effective and Ineffective

VARIABLE	Standardized Disc. Coeff.	F	p	EFFECT. COPERS	INEFFECT. COPERS
Coach Assessment of Coping Automaticity/Effort	1.00	19.68	.0001	7.6	5.6

Wilks' Lambda = .88, $X^2(1) = 15.96$, $p < .0001$

effective copers suggests suggests that athletes who rate themselves as more effective copers:

- (1) have lower cognitive trait anxiety (\underline{M} = 13.8 vs. 16.9);
- (2) focus on and share their emotions less (\underline{M} = 18.8 vs. 22.0);
- (3) utilize more positive reinterpretation (\underline{M} = 5.7 vs. 5.1);
- (4) use slightly more restraint coping (\underline{M} = 8.6 vs. 8.3);
- (5) turn to religion less (\underline{M} = 7.5 vs. 8.6)
- (6) engage in less behavioral disengagement (\underline{M} = 5.1 vs. 6.2);
- (7) use slightly less instrumental social support (\underline{M} = 9.77 vs. 9.82)
- (8) use slightly fewer growth coping strategies ((\underline{M} = 6.4 vs. 6.5)
- (9) engage in less mental disengagement (\underline{M} = 6.5 vs. 7.5);
- (10) have a better batting performance (\underline{M} = 323.7 vs. 274.4); and
- (11) have coping skills that are more automatized and require less conscious effort than those of less effective copers (\underline{M} = 7.6 vs. 5.6);

CHAPTER IV

DISCUSSION

The present study examined the relationships between coping strategies, trait anxiety, and softball performance. Support was found for the hypothesis that athletes would use a variety of coping strategies to cope with a self-perceived stressful situation. The majority of relationships between trait anxiety and coping strategies were in the expected directions, although most of the correlations were low in magnitude. Two specific maladaptive coping strategies (mental disengagement and denial) were found to predict batting and fielding performance, respectively. Lastly, selected coping strategies, anxiety levels, and coping attributes were found to discriminate between more and less effective copers. Each of these major findings will be discussed below.

Coping Strategies

The first purpose of this study was to examine the coping strategies used by collegiate softball players in dealing with a self-perceived stressful situation. Examination of the means scores for each of the 12 COPE factors indicated the athletes sampled in this investigation used a number of diverse coping strategies to deal with softball related stress. Moreover, athletes

did not rely solely on one method of coping but instead used a diverse group of strategies as evidenced by the means for each of the COPE subscales. This finding is consistent with general psychology research on coping strategies (e.g., Carver et al., 1989; Compas, 1987; Folkman & Lazarus, 1985) as well as current sport psychology research on coping and athletes (e.g., Gould, Eklund, & Jackson, 1993; Gould, Finch, & Jackson, 1993). The present results, coupled with those in the extant literature, suggest that the coping process is more complex and multifaceted than previously thought.

The collegiate softball players in this sample were also found to use both adaptive and maladaptive coping strategies to deal with stressful situations they encountered throughout the course of the collegiate softball season. For example, the softball players used adaptive coping strategies such as planning and action, positive reinterpretation, and instrumental social support. Additionally, maladaptive coping strategies such as behavioral and mental disengagement and denial were also used to cope with self-perceived stress. An examination of the mean subscale scores further suggests that the athletes used adaptive coping strategies to a greater extent than they used maladaptive coping. For each COPE subscale, adjusted mean scores could range from four (didn't do a lot) to twelve (did a lot). The mean score for all adaptive coping strategies equalled 10.15 whereas the mean scores for all

maladaptive coping strategies equalled 7.11 indicating adaptive coping strategies were used more frequently than maladaptive coping strategies.

The use of both types of strategies was consistent with the work of Carver and his colleagues (1989) which suggested that individuals use both adaptive and maladaptive forms of coping to deal with stressors. Moreover, these results also support the recent, qualitative work of Gould and his colleagues (Gould, Finch, & Jackson, 1993) which suggested that some athletes engage in maladaptive, or dysfunctional, coping methods such as mental disengagement, isolation (or behavioral disengagement), excessive alcohol use, or bulimic behavior to ameliorate the debilitating effects of stress in the athletic environment. Unfortunately, the instrument used in the present investigation did not assess all the possible maladaptive coping strategies (e.g. substance abuse) identified by Gould, Finch, and Jackson (1993). Hence, the degree of usage of these types of maladaptive strategies was unknown in this sample.

Some of the coping strategies used by the athletes in this sample could also be classified as emotion-focused or problem-focused. This was consistent with the coping strategy research of Folkman and Lazarus (1984). That is, some coping strategies such as sharing emotions, positive reinterpretation, and growth were used to cope with the emotional responses that resulted from

experiencing a stressful situation. Conversely, other coping strategies were more problem-focused in orientation. Problem-focused coping strategies such as planning and action, suppression of competing activities, and instrumental social support focused on dealing with the stressful situation itself and developing methods to avoid, change, or alleviate it. An examination of the mean subscale scores suggests that the athletes used emotion-focused coping strategies to a slightly greater extent than they used problem-focused coping strategies. This could be due to the sample which consisted entirely of females. Research suggests that females are more likely to engage in emotional responses than men (Hobfoll & Dunohoo, 1992).

In interpreting the present findings, it must be recognized that Carver et al. (1989) based their conceptual groupings of adaptive and maladaptive coping strategies on the ways in which the COPE subscales intercorrelated. The strength of this method of grouping is that it provided statistically meaningful information about clusters of coping strategies for the entire sample in the original COPE study (all correlations greater than .09 were significant at the .01 level). Its weakness, however, is that it did not offer information about how individuals interpreted each question on the COPE.

For example, the utility or usefulness of a coping strategy often depends on how an individual appraises a stressful situation and

the individual's skill in utilizing that particular coping strategy. Thus, in some cases, the coping strategy of acceptance may be considered adaptive if the situation is beyond an individual's control. But, in other cases, acceptance may be considered maladaptive if, in fact, the individual can do something to cope with or somehow change the stressor. As the example above indicates, how an individual appraises a situation is a contributing factor in whether the selected coping strategy(ies) is (are) adaptive or maladaptive. Because of this, it was difficult to determine if the coping strategies identified by the athletes in this sample fit neatly into an adaptive or maladaptive category or an emotion or problem-focused category.

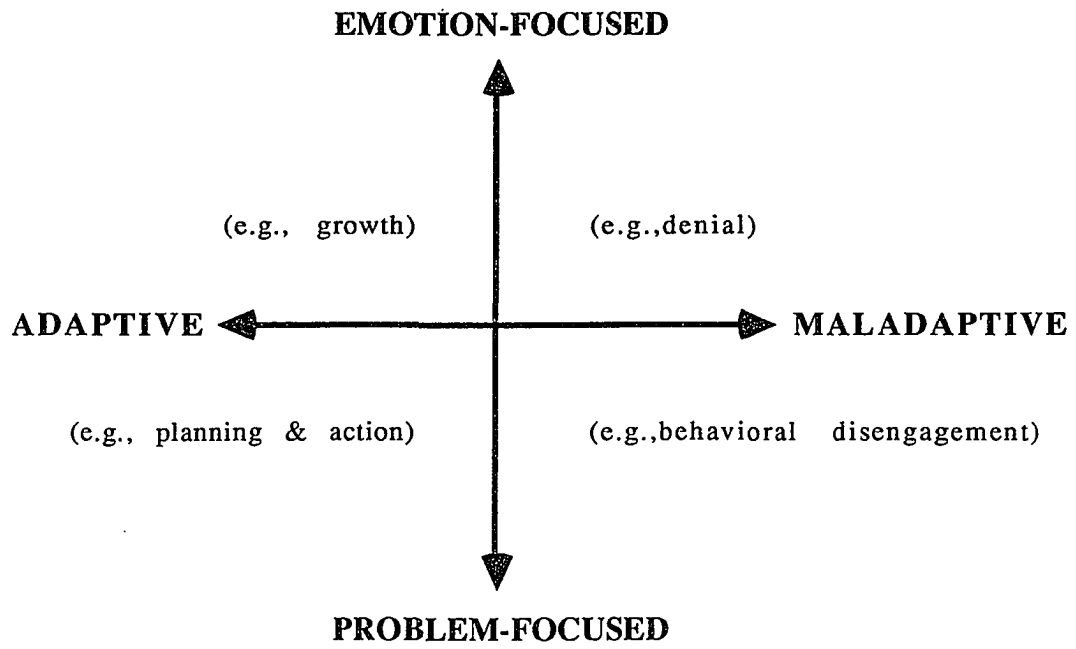
Concurrent with the research of Carver and his colleagues (1989) and with the previous discussion regarding interpretation and appraisal of the stressful situation, it was also difficult to classify all coping strategies as either emotion-focused or problem-focused. For example, some athletes may turn to religion as a source of emotional support; thus, in this case, it would be considered an emotion-focused coping strategy. Conversely, other athletes may turn to religion as a way of actively coping with a stressor; thus, in this case religion would be considered a problem-focused coping strategy.

This investigation suggests that coping is a complex process. Athletes can be striving simultaneously to manage both the

stressful environment and regulate distressful emotions in both adaptive and maladaptive ways. This was also the case in the work of Gould and his colleagues (Gould, Eklund, & Jackson, 1993; Gould, Finch, & Jackson, 1993). For example, in some cases the same coping strategy (e.g., sharing emotions) was used to vent emotions (emotion-focused, maladaptive) and to get emotional social support (problem-focused, adaptive). Thus, how the coping strategy would be grouped is dependent on the individual's appraisal of the stressful situation and his or her intent in selecting the particular coping strategy.

This difficulty in classifying coping strategies supports the contention that while the distinction between problem-focused and emotion-focused coping is an important one, it may be too simplistic (Carver et al., 1989) to fully illuminate the complexities of the coping process. Thus, the bipolar dichotomies of emotion- and problem-focused coping and adaptive vs. maladaptive coping may be underdeveloped. Perhaps a better understanding of the coping process can be achieved by bisecting the two continua (emotion vs problem-focused and adaptive vs. maladaptive) thus forming 4 quadrants (See Figure 3). These four quadrants would allow for coping strategies that encompass aspects of both coping dichotomies. Thus, coping strategies could be thought of as

Figure 3. Alternative coping strategy continua



adaptive/emotion-focused, adaptive/problem-focused, maladaptive/emotion-focused, or maladaptive/problem-focused.

