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Psychological response to athletic injury: a manual for athletic trainers

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PSYCHOLOGICAL RESPONSE TO ATHLETIC INJURY:
A MANUAL FOR ATHLETIC TRAINERS

A Project Report

Presented to

The Faculty of the Department of Human Performance
San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Janelle Kay Reasor

May 1999

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ABSTRACT

PSYCHOLOGICAL RESPONSE TO ATHLETIC INJURY: A MANUAL FOR ATHLETIC TRAINERS

by Janelle Kay Reasor

An educational manual on psychological response to athletic injury was created for advanced undergraduate and newly certified athletic trainers. The intent of the manual was to educate athletic trainers on the literature surrounding psychological response and adjustments that athletes may experience as a result of injury, as well as provide athletic trainers with some psychological knowledge that may be employed in rehabilitation programs. The manual contains six sections: Purpose and scope, why target athletic trainers, understanding emotions, stage models of adjustment to athletic injury, cognitive appraisal models of adjustment to athletic injury, and psychological strategies. Twenty certified athletic trainers and 10 sport psychologists reviewed the manual. The results were supportive and the reviewers indicated a need for this type of manual in the athletic training domain.

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CHAPTER I

INTRODUCTION

Injury to athletes is a common consequence of participation in sport with approximately three to five million athletic injuries occurring in the United States each year (Kraus & Conroy, 1984). Ironically, these numbers are expected to rise despite advances in athletic equipment and rule changes. These injuries may be due to an ever-increasing number of participants, greater societal interest in sport, and/or greater availability of leisure time (Pargman, 1993). Many athletic trainers continue to strive to discover effective and applicable methods of safely returning athletes to competition as quickly as possible. However, often overlooked in the injury treatment intervention process is the psychological component of injury. Sport-related injury can often bring about certain psychological problems that keep the athlete from recovering as planned (Smith & Milliner, 1994; Wagman & Khelifa, 1995). These psychological problems must be identified and understood by athletic trainers if they are to aid in the athlete's complete mental and physical recovery from injury.

Many athletic trainers are aware that a successful recovery from injury is as much a mental as a physical victory (Wagman & Khelifa, 1995). As a result of the injury, treatment, and lengthy rehabilitation time; an athlete's emotions can vary throughout the rehabilitation process from negative responses such as anger, frustration, and discouragement to positive responses such as being motivated, hopeful, and optimistic. This inconsistent fluctuation in mood states can have a negative effect on rehabilitation progression (Lynch, 1988; McDonald & Hardy, 1990; Weiss & Troxel, 1986).

Therefore, athletic trainers must be aware of both the physical and emotional needs of injured athletes to effectively return them to competition.

If research on psychological adjustment is to have an impact on the care of injured athletes by the athletic trainers, it is critical to evaluate the behavioral impact of psychological adjustment to athletic injury. Many advocates of psychological intervention strategies have stated that the athletic trainer is in the ideal position to monitor the psychological aspect of athletic injuries and rehabilitation because of their contact with the athlete from the onset of injury throughout the rehabilitation process (Larson, Starkey, & Zaichkowsky, 1996; Pedersen, 1986; Tuffey, 1991; Weiss & Troxel, 1986; Wiese & Weiss, 1987; Wiese, Weiss, & Yukelson, 1991; Wiese-Bjornstal & Smith, 1993). However, in an environment where athletic trainers are the primary health care professionals for injured athletes, few possess the knowledge and skill concerning psychological rehabilitation (Larson et al., 1996; Wiese & Weiss, 1987; Wiese-Bjornstal & Smith, 1993). In agreement with this point, athletic trainers have indicated a need for more formal education on the psychological factors and strategies associated with the rehabilitation of athletic injuries (Brewer, Van Raalte, & Linder, 1991; Gordon, Milios, & Grove, 1991; Larson et al., 1996; Wiese et al., 1991). This leaves the job of dealing with psychological consequences of injury in the hands of sport psychologists who are not available to all athletic trainers (Larson et al., 1996). Therefore, empirical evidence describing the emotional reactions that can occur in injured athletes and the relationship with the rehabilitation process would be valuable to the athletic training profession.

Statement of Project

The purpose of this project was to create a manual for advanced undergraduate and newly certified athletic trainers based on research of contemporary models of psychological response and adjustment to athletic injury. A specific focus was given to the investigation of affective responses of injured athletes during the rehabilitation process. Specifically, what transient, fluctuating, affective mood states of injured athletes can be identified and assessed throughout the rehabilitation process, and what is its effect on rehabilitation progress? This manual will both educate athletic trainers on the literature surrounding the psychological response and adjustments that athletes may experience as a result of injury, as well as provide athletic trainers with some psychological strategies that may be employed in rehabilitation programs.

Significance of the Project

Understanding the psychological consequences of athletic injury has great potential for application in the rehabilitation process of injured athletes (Brewer, 1994). To date, the National Athletic Trainers Association (NATA) requires