While these quadrants may not fully encompass the plethora of coping strategies individuals use, they provide a broader understanding of coping than the bipolar continua previously offered. Figure 3 demonstrates this concept. For example, the coping strategies of growth and planning and action are both located in the adaptive plane and are generally considered adaptive coping strategies. However, growth is in the emotion-focused quadrant whereas planning and action is located in the problem-focused quadrant. An additional example is located in the maladaptive plane; both denial and behavioral disengagement are considered maladaptive coping strategies. However, denial is considered an emotion-focused coping strategy whereas behavioral disengagement is in the problem-focused quadrant. The key to understanding which quadrant a particular coping strategy is in lays in the understanding of the context in which the coping strategies are being used.

Analyzing coping strategies through a model such as that presented in Figure 3 suggests that future investigations utilizing the COPE may need to modify the COPE's directions. Moreover, the inclusion on the COPE of additional ways in which respondents can identify their intent when they used a particular coping strategy and the degree to which the stressful situation was controllable

may be beneficial for research purposes. For example, respondents could indicate whether they felt the coping strategy helped or hindered the situation, or whether the coping strategy was adopted to tackle the problem or manage the emotional response to the stressor. This type of information will help researchers further their understanding of the coping process by learning more about the subjects' appraisal of the stressful situation and their intended purpose in selecting a particular coping strategy.

Relationships between Coping Strategies and Trait Anxiety

The purpose of the second phase of the investigation was to examine the relationships between coping strategies and trait anxiety. High trait anxiety was found to be positively associated with a tendency to utilize maladaptive coping strategies and emotion-focused coping strategies when experiencing a stressful situation. Conversely, low trait anxious individuals were more likely to engage in adaptive coping strategies and problem-focused coping strategies than individuals who reported high levels of trait anxiety, particularly cognitive trait anxiety. Although the magnitude of these correlations was low, these results provide support for previous research which found that high trait anxious individuals were more preoccupied with distress emotions when under stress and responded to these

distress emotions with maladaptive coping strategies (Carver et al., 1989).

Carver and his colleagues (1989) suggest that high trait anxiety may be related to an unwillingness to engage in active coping and a tendency to disengage from goals (via behavioral and/or mental disengagement). In addition, the high trait anxiety of these individuals may impair their ability to engage in adaptive coping strategies. The results of the present investigation parallel this previous research and suggest that individuals with higher trait anxiety were less likely to engage in adaptive coping strategies.

Two possible explanations can be forwarded for this relationship between high anxiety and maladaptive coping strategies. Wine (1980) suggested that trait anxiety, particularly cognitive trait anxiety, inhibits performance via disruptions in the athlete's attentional process. Thus, when athletes have high amounts of cognitive anxiety and worry, they focus their attention on themselves (i.e., engage in the coping strategy of mental disengagement) rather than focusing their attention on the task at hand (e.g., planning and action coping).

Easterbrook's (1959) cue-utilization theory also helps to explain the relationship between high anxiety levels and the choice of maladaptive coping strategies. This theory suggests that high levels of anxiety limit an individual's range of attentional focus. In addition, Nideffer (1985) suggests that athletes with

high anxiety levels have difficulty in controlling distractions and negative thought. Thus, if an athlete's attentional focus is limited due to high trait anxiety, he or she pays less attention to task-relevant cues. Therefore, high trait anxious athletes may focus on cues that are unrelated to adaptive coping such as behavioral or mental disengagement rather than focus on adaptive coping strategies such as action and planning which require attention to task-relevant cues.

Relationships between Coping Strategies and Softball Performance

The purpose of the third phase of the study was to examine the role that coping strategies have on an athlete's performance. The multiple regression analyses were significant. However, the models predicting softball performance only accounted for 3.3% to 6.3% of the variance in batting performance and fielding averages.

Regardless of the small amount of accounted variance, evidence was found suggesting that the use of one or two maladaptive coping strategies may adversely influence batting and fielding performance. For example, the maladaptive coping strategy of mental disengagement was the only significant predictor of batting performance. This result suggests that softball players who used mental disengagement (e.g., daydream about things other than this, turn to school to take my mind off things) as a coping strategy had poorer batting performances than softball players who did not mentally disengage.

The maladaptive coping strategy of denial was the only significant predictor of fielding average. This result indicated that softball players who used denial (e.g., refusing to believe that this [the stressful situation] is happening, acting as though it hasn't even happened) as a coping strategy had poorer fielding averages than softball players who did not use denial. Interestingly, both mental disengagement and denial were positively correlated ($p < .001$) with anxiety suggesting that athletes with higher anxiety levels are more likely to engage to mental disengagement and denial as coping strategies.

These results may have implications for understanding and improving anxiety management and, in turn, athletic performance. Even though the links between choice of coping strategy and performance were statistically weak in this investigation, coping may be linked to performance through its relationship with trait anxiety levels (as well as state anxiety levels which were not measured in this investigation). Throughout this investigation, functional and adaptive coping strategies (e.g., planning and action, instrumental social support, positive reinterpretation) were positively linked with low anxiety trait. In previous research, low anxiety has been shown to be beneficial to athletic performance (e.g., Burton, 1988; Gould, Petlichkoff, Simons, & Vevera, 1987; Highlen & Bennett, 1979; Mahoney & Avenier, 1977; Weinberg &

Genuchi, 1980); athletes with lower anxiety levels perform better than athletes with higher trait anxiety.

Thus, it stands to reason that the use of maladaptive coping strategies may be linked to worse performances, even if only to a small degree. In this sample, athletes who used maladaptive coping strategies (i.e., denial and mental disengagement) had worse softball performances (based on fielding and hitting measures) than athletes who engaged in these maladaptive strategies to a lesser degree. Therefore, this research may suggest that the performances of athletes who use maladaptive coping strategies, particularly those athletes with high trait anxiety, may benefit from the incorporation of adaptive coping strategies, as well as stress management techniques such as relaxation and attention training, into their repertoire of coping skills.

Discriminating between More and Less Effective Copers

The purpose of the fourth phase of the study was to identify anxiety levels and types of coping strategies that discriminated between more and less effective copers. The discriminant function coping effectiveness classification results (based on coach ratings) demonstrated that coping effectiveness can be predicted in 59.6% of the cases by knowing the athlete's cognitive trait anxiety levels, in 66.0% of the cases by knowing the athlete's coping scores on sharing emotions, behavioral disengagement, turning to religion, positive reinterpretation, and restraint coping,

in 57.5% of the cases by knowing the athlete's fielding average, and in 84.5% of the cases by knowing the athlete's coping automaticity or effort score.

The second discriminant function coping effectiveness classification results (based on athlete ratings) demonstrated that coping effectiveness can be predicted in 57.1% of the cases by knowing the athlete's cognitive trait anxiety, in 73.0% of the cases by knowing the athletes coping scores on sharing emotions, positive reinterpretation, restraint coping, turning to religion, behavioral disengagement, instrumental social support, growth, and mental disengagement, in 56.8% of the cases by knowing the athlete's batting average, and in 68.0% of the cases by knowing the athlete's coping automaticity or effort score. Overall, these results suggest that a profile of more effective copers includes low trait anxiety, particularly cognitive anxiety, high use of adaptive coping strategies, low use of maladaptive coping strategies, better batting and fielding performances, higher self-ratings of coping ability, and more automated, less effortful coping skills.

The significant differences in coping automaticity (or effort to cope) between more and less effective copers (and consequently more and less effective performers on the softball field) parallel those found in the existing sport psychology literature. Gould and his colleagues (Gould, Eklund, & Jackson, 1993) found that salient differences in Olympic wrestlers' ability to cope with stress were

related to the extent to which the athlete's coping strategies were internalized and well-practiced. The wrestlers who earned medals at the Olympic Games (a measure of performance success) were found to have their coping strategies so well learned they did not have to consciously engage them when faced with stressful situations. The coping strategies of nonmedalists were not as well developed or internalized thus it took greater effort for them to cope with stressors they faced. Moreover, the automatized coping responses of the Olympic medalists seemed to act as buffers to adversity because the stress was dealt with immediately (via well-developed and automated coping strategies) before the stress had a chance to lead to negative, performance-impairing consequences.

These results demonstrating that athletes with better performances have more automatized coping skills than athletes with lower levels of performance have important ramifications for sport psychology consultations and teaching sport psychology skills to athletes. This investigation suggests that for better performance, coping skills should be well learned and require little conscious effort on the part of the athlete. Thus, coping skills should be automatically engaged when an athlete encounters a stressful situation; the coping skills should be deeply ingrained habits.

Therefore, sport psychology consultants should focus their efforts on having athletes learn and practice performance enhancement techniques and coping skills to such an extent that the skills are automatized (or "overlearned"). Athletes should practice coping skills in a variety of nonstressful and stressful situations until the coping strategies become well ingrained habits. Learning and practicing the coping skills in this hierarchical fashion may help to ensure the coping skills will be automatically engaged with little conscious effort when the athlete requires them during a stressful situation.

It is important to note that these conclusions regarding automaticity are drawn on correlational data. No causal links can be made because experimental manipulations were not conducted in this investigation. However, the differences in softball performances between effective and less effective copers were significant with more effective copers being defined by higher degrees of coping automaticity. These descriptive results provide a stable base for future research in this area.

Finally, it must be recognized that the coping automaticity and conscious effort results are in disagreement with the propositions of Lazarus and Folkman (1984) that suggested that an understanding of coping must be limited to effortful or purposeful reactions to stress. However, the current results and the concepts of coping automaticity and effort correspond with Compas (1987)

who suggested that some purposeful responses to stress may become automatic over time and repetition. Compas (1987) further suggests that although these types of coping strategies are no longer under conscious control, they would still be considered planned adaptive behavior. This planned adaptive behavior, which has become automatic, continues to serve a coping purpose for the athlete. For example, effective copers may no longer need to actively use positive reinterpretation to deal with stressful situations. With time and practice, these more effective copers have learned to automatically reinterpret stressful events in a positive framework.

Changes Needed in the Assessment of Coping

Traditional definitions of coping have focused on coping as a ongoing process (Lazarus & Folkman, 1984). However, this process approach to coping (which ideally requires a contextual analysis of stressful situations) makes it difficult to conceptualize and measure a person's overall coping style. A variety of contextual factors (e.g., anxiety levels, perceived degree of control, importance of event) interact to determine what type of coping strategy an individual may select in any given situation. Indeed, this investigation suggested that anxiety levels are significantly related to coping strategies. High trait anxiety levels were positively correlated with the use of maladaptive coping strategies

suggesting that other factors are related to an individual's choice of coping strategies.

To take into consideration such process factors, efforts to identify the appraised meaning of stressful situations must be undertaken (Lazarus & Folkman, 1984). Understanding stress appraisal and related coping strategies would increase our theoretical understanding of the entire coping process. Thus, as previously stated, future researchers utilizing the COPE should attempt to measure how an individual appraises a situation (e.g., controllable or noncontrollable; threatening or nonthreatening) and relate the appraisal to the type of strategies selected and subsequent performance.

In particular, the COPE scale could easily be changed by asking respondents the degree to which they felt they had control over a particular situation. For example, the following portions on the Ways of Coping Checklist (Lazarus & Folkman, 1980) could be integrated into the beginning of the COPE to assess the subject's appraisal of the stressful situation:

In general, was this situation one:

1. That you could change or do something about?
2. That must be accepted or gotten used to?
3. That you needed to know more about before you could act?
4. In which you had to hold yourself back from doing what you wanted to do?

The subjects would indicate which of the previous statements applied to the stressful encounter. With this method, subjects can rate the situation as changeable or nonchangeable. It also allows for changes in degree of perceived control as the situation unfolds.

Theoretical Implications for Furthering an Understanding of Coping

A better understanding and assessment of coping appraisal is important. However, knowing more about coping context and appraisal may bring us no closer to developing a coping theory than would the development of theoretical models to guide coping research. While Lazarus and Folkman (1984) question if a theoretical framework exists in which to conceptualize coping, this does not mean that efforts to develop such models are inappropriate. For example, Lazarus and Folkman (1984) couch their coping functions in a distinction between emotion-focused and problem-focused coping. As this research suggests, this distinction may be too simplistic to fully explain coping. However, coping strategy distinctions such as the one presented in this research incorporating adaptive and maladaptive and emotion-focused and problem-focused coping may provide the first steps in developing a model to understand coping.

While it remains to be seen whether this process view of coping is the best way to describe coping styles, the current research, as well as qualitative research in sport psychology (e.g., Gould, Eklund, & Jackson, 1993; Gould, Finch, & Jackson,

1993) demonstrates the need to understand the context to which the individual is responding. This contention is further supported by the work of Lazarus and Folkman (1984) which suggests that any theoretical framework of coping is dependent on the context in which coping is examined. Moreover, they suggest that a variety of variables must be considered (e.g., self-protective ego-process, anxiety levels, decision making skills, search for and evaluation of information) to further illuminate the coping context. Thus, a process approach model for coping may benefit our understanding of coping only if a sufficient number of stressful situations from an array of the person's life are assessed or considered.

Assessing the context of coping is the next step that must be taken to develop a theoretical framework for guiding coping research. Current work in coping has addressed two of the primary aims of science: description and explanation. Previous coping dichotomies and models have been based on descriptive work, but descriptive work is only the primary base from which a theory is built. As Kerlinger (1986) suggests, theory is the aim of science. Assessment of the coping context and subsequent appraisal will allow researchers to further explore the remaining aims of science: prediction and control. When researchers begin to predict and control coping, then the framework for a coping theory will be in place.

Based on these theoretical and methodological considerations, as well as the results of this study, a better delineated model of coping and performance is needed. Moreover, additional testing of a better delineated model is needed so that a theory of coping can be developed. For example, a better delineated model of coping would allow researchers to examine the "goodness of fit" hypothesis as well as appraisal theory which were discussed in the Review of Literature. Moreover, a better delineated model of coping would address the limitations of this study. For this reason, the model that is presented in Chapter 1 of this investigation (p. 55) has been better delineated and revised based on the results of this study. This model is depicted in Figure 4.

An inspection of this revised coping model suggests that assessing primary appraisal (A) is the first step in understanding the coping process. A variety of general influences (e.g., trait and state anxiety levels, optimism/pessimism) may interact with the individual's appraisal (B). If the individual views the situation as threatening, a secondary appraisal occurs (C). At this stage, the individual assesses the controllability of the situation. The controllability of the situation, as well as the degree of self-perceived stress, influence the selection of a particular group (e.g., adaptive vs. maladaptive, emotion-focused vs. problem-focused) of coping strategies (D). It is at this point in the model that the "goodness of fit" hypothesis can be tested. After the coping

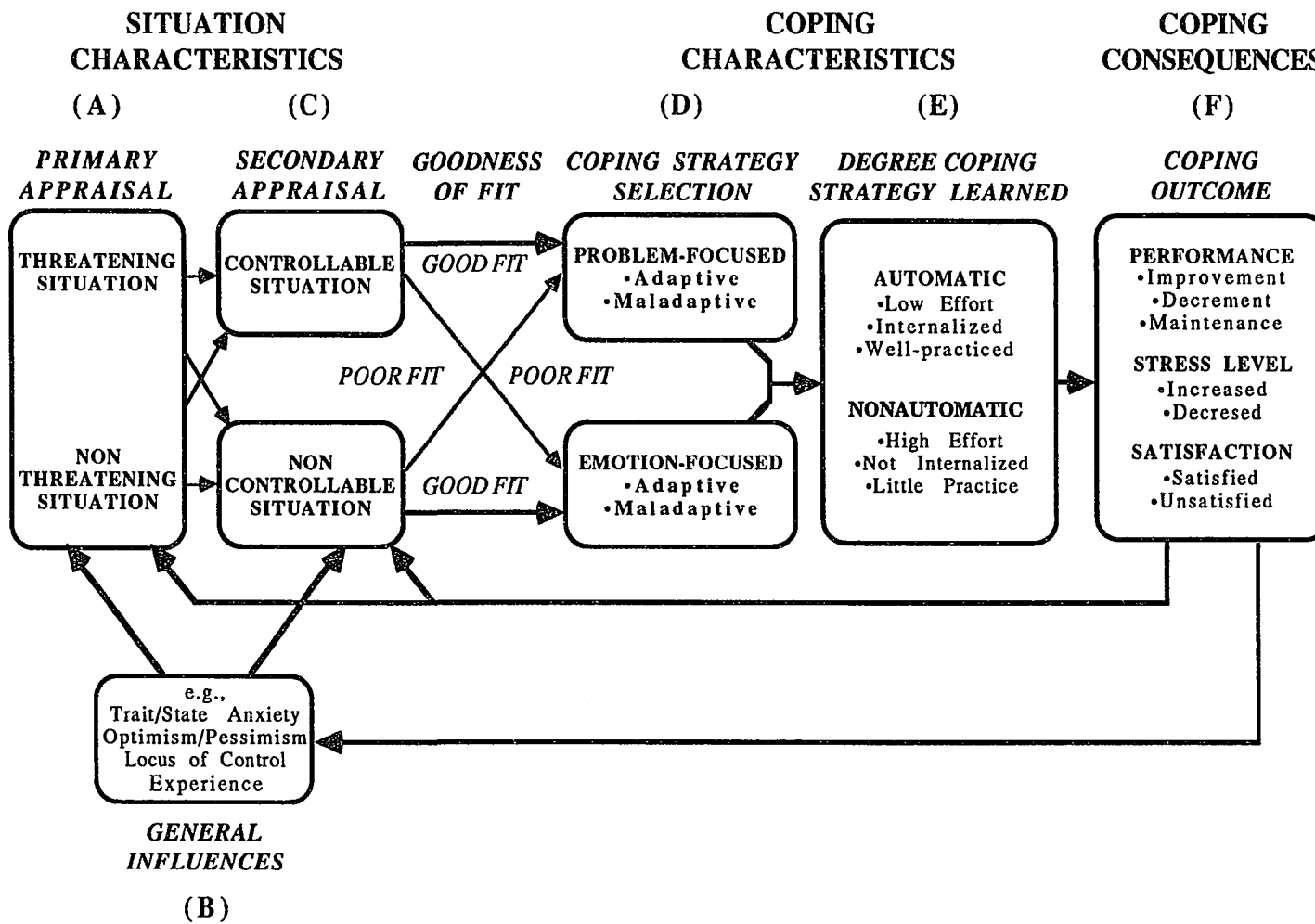


Figure 4. A suggested model of coping to guide future research

strategy or strategies is(are) engaged, the level of coping automaticity or effort can be assessed (E). Then, the consequences of a particular group of strategies can be measured (F). Measurement of coping consequences could occur at an outcome (performance) level or at a process (satisfaction or stress reduction) level. Lastly, the influence of coping outcome on future situation appraisals and the selection of subsequent coping strategies could be assessed.

Further study of this coping model will enable sport psychology researchers to learn more about how coping develops and the various constructs that influence it. Thus, future research in coping should test various links of this model. As more research in coping is completed, additional links can be added or deleted and the model further refined.

In summary, research in coping has progressed to the point that more complex conceptual models such as this should be used as guiding frameworks for future research. As Lazarus and Folkman (1984) suggest, the complexities of the coping process may be difficult to incorporate into a theory. However, for our understanding of coping to advance, the use of more detailed models to guide and conduct research is prudent.

Strengths and Limitations of the Present Study

A variety of strengths and limitations were apparent in this investigation. The primary strength of this study was the

examination of coping strategies and their relationship to athletic performance. Moreover, coping strategies were studied in a "real-world" setting that the athletes themselves deemed as stressful. A descriptive understanding of the types of coping strategies athletes used was available in the existing literature, but this investigation was the first time that the relationship between coping strategies and performance was studied.

Understanding this relationship has important ramifications for coaches, athletes and sport psychology consultants who want to understand as much as possible about maximizing athletic performance through psychological strategies. The regression analyses demonstrated only a small percentage of the variance in softball performance was accounted for. However, this investigation suggests that lower levels of batting and fielding performance were related to the use of maladaptive coping strategies. Moreover, the relationship between anxiety levels and choice of coping strategies suggested that athletes with high trait anxiety may benefit from learning more about adaptive coping strategies and incorporating these strategies into their performance enhancement plan.

An additional strength of this investigation concerned the methodology of the current study. Athletes were asked to respond to the COPE with a self-perceived stressful situation that had occurred to them during the course of the softball season in

which they were currently participating. Previous studies (e.g., Madden, Kirkby, & McDonald, 1989; Madden, Summers, & Brown; 1990) have asked athletes to assess how they would cope with a hypothetical situation as opposed to a stressful situation they actually experienced. Moreover, other research utilizing retrospective methods (e.g., Gould, Eklund, & Jackson, 1993; Gould, Finch, & Jackson, 1993) required athletes to remember coping strategies from as many as six years past. To more fully comprehend coping strategies, assessments of coping should occur as close to the stressful situation as possible and reflect stressful situations the athletes have actually encountered.

This study addressed these previous limitations by asking athletes about self-perceived stressful situations that occurred to them within the current softball season. While the method used in this investigation is retrospective in the sense that athletes were asked to respond to stressful softball related-situations that occurred within the time frame of the time they completed the questionnaires to approximately three months before, this time frame is considerably condensed from previous research (e.g., reduced by as much as six years).

The use of psychometrically sound instruments (COPE and SAS) was another strength of this investigation. Previous sport psychology studies utilized coping assessments which had not undergone basic psychometric testing. Thus, the validity and

reliability of the data collected in this investigation are strengthened by the use of these psychometrically sound instruments.

The sample used in this investigation was both a strength and a limitation. In the broadest sense, the sample was a strength because it allowed the investigator to examine coping strategies in a highly skilled, yet non-elite athletic sample. While previous research has given us insights into the types of coping strategies used by elite athletes competing at a national or international level (e.g., Olympic wrestlers, US national champion figure skaters), little was known about the coping strategies of athletes that make up a much larger portion of the overall athletic population--college athletes.

Although coping was measured in different ways in the various studies, the coping strategies used by elite, international caliber athletes and collegiate softball players were very similar. This suggests that the coping strategies of collegiate athletes seem to be the same as those used by elite athletes, at least in terms of general categories or types of coping strategies. Because the previous research (i.e., Gould, Eklund, & Jackson, 1993; Gould, Finch, & Jackson, 1993) did not assess coping in a quantitative fashion, it is difficult to examine relationships between how often coping strategies were used or the magnitude of any differences.

Another strength of the sample included the balance achieved between ranked and unranked teams. This allowed for parity in scheduling difficulty, overall ability, and level of success. Thus, the teams sampled were fairly representative of the collegiate softball population as a whole.

In a more narrow sense, the sample was a limitation. Close perusal of the descriptive statistics yields several limitations. For example, the standard deviations for the performance measures were extremely wide (M batting performance = 289.4, SD = 101.6; M fielding average = 930.0, SD = 95.4). These wide standard deviations suggest that both performance measures showed extreme variability in their scores. This wide variability may have affected the various regression equations attempting to predict softball performance.

An additional limitation of the sample was the overall trait anxiety levels. As a group, this sample had below normal levels of total trait anxiety, cognitive trait anxiety, somatic trait anxiety, and concentration. This low level of trait anxiety could impact the results in several ways. The lower levels of anxiety in this sample may have led to a higher usage of adaptive coping strategies than in samples with more normal levels of trait anxiety. Higher usage of adaptive coping strategies and low trait anxiety levels could explain why no adaptive coping strategies emerged as significant predictors of batting performance and fielding average. The

overall low levels of trait anxiety may have washed out the effects of adaptive coping strategies and left maladaptive coping strategies as the only significant predictors of softball performance.

The use of an 11-point Likert scale for coach and athlete assessment may be a limitation. While it was included to provide athletes and coaches a wide range of scores from which to pinpoint their ratings, the wide range of available ratings may have in fact created a great deal of variability in the scores. This variability may have impacted the various statistical analyses which were completed.

Another sampling limitation concerns the COPE. Although the COPE has undergone vigorous psychometric testing and development, it does have some weaknesses. The 4-point Likert scale is one of these weaknesses. The COPE provides the respondent with a range from (1) "didn't do a lot" to (4) "did a lot". The weakness of 4-point range is that it does not allow the respondent to say "did not do at all". It is suggested that future research include this option.

Future Research Directions

Based on the results of this investigation, several areas of future research directions seem fruitful. First, it would be helpful to assess coping over the course of an entire season. A season-long assessment of coping would offer a deeper understanding of

the types of coping strategies selected and the different situations in which athletes select them (e.g., hard vs. easy competition, during performance slumps, while injured, experiencing coach or teammate conflicts). For example, in situations which they know they can control, athletes may be more likely to employ adaptive and/or problem-focused coping strategies. Conversely, in situations in which they know they have little or no control, athletes may be more likely to employ maladaptive and/or emotion-focused coping strategies.

Related to the concept of season-long assessments of coping is including state anxiety assessments in future analyses. Research indicates that state anxiety levels vary across situations (e.g., Gould, Petlichkoff, Simon, & Vevera, 1987; Martens, Vealey, & Burton, 1990). Therefore, the relationships between anxiety, coping strategies, and performance may vary according to state anxiety levels. In very tense, competitive games (at which state anxiety is likely to be higher), athletes may engage in different coping strategies than in games against much lesser competition.

Another area of future research includes assessing coping strategies longitudinally. For example, the coping strategies of a sample of age-group athletes (e.g., elementary school) could be assessed as a baseline measure. Then, these athletes could be followed over the course of several years (through age-group, into high school and college, and beyond if possible) to examine any

developmental changes in coping strategies. More inclusively, the coping strategies of those age group athletes who drop-out of sports could also be examined over time. A research design such as this would help us understand when coping strategies are developed and how, or if, they change over time. Perhaps those who succeed in sport have and utilize well-developed adaptive coping strategies at an early age whereas those who drop out of sport have less-developed or maladaptive coping strategies.

Combining qualitative methods with quantitative methods to assess coping strategies and their relationship is another future research direction. Interviews with athletes would enable researchers to acquire a more in-depth understanding of the athletes' experiences than traditional research methods. Athletes may be able to tell us more about how they select coping strategies and how their implementation of a coping strategy impacts their performance in an interview than they can on a questionnaire.

Utilizing the aforementioned research directions would allow future investigators to test various models of coping, specifically a model such as that presented in Figure 4. The variety of research methodologies presented would enable researchers to further examine the various links in the model and test them in various contexts and across different coping appraisals. Moreover, a path analysis may be a fruitful method to investigate the relationships

presented in the model. Model testing such as this is a crucial component of theory building. Thus, the testing of coping models should be considered in future research on coping strategies so that a theoretical framework of coping can be developed.

A final research area would incorporate the teaching of a variety of coping skills to athletes and then examining the effect of these interventions on the athletes' performance. An intervention study such as this would allow researchers to examine cause and effect relationships between coping strategies and performance. The current non-experimental research in the literature does not allow for the necessary comparisons to be made between intervention and control groups that enable us to more fully understand the impact that coping strategies may have on an athlete's performance. Moreover, additional research could be done on the automaticity of coping responses and their relationship to performance.

Conclusion

In conclusion, the present study offered support for the hypothesis that athletes use a wide variety of coping strategies to deal with the stress of sports. Specifically, athletes in this sample reported greater use of adaptive and emotion-focused coping strategies than maladaptive or problem-focused strategies. In addition, trait anxiety levels were found to be related to the type of coping strategy an athlete selects. More specifically, this

investigation offered some of the first research to examine the relationships between coping strategies and performance. While the myriad of details regarding these relationships have yet to be uncovered, this investigation offered a beginning look at the ways in which coping styles can influence athletic performance. Moreover, it suggested a new model for understanding coping and future research directions to learn more about the relationships presented in the model.

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APPENDIX A

INFORMED CONSENT FORM

The University of North Carolina at Greensboro
School of Health and Human Performance
Department of Exercise and Sport Science

School Review Committee
Informed Consent Form

I understand that the purpose of this study is to examine how athletes cope with stress in sport and how their coping ability affects performance.

I confirm that my participation is entirely voluntary. No coercion of any kind has been used to obtain my cooperation.

I understand that I may withdraw my consent and terminate my participation at any time during the project.

I have been informed of the procedures that will be used in the project and understand what will be required of me as a subject.

I understand that all of my responses, written/oral/task, will remain completely anonymous.

I understand that a summary of the results of the project will be made available to me at the completion of the study if I so request.

I wish to give my voluntary cooperation as a participant.

Signature

Address

Date

APPENDIX B

ATHLETE DEMOGRAPHIC ASSESSMENT

SOFTBALL BACKGROUND INFORMATION

Thank you for agreeing to share information with me regarding your softball experiences. Over 150 collegiate softball players and their coaches are participating in this study. The information you share will assist me in my understanding of how athletes deal with the stress involved in athletics. The information below is very important and will help me to match your answers with your softball season statistics. When you are finished completing the questionnaires, please place them in the envelope, seal it, and sign your name across the flap. Be assured that the information you provide will be kept confidential; no one but the investigator will see your responses. All information will be number coded so that your confidentiality is maintained. The results of this project should be available by August, 1992. A summary report of group findings will be sent to your head coach at that time.

Name _____

School _____

Position(s) _____ (primary)
 _____ (secondary)

Class Year _____ Age _____ Uniform # _____

Years of Experience in Competitive Softball (both slow pitch & fast pitch) _____

During the 1991-92 season, how well do you feel you **generally** coped with or handled any softball-related stress or difficulties?

1	2	3	4	5	6	7	8	9	10	11
Poorly			Moderately					Extremely Well		

During the 1991-92 season, to what degree do you feel the ways you coped with or handled softball stress **generally** affected your **HITTING** performance?

1	2	3	4	5	6	7	8	9	10	11
Negative Impact on Performance				No Impact on Performance			Positive Impact on Performance			

During the 1991-92 season, to what degree do you feel the ways you coped with or handled softball stress **generally** affected your **FIELDING and/or PITCHING** performance?

1	2	3	4	5	6	7	8	9	10	11
Negative Impact on Performance				No Impact on Performance			Positive Impact on Performance			

During the 1991-1992 collegiate season, how much conscious effort did it take for you to **generally** cope with or handle any softball-related stress or difficulty?

1	2	3	4	5	6	7	8	9	10	11
Coping Required Effort Thought A Great Deal About Coping Deliberate Effort to Cope						Coping was Automatic Didn't Have to Think About Coping No Conscious Effort to Cope				

APPENDIX C

COPE SCALE

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APPENDIX D

COACH ASSESSMENT OF ATHLETES' COPING

SOFTBALL BACKGROUND INFORMATION

Thank you for allowing your team to participate in this study and for agreeing to share information with me regarding your softball team. Over 150 collegiate softball players and their coaches are participating in this study. The information you share will assist me in my understanding of how athletes deal with the stress involved in athletics. Be assured that the information you provide, as well as the information your team members provide, will be kept confidential. All information will be number coded so that your confidentiality and your athletes' confidentiality is maintained. The results of this investigation should be available by August, 1992. A summary report of group findings will be sent to you at that time.

Name _____

School _____

1992 Spring Record _____

Was your team regionally or nationally ranked during this season? _____

If yes, what was the highest ranking your team achieved? _____

Years of Experience in **Playing** Softball (both slow pitch and fast pitch) _____

Years of Experience in **Coaching** Softball (collegiate) _____

During the 1991-92 season, how well do you feel your **team** generally coped with or handled any stress related to softball?

1	2	3	4	5	6	7	8	9	10	11
Poorly			Moderately					Extremely Well		

During the 1991-92 season, to what degree do you feel the ways your **team** coped with or handled stress generally affected its **hitting** performance?

1	2	3	4	5	6	7	8	9	10	11
Negative Impact on Performance				No Impact on Performance			Positive Impact on Performance			

During the 1991-92 season, to what degree do you feel the ways your **team** coped with or handled stress generally affected its **fielding and/or pitching** performance?

1	2	3	4	5	6	7	8	9	10	11
Negative Impact on Performance				No Impact on Performance			Positive Impact on Performance			

During the 1991-92 collegiate season, how much effort did it take for your **team** to generally cope with or handle any stress related to softball?

1	2	3	4	5	6	7	8	9	10	11
Coping Required Effort Thought A Great Deal About Coping Deliberate Effort to Cope						Coped Automatically Didn't Have to Think About Coping No Conscious Effort to Cope				

***PLEASE REMEMBER TO SEND YOUR SEASON-ENDING STATISTICS. THANK YOU!**

The following information asks you to assess how well each member of your team copes with stress. Please fill in the name of each team member and circle the number you feel best represents her ability to cope with softball stress. These questions should be answered with regard to the 1991-92 collegiate softball season and the position the athlete played the majority of the time. While realizing that some athletes respond differently in varying situations, please circle the number that best corresponds to how you feel each athlete **generally** responds.

How well do you feel each player coped with any stress related to softball?

<u>ATHLETE</u>	Poorly			Moderately				Extremely Well			
	1	2	3	4	5	6	7	8	9	10	11
1. _____	1	2	3	4	5	6	7	8	9	10	11
2. _____	1	2	3	4	5	6	7	8	9	10	11
3. _____	1	2	3	4	5	6	7	8	9	10	11
4. _____	1	2	3	4	5	6	7	8	9	10	11
5. _____	1	2	3	4	5	6	7	8	9	10	11
6. _____	1	2	3	4	5	6	7	8	9	10	11
7. _____	1	2	3	4	5	6	7	8	9	10	11
8. _____	1	2	3	4	5	6	7	8	9	10	11
9. _____	1	2	3	4	5	6	7	8	9	10	11
10. _____	1	2	3	4	5	6	7	8	9	10	11
11. _____	1	2	3	4	5	6	7	8	9	10	11
12. _____	1	2	3	4	5	6	7	8	9	10	11
13. _____	1	2	3	4	5	6	7	8	9	10	11
14. _____	1	2	3	4	5	6	7	8	9	10	11
15. _____	1	2	3	4	5	6	7	8	9	10	11
16. _____	1	2	3	4	5	6	7	8	9	10	11
17. _____	1	2	3	4	5	6	7	8	9	10	11
18. _____	1	2	3	4	5	6	7	8	9	10	11

The following information asks you to assess the affect (positive or negative) that each team member's ability to cope with stress has on her **hitting** performance. Please fill in the name of each team member and circle the number you feel best represents her. These questions should be answered with regard to the 1991-92 collegiate softball season and the position the athlete played the majority of the time. While realizing that some athletes respond differently in varying situations, please circle the number that best corresponds to how you feel each athlete **generally** responds.

*****How do you feel the ways each player coped with stress affected her HITTING PERFORMANCE?**

<u>ATHLETE</u>	Negative Impact on Performance				No Impact on Performance				Positive Impact on Performance		
	1	2	3	4	5	6	7	8	9	10	11
1. _____	1	2	3	4	5	6	7	8	9	10	11
2. _____	1	2	3	4	5	6	7	8	9	10	11
3. _____	1	2	3	4	5	6	7	8	9	10	11
4. _____	1	2	3	4	5	6	7	8	9	10	11
5. _____	1	2	3	4	5	6	7	8	9	10	11
6. _____	1	2	3	4	5	6	7	8	9	10	11
7. _____	1	2	3	4	5	6	7	8	9	10	11
8. _____	1	2	3	4	5	6	7	8	9	10	11
9. _____	1	2	3	4	5	6	7	8	9	10	11
10. _____	1	2	3	4	5	6	7	8	9	10	11
11. _____	1	2	3	4	5	6	7	8	9	10	11
12. _____	1	2	3	4	5	6	7	8	9	10	11
13. _____	1	2	3	4	5	6	7	8	9	10	11
14. _____	1	2	3	4	5	6	7	8	9	10	11
15. _____	1	2	3	4	5	6	7	8	9	10	11
16. _____	1	2	3	4	5	6	7	8	9	10	11
17. _____	1	2	3	4	5	6	7	8	9	10	11
18. _____	1	2	3	4	5	6	7	8	9	10	11

*** Please indicate athletes who do not hit at the bottom of the list with "N/A" (not applicable) beside their name.

The following information asks you to assess the affect (positive or negative) that each team member's ability to cope with has on her **fielding and/or pitching** performance. Please fill in the name of each team member and circle the number you feel best represents her. These questions should be answered with regard to the 1991-92 collegiate softball season and the position the athlete played the majority of the time. While realizing that some athletes respond differently in varying situations, please circle the number that best corresponds to how you feel each athlete **generally** responds.

*****How do you feel the ways each player coped with stress impacted her
FIELDING AND/OR PITCHING PERFORMANCE?**

<u>ATHLETE</u>	Negative Impact on Performance				No Impact on Performance				Positive Impact on Performance			
	1	2	3	4	5	6	7	8	9	10	11	
1. _____	1	2	3	4	5	6	7	8	9	10	11	
2. _____	1	2	3	4	5	6	7	8	9	10	11	
3. _____	1	2	3	4	5	6	7	8	9	10	11	
4. _____	1	2	3	4	5	6	7	8	9	10	11	
5. _____	1	2	3	4	5	6	7	8	9	10	11	
6. _____	1	2	3	4	5	6	7	8	9	10	11	
7. _____	1	2	3	4	5	6	7	8	9	10	11	
8. _____	1	2	3	4	5	6	7	8	9	10	11	
9. _____	1	2	3	4	5	6	7	8	9	10	11	
10. _____	1	2	3	4	5	6	7	8	9	10	11	
11. _____	1	2	3	4	5	6	7	8	9	10	11	
12. _____	1	2	3	4	5	6	7	8	9	10	11	
13. _____	1	2	3	4	5	6	7	8	9	10	11	
14. _____	1	2	3	4	5	6	7	8	9	10	11	
15. _____	1	2	3	4	5	6	7	8	9	10	11	
16. _____	1	2	3	4	5	6	7	8	9	10	11	
17. _____	1	2	3	4	5	6	7	8	9	10	11	
18. _____	1	2	3	4	5	6	7	8	9	10	11	

*** Please answer in regard to each athlete's **primary** position. Indicate athletes who are designated hitters at the bottom of the list with a N/A (not applicable) next to their name.

The following information asks you to assess how much **effort** it took for each team member to cope with stress. Please fill in the name of each team member and circle the number you feel best represents her. These questions should be answered with regard to the 1991-92 collegiate softball season and the position the athlete played the majority of the time. While realizing that some athletes respond differently in varying situations, please circle the number that best corresponds to how you feel each athlete **generally** responds.

How much effort did it take for each athlete to cope with any stress related to softball?

	Coping Required Effort					Coping Was Automatic					
	Thought	A Lot	About	Coping		Didn't	Think	About	Coping	<u>ATHLE</u>	
1. _____	1	2	3	4	5	6	7	8	9	10	11
2. _____	1	2	3	4	5	6	7	8	9	10	11
3. _____	1	2	3	4	5	6	7	8	9	10	11
4. _____	1	2	3	4	5	6	7	8	9	10	11
5. _____	1	2	3	4	5	6	7	8	9	10	11
6. _____	1	2	3	4	5	6	7	8	9	10	11
7. _____	1	2	3	4	5	6	7	8	9	10	11
8. _____	1	2	3	4	5	6	7	8	9	10	11
9. _____	1	2	3	4	5	6	7	8	9	10	11
10. _____	1	2	3	4	5	6	7	8	9	10	11
11. _____	1	2	3	4	5	6	7	8	9	10	11
12. _____	1	2	3	4	5	6	7	8	9	10	11
13. _____	1	2	3	4	5	6	7	8	9	10	11
14. _____	1	2	3	4	5	6	7	8	9	10	11
15. _____	1	2	3	4	5	6	7	8	9	10	11
16. _____	1	2	3	4	5	6	7	8	9	10	11
17. _____	1	2	3	4	5	6	7	8	9	10	11
18. _____	1	2	3	4	5	6	7	8	9	10	11

APPENDIX E

SPORT ANXIETY SCALE

PLEASE NOTE

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University Microfilms International

APPENDIX F

STANDARDIZED INSTRUCTIONS

Thanks for meeting me here today. You are being asked to participate in a project examining how athletes cope with stress in sport and how their coping ability affects performance. Participation in this study requires completion of two questionnaires and an information sheet. This will take approximately 20-30 minutes. I have talked to your coach and she (he) has offered her (his) full cooperation. Your coach will also be completing similar questionnaires about the teams' coping ability and its effects on team members' performance, as well as providing team statistics at the end of the season.

Let me stress that this information will not be shared with your coaches. All of your responses are completely confidential. Your coaches will receive a group report at the end of the project, but no individual information will be seen by anyone but you and me.

Before you begin, it is important for you to understand that there are no right or wrong answers. That is, one softball player may cope in different ways with stress than another softball player. Please read the directions carefully and answer them as honestly as possible.

Your participation is completely voluntary and you may withdraw participation at any time during the study. In order to make this study beneficial for you as well as for me, I will provide you, if you request, a summary of the results of the project when it is finished. This summary will also include a personalized coping profile.

If you have any questions while you are completing the questionnaires, please ask me. Thank you for your help.

APPENDIX G

SPORT ANXIETY SCALE FACTOR STRUCTURE

Principal Components Factor Analysis with Varimax Rotation

FACTOR 1 SOMATIC TRAIT ANXIETY		FACTOR 2 COGNITIVE TRAIT ANXIETY		FACTOR 3 CONCENTRATION DISRUPTION	
#	Loading	#	Loading	#	Loading
08	.8661	05	.8421	06	.8622
19	.8503	13	.8134	02	.8032
12	.7863	18	.7908	20	.6676
21	.7633	16	.7484	07	.5514
11	.7453	10	.7002	14	.4456
15	.7234	03	.6653		
17	.6584	09	.6605		
04	.6270				
01	.5650				

59.7% of Total Variance

Eigen Value = 7.58

22.8% of Total Variance

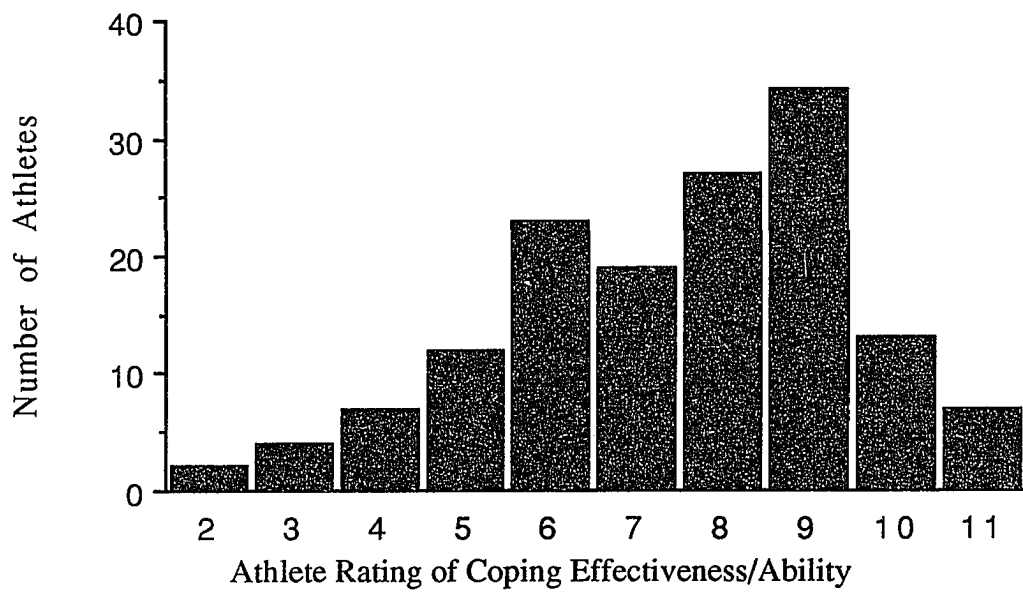
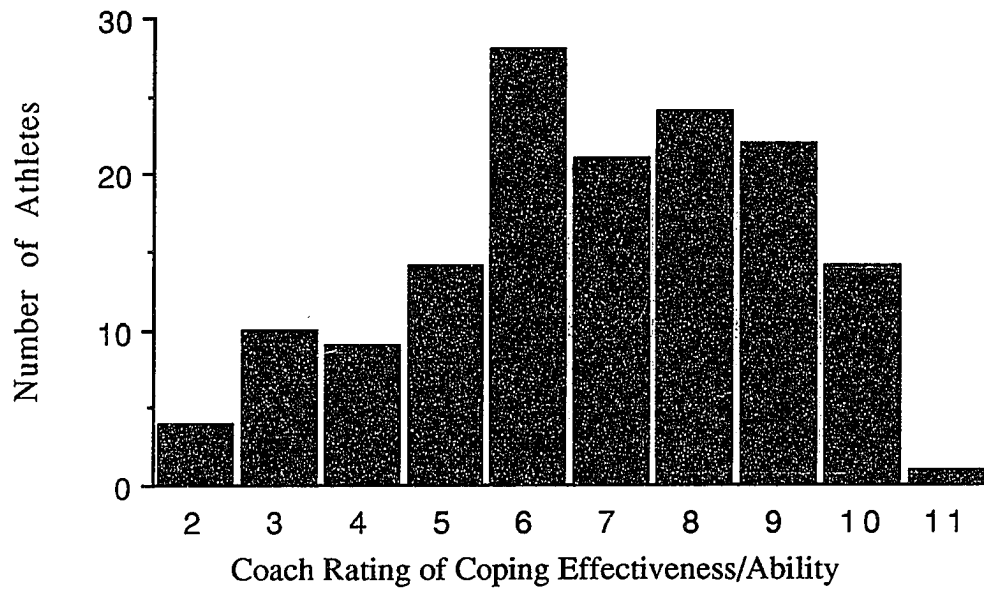
Eigen Value = 2.89

17.4% of Total Variance

Eigen Value = 2.21

APPENDIX H

FREQUENCY GRAPHS FOR COPING EFFECTIVNESS/ABILITY
RATINGS



APPENDIX I

DATA DICTIONARY

<u>LINE</u>	<u>NAME</u>	<u>COLUMN</u>	<u>RANGE</u>	<u>VARIABLE NAME</u>
1	SUBJ1	1-3	001-148	Subject Number
	SCHOOL	4-5	01-13	School
	POSIT1	6	0-9	Primary Position
	POSIT2	7	0-9	Secondary Position
	YEAR	8	1-4	Class Year
	AGE	9-10	17-22	Age
	YRSEXP	11-12	03-16	Years Experience
	GENCOPE	13-14	01-11	General Coping Ability
	HITCOPE	15-16	01-11	Hitting/Coping Relationship
	FLDCOPE	17-18	01-11	Fielding/Coping Relationship
	EFFCOPE	19-20	01-11	Effort to Cope
	SAS1	21	1-4	Sport Anxiety Scale (SAS) Item 1
	SAS2	22	1-4	SAS Item 2
	SAS3	23	1-4	SAS Item 3
	SAS4	24	1-4	SAS Item 4
	SAS5	25	1-4	SAS Item 5
	SAS6	26	1-4	SAS Item 6
	SAS7	27	1-4	SAS Item 7
	SAS8	28	1-4	SAS Item 8
	SAS9	29	1-4	SAS Item 9
	SAS10	30	1-4	SAS Item 10
	SAS11	31	1-4	SAS Item 11
	SAS12	32	1-4	SAS Item 12
	SAS13	33	1-4	SAS Item 13
	SAS14	34	1-4	SAS Item 14
	SAS15	35	1-4	SAS Item 15
	SAS16	36	1-4	SAS Item 16
	SAS17	37	1-4	SAS Item 17
	SAS18	38	1-4	SAS Item 18
	SAS19	39	1-4	SAS Item 19
	SAS20	40	1-4	SAS Item 20
	SAS21	41	1-4	SAS Item 21

<u>LINE NAME</u>	<u>COLUMN</u>	<u>RANGE</u>	<u>VARIABLE NAME</u>	
2	SUBJ2	1-3	001-148	Subject Number
	DESCSTRS	4-5	01-54	Description of Stressful Situation
	COPEKIT	6-7	01-11	General Coping with Situation
	HITPERF	8-9	01-11	Hitting Performance while Coping
	FLDPERF	10-11	01-11	Fielding Performance while Coping
	COPE1	12	1-4	COPE Item 1
	COPE2	13	1-4	COPE Item 2
	COPE3	14	1-4	COPE Item 3
	COPE4	15	1-4	COPE Item 4
	COPE5	16	1-4	COPE Item 5
	COPE6	17	1-4	COPE Item 6
	COPE7	18	1-4	COPE Item 7
	COPE8	19	1-4	COPE Item 8
	COPE9	20	1-4	COPE Item 9
	COPE10	21	1-4	COPE Item 10
	COPE11	22	1-4	COPE Item 11
	COPE12	23	1-4	COPE Item 12
	COPE13	24	1-4	COPE Item 13
	COPE14	25	1-4	COPE Item 14
	COPE15	26	1-4	COPE Item 15
	COPE16	27	1-4	COPE Item 16
	COPE17	28	1-4	COPE Item 17
	COPE18	29	1-4	COPE Item 18
	COPE19	30	1-4	COPE Item 19
	COPE20	31	1-4	COPE Item 20
	COPE21	32	1-4	COPE Item 21
	COPE22	33	1-4	COPE Item 22
	COPE23	34	1-4	COPE Item 23
	COPE24	35	1-4	COPE Item 24
	COPE25	36	1-4	COPE Item 25
	COPE26	37	1-4	COPE Item 26
	COPE27	38	1-4	COPE Item 27
	COPE28	39	1-4	COPE Item 28
	COPE29	40	1-4	COPE Item 29
	COPE30	41	1-4	COPE Item 30
	COPE31	42	1-4	COPE Item 31
	COPE32	43	1-4	COPE Item 32
	COPE33	44	1-4	COPE Item 33
	COPE34	45	1-4	COPE Item 34
	COPE35	46	1-4	COPE Item 35
	COPE36	47	1-4	COPE Item 36
	COPE37	48	1-4	COPE Item 37
	COPE38	49	1-4	COPE Item 38
	COPE39	50	1-4	COPE Item 39
	COPE40	51	1-4	COPE Item 40

<u>LINE NAME</u>	<u>COLUMN</u>	<u>RANGE</u>	<u>VARIABLE NAME</u>
2	COPE41	5 2	1-4 COPE Item 41
	COPE42	5 3	1-4 COPE Item 42
	COPE43	5 4	1-4 COPE Item 43
	COPE44	5 5	1-4 COPE Item 44
	COPE45	5 6	1-4 COPE Item 45
	COPE46	5 7	1-4 COPE Item 46
	COPE47	5 8	1-4 COPE Item 47
	COPE48	5 9	1-4 COPE Item 48
	COPE49	6 0	1-4 COPE Item 49
	COPE50	6 1	1-4 COPE Item 50
	COPE51	6 2	1-4 COPE Item 51
	COPE52	6 3	1-4 COPE Item 52

<u>LINE NAME</u>	<u>COLUMN</u>	<u>RANGE</u>	<u>VARIABLE NAME</u>
3	SUBJ3	1-3	001-148 Subject Number
	WINS	4-5	09-60 Team Wins
	LOSSES	6-7	07-29 Team Losses
	RANKED	8	0-1 Was Team Ranked? (0 = N; 1 = Y)
	RANKING	9-10	07-12 Team Ranking
	COYRSPL	11-12	07-24 Years Coach Played Softball
	COYRSEXP	13-14	02-17 Years Coaching Experience
	TEAMCOPE	15-16	01-11 Team General Coping Ability
	TEAMHIT	17-18	01-11 Team Cope/Hitting Relationship
	TEAMFLD	19-20	01-11 Team Cope/Fielding Relationship
	TEAMEFF	21-22	01-11 Team Effort to Cope
	RAWCOPE	23-24	01-11 Raw Data Coach General Cope
	TMBCOPE	25	1-3 Top/Middle/Bottom Cope Distinction
	RANKCOPE	26-27	01-09 Cope Rank Order on Team
	RAWHIT	28-29	01-11 Raw Data Coach Hitting/Cope Relation.
	TMBHIT	30	1-3 Top/Middle/Bottom Hit-Cope
	RANKHIT	31-32	01-09 Hitting/Cope Rank Order on Team
	RAWFLD	33-34	01-11 Raw Data Coach Fielding/Cope Relation.
	TMBFLD	35	1-3 Top/Middle/Bottom Field-Cope
	RANKFLD	36-37	01-09 Fielding/Cope Rank Order on Team
	RAWEFF	38-39	01-11 Raw Data Coach Effort to Cope Relation.
	TMBEFF	40	1-3 Top/Middle/Bottom Effort to Cope
	RANKEFF	41-42	01-09 Effort to Cope Rank Order on Team
	GAMESPLD	43-44	00-68 Games Played During Season
	ATBATS	45-47	000-249 At Bats
	HITS	48-50	000-123 Hits
	STRIKES	51-52	00-42 Strike Outs
	WALKS	53-54	00-29 Walks
	BATAVG	55-57	000-494 Batting Average
	SLUG	58-60	000-648 Slugging Percentage
	ONBASE	61-63	000-571 On-Base Percentage

<u>LINE</u>	<u>NAME</u>	<u>COLUMN</u>	<u>RANGE</u>	<u>VARIABLE</u>	<u>NAME</u>
3	PUTOUTS	64-66	000-429	Put	Outs
	ASSISTS	67-69	000-153	Assists	
	ERRORS	70-71	00-27	Errors	
	FIELD AVG	72-75	0000-1000	Fielding	Average

APPENDIX J

RAW DATA

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002061 1190809050610222132111121311313113
0020209 093222211124413111142311144112221441421421212144221341
002092600010110708080306304 0420702000 000002001000

003061 2201004060201121221112121112312111
003030906093224212134343131222414134412142331321442313344131221
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019170604093212312121223222322214221213211241241322321121342232
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APPENDIX K

VITA

Laura Marie Finch

2309 Applegate Drive
 Concord, NC 28027
 (704) 788-1066 (H)

EDUCATION**Graduate**

Doctor of Philosophy: Exercise and Sport Science
 Concentration: Sport Psychology
 Minors: Sport Sociology
 Counseling
 University of North Carolina at Greensboro
 Advisor: Daniel Gould, Ph.D.
 1989-1993

Doctoral Candidate: Kinesiology
 Concentration: Sport Psychology
 Minor: Sport Sociology
 University of Illinois at Urbana-Champaign
 Advisor: Glyn Roberts, Ph.D.
 1988-1989

Master of Arts: Physical Education
 Concentration: Sport Psychology
 University of North Carolina at Chapel Hill
 Advisors: John Silva, Ph.D., Charles Hardy, Ph.D.
 1986-1988

Undergraduate

Bachelor of Arts: Double Major in Psychology and Physical Education
 Denison University, Granville, OH
 Advisors: Cheryl Marra, Marci McCaulay, Ph.D.
 1982-1986

Honors

Susan Stout Fellow (Exceptional Research Fellowship, UNC-Greensboro)
 Presidential Scholar (Academic Honors Scholarship, Denison University)
 Dean's List - Denison University
 P.T.A. Scholar (Undergraduate Academic Scholarship)
 Natalie Shepard Award -
 Outstanding Physical Education Major, Denison University
 Omicron Delta Kappa - National Leadership Honorary
 Psi Chi - National Psychology Honorary

Four time letter winner: Volleyball (Captain, Sophomore-Senior Years)
 Track & Field (Captain and school record, Senior year)
 One letter: Basketball

TEACHING EXPERIENCE**Wingate College, Wingate, North Carolina**

Adjunct Faculty, 1993

Elementary Physical Education Methods, Personal and Community Health

University of North Carolina at Greensboro

Instructor, 1992-1993

Sport and Exercise Psychology

Beginning Volleyball, Weight Training

University of North Carolina at Greensboro

Graduate Teaching Assistant, 1989-1992

Sport Psychology (guest lectures), Beginning Volleyball, Intermediate Volleyball,

Weight Training, Conditioning, Aerobics Assistant

University of Illinois at Urbana-Champaign

Graduate Teaching Assistant, 1988-1989

Sport Sociology (guest lectures), Intermediate Volleyball, Weight Training,

Conditioning and Weight Control

University of North Carolina at Chapel Hill

Graduate Teaching Assistant, 1986-1988

Sport Psychology (guest lectures), Anatomy & Physiology (lab),

Beginning Volleyball, Weight Training, Jogging, Soccer

PROFESSIONAL EXPERIENCE

Research Assistant, University of North Carolina at Greensboro, 1989-1993

Book Reviewer, The Sport Psychologist, 1991-1992

Research Assistant, University of North Carolina at Chapel Hill, 1986-1988

Editorial Assistant, Journal of Applied Sport Psychology, 1987-1988

RESEARCH PUBLICATIONS AND PRESENTATIONS

Refereed Research Publications

- Gould, D., Jackson, S. A., & Finch, L. M. (in press). Life at the top: Experiences of U.S. National Champion figure skaters. The Sport Psychologist.
- Gould, D., Jackson, S. A., & Finch, L. M. (in press). Sources of stress in National Champion figure skaters. Journal of Sport and Exercise Psychology.
- Silva, J. M., Cornelius, A., & Finch, L.M. (1992). Psychological momentum and skill performance: A laboratory study. Journal of Sport and Exercise Psychology, *14*, 119-133.
- Gould, D. & Finch, L. M. (1990). Sport psychology and the professional bowler: The case of Michelle Mullen. The Sport Psychologist, *4*, 418-430.

Scholarly Book Chapter

- Gould, D. & Finch, L. M. (1991). Understanding and intervening with the student-athlete-to-be. In E. F. Etzel, A. P. Ferrante, & J. W. Pinkney (Eds.), Counseling college student-athletes: Issues and interventions (pp. 51-70). Morgantown, WV: Fitness Information Technology.

Research Reports

- Gould, D., Jackson, S. A., & Finch, L. M. (1992). Sources of stress experienced by National Champion figure skaters. Report made to the United States Figure Skating Association and the United States Olympic Committee (144 pp.), Colorado Springs, CO.
- Gould, D., Krane, V., & Finch, L. M. (1991). Coaches' ability to estimate their athletes' anxiety. Summary report made to the United States Tennis Association. Princeton, NJ.
- Silva, J. M., & Finch, L. M. (1988). Pre-Olympic Assessment of the United States Men's national team handball team. Report made to the United States Team Handball Federation and the United States Olympic Committee (200 pp.), Colorado Springs, CO.

Applied Sport Psychology Service Publications

- Gould, D., Finch, L. M. & Jackson, S. A. (in press). Coaching National Champions: An athlete's perspective. The Professional Skater.
- Gould, D., Finch, L. M., & Krane, V. (1991, Summer). Reading your players' psychological states. Sport Science for Tennis, p. 4, 8.

Research Papers Submitted for Publication

Gould, D., Finch, L. M. & Jackson, S. A. (1993). Coping strategies utilized by National Champion figure skaters. Research Quarterly for Exercise and Sport.

Research Papers in Preparation

Krane, V. & Finch, L. M. (1993). A test of the validity of the Mental Readiness Form.

Gould, D., Krane, V., & Finch, L. M. (1993). Factors influencing coaches ability to estimate their athletes' anxiety levels.

Krane, V. & Finch, L. M. (1993). Multidimensional trait anxiety as a predictor of multidimensional state anxiety.

Research Presentations

Finch, L. M. & Krane, V. (1992, April). A test of the validity of the Mental Readiness Form. Paper presented at the AAHPERD National Conference, Indianapolis, IN.

Krane, V., & Finch, L. M. (1991, April). Multidimensional trait anxiety as a predictor of multidimensional state anxiety. Paper presented at the AAHPERD National Conference, San Francisco, CA.

Silva, J. M., Cornelius, A., & Finch, L.M. (1991, April). Psychological momentum and skill performance: A laboratory study. Paper presented at the AAHPERD National Conference, San Francisco, CA.

Finch, L. M., Krane, V., Gould, D., Eklund, R., & Kelley, B. (1990, September). Factors influencing coaches' ability to predict anxiety levels in their athletes: Part II - Trait anxiety. Paper presented at the Annual Conference of the Association for the Advancement of Applied Sport Psychology, San Antonio, TX.

Krane, V., Finch, L. M., Gould, D., Eklund, R., & Kelley, B. (1990, September). Factors influencing coaches' ability to predict anxiety levels in their athletes: Part I - State anxiety. Paper presented at the Annual Conference of the Association for the Advancement of Applied Sport Psychology, San Antonio, TX.

Finch, L. M. (1988, October). An assessment of the factor validity of the Precompetitive Stress inventory. Paper presented at the Annual Conference of the Association for the Advancement of Applied Sport Psychology, Nashua, NH.

Finch, L. M. (1988, February). Assessing sources of precompetitive stress in collegiate athletes. Paper presented at the Atlantic Coast Conference Sport Psychology Symposium, Chapel Hill, NC.

Professional Symposiums

- Finch, L. M. (1992, October). Coping strategies utilized by National Champion figure skaters. Symposium title: Sources of stress in National Champion Figure Skaters, Gould, D., Jackson, S.A., & Finch, L. M. Symposium presented at the Association for the Advancement of Applied Sport Psychology Annual Conference, Colorado Springs, CO.
- Finch, L. M. (1990, August). A doctorate in sport psychology: The exercise and sport science route. Symposium title: Career decision problems for graduate students in sport psychology, Carr, C. M., Finch, L. M., Greenspan, M., Peterson, K. M., & Williams-Rice, B. T. Symposium presented at the American Psychological Association National Convention, Boston, MA.
- Finch, L. M. (1988, October). Career development in sport psychology. Taylor, J., Gould, D., Kirschenbaum, D., Rotella, R., Ravizza, K., Waite, B., Krane, V., & Finch, L. Intervention/performance enhancement symposium presented at the Annual Conference of the Association for the Advancement of Applied Sport Psychology, Nashua, NH.

Theses

- Finch, L. M. (1993). The relationships among coping strategies, trait anxiety, and performance in collegiate softball players. Unpublished doctoral dissertation, University of North Carolina at Greensboro.
- Finch, L. M. (1988). An assessment of the factor validity of the Precompetitive Stress Inventory. Unpublished Master's thesis, University of North Carolina at Chapel Hill.

Service Presentations

- Finch, L. M. (1992, June). Sport psych for softball success. Presentation made to the University of North Carolina at Charlotte Softball Camp.
- Finch, L. M. (1991, July). Arousal control and imagery. Presentation made to the University of North Carolina at Greensboro Volleyball Camp.
- Finch, L. M. (1990, August). Goal setting for successful volleyball. Presentation made to the Whetstone High School Volleyball Team, Columbus, OH.

Guest Lectures/Presentations

- Finch, L. M. (1991, November). Goal setting for college athletes. Presentation to the University of North Carolina at Greensboro Department of Counseling Consultation Seminar.
- Finch, L. M. (1990, April). Preliminary analyses of factors influencing coaches' ability to predict anxiety in their athletes. Paper presented at the University of North Carolina at Greensboro Exercise and Sport Science Colloquium.
- Finch, L. M. (1989, April). Using sport psychology to enhance gymnastics coaching. Presentation made to Kinesiology Majors in Gymnastics Core Class at the University of Illinois.

GRANTS

Finch, L. M. (1992). The relationship among coping strategies, trait anxiety, and performance in collegiate softball players. Susan Stout Fellowship, University of North Carolina at Greensboro (Funded \$800.00).

SERVICE TO THE PROFESSION**Membership and Involvements in Professional Associations**

Association for the Advancement of Applied Sport Psychology, 1986 - present

Continuing Education Committee (3 year selected appointment) 1991-1994
 Elected National Student Representative to the Executive Board, 1989 - 1990
 Student Regional Representative, 1988-1989
 Assistant to the President, 1986, 1987, 1988, 1990, 1991

American Alliance for Health, Physical Education, Recreation and Dance, 1989 - present

American Psychological Association, 1989 - present

North American Society for Psychology of Sport and Physical Activity, 1988 - present

Women's Sport Foundation, 1983-present

National Federation of Interscholastic Officials, 1992-present

University Committee Membership

Co-President, Graduate Exercise and Sport Science Society,
 University of North Carolina at Greensboro, 1991-92

Executive Board Member, Physical Education Graduate Society,
 University of North Carolina at Greensboro, 1990-1991

Conference Coordinator, Southeast Sport Psychology Symposium
 Held at the University of North Carolina at Greensboro, February 1990

Laura Huestler Award Committee,
 University of Illinois at Urbana-Champaign, 1988-1989

TEACHING COMPETENCIES AND EXPERIENCES

Teaching Competencies

Academic Courses

Psychology of Sport and Exercise
 Applied Sport Psychology
 Sociology of Sport
 Women in Sport
 Children in Sport
 Sport and the Mass Media
 Fitness and Conditioning
 Foundations of Physical Education
 Research Methods and Design
 Stress Management
 Psychosocial Aspects of Teaching and Coaching
 Elementary Physical Education Methods
 Secondary Physical Education Methods
 Personal and Community Health

Activity Courses

Beginning Volleyball
 Intermediate Volleyball
 Fitness and Conditioning
 Weight Training
 Jogging

Teaching Experience

Wingate College, Wingate, North Carolina

Elementary Physical Education Methods (3 hours)
 Personal and Community Health (3 hours)

University of North Carolina at Greensboro

Sport Psychology (3 hours)
 Beginning Volleyball (1 hour)
 Intermediate Volleyball (1 hour)
 Conditioning (1 hour)
 Weight Training (1 hour)

University of Illinois at Urbana-Champaign

Sport Sociology (3 hours, guest lectures)
 Physical Education as a Profession (3 hours, guest lectures, teaching assistant)
 Beginning Volleyball (1 hour)
 Conditioning and Weight Control (1 hour)
 Weight Training (1 hour)

University of North Carolina at Chapel Hill

Sport Psychology (3 hours, guest lectures and teaching assistant)
 Anatomy & Physiology (3 hours, led laboratories and review sessions)
 Beginning Volleyball (1 hour)
 Weight Training (1 hour)
 Jogging (1 hour)
 Soccer (1 hour)

**EXPERIENCE AS SPORT & EXERCISE PSYCHOLOGICAL SKILLS
CONSULTANT**

- 1992-1993 Women's Basketball Team
North Carolina State University
Team cohesion, communication, goal setting, competitive plans
- 1990-1993 Women's Softball Team
University of North Carolina Charlotte
Psychological skills development
- 1992 High School Baseball Coach
Greensboro, NC
Psychological skills development
- 1991 USA Today Newspaper
Alexandria, VA
National Call-In on youth sports and sport psychology
- 1990-91 Men's Basketball Team
University of North Carolina at Greensboro
Psychological skills development
- 1990-91 Basketball Player
University of North Carolina at Greensboro
Mental toughness, focusing
- 1990 Junior Tennis Players
United States Tennis Association
Developmental Camps in Greensboro, NC
- 1988-89 Women's Gymnastics Team
University of Illinois at Urbana-Champaign
Psychological skills development, imagery, relaxation
- 1987-1988 Cross Country and Track Athlete
University of North Carolina at Chapel Hill
Concentration, imagery, positive self-talk
- 1987-1988 Women's Volleyball Team
University of North Carolina at Chapel Hill
Cohesion, positive self-talk, communication

COACHING/ADMINISTRATIVE EXPERIENCE

<u>CAMP</u>	<u>TITLE/SPORT(S)</u>	<u>YEAR</u>
University of North Carolina-Charlotte	Director Women's Fastpitch Softball	1992, 1993
Whetstone High School, Columbus, OH	Instructor Women's Volleyball	1992
Prep Stars Invitational Camp	Administrative Assistant Men's Basketball	1989 - 1992
University of North Carolina-Greensboro	Official Women's Basketball	1990
University of North Carolina-Charlotte	Asst. Director and Official Women's Basketball	1989, 1990
University of North Carolina-Charlotte	Administrative Assistant Men's Basketball	1989
University of North Carolina-Chapel Hill	Assistant Director & Official Women's Basketball	1988
University of North Carolina-Chapel Hill	Team Coach and Official Volleyball	1988
United States Olympic Festival	Manager, East Team Men's Volleyball	1987
R & R Sports Academies	Assistant Camp Director Women's Synchronized Swimming, Soccer	1985
Sport Spectacular National Sports Camp	Team Coach & Counselor Women's Basketball, Volleyball	1984
Sport Spectacular Regional Sports Camp	Team Coach & Counselor Women's Basketball, Volleyball, Soccer	1983

CERTIFICATION

High School Volleyball Official, North Carolina State High School Association,
invited to officiate in state tournament.

American Coaching Effectiveness Program (ACEP; in progress)
Level 1 Instructor

Laura Marie Finch**References**

Daniel Gould, Ph.D.
Professor
Department of Exercise and Sport Science
HHP Building
University of North Carolina at Greensboro
Greensboro, NC 27412-5001
(919) 334-3037

Diane Gill, Ph.D.
Professor
Department of Exercise and Sport Science
HHP Building
University of North Carolina at Greensboro
Greensboro, NC 27412-5001
(919) 334-3022

Janet Harris, Ph.D.
Associate Professor
Department of Exercise and Sport Science
HHP Building
University of North Carolina at Greensboro
Greensboro, NC 27412-5001
(919) 334-3031

Charles Hardy, Ph.D.
Associate Professor
Department of Physical Education
CB #8700 Fetzer Gym
University of North Carolina at Chapel Hill
Chapel Hill, NC 27599-8700
(919) 962-2260

John Silva, Ph.D.
Associate Professor
Department of Physical Education
CB #8700 Fetzer Gym
University of North Carolina at Chapel Hill
Chapel Hill, NC 27599-8700
(919) 962-0017

Laura Marie Finch

Additional References

Tom Martinek, Ph.D.
Professor
Department of Exercise and Sport Science
HHP Building
University of North Carolina at Greensboro
Greensboro, NC 27412-5001

Susan Greendorfer, Ph.D.
Associate Professor
Department of Kinesiology
Freer Hall
University of Illinois
906 South Goodwin Avenue
Urbana, IL 61801

Tom Appenzeller, Ph.D.
Associate Professor
Department of Health, Physical Education, and Recreation
203 Cannon Complex
Wingate College
Wingate, NC 28174

Glyn Roberts, Ph.D.
Professor
Department of Kinesiology
Freer Hall
University of Illinois
906 South Goodwin Avenue
Urbana, IL 61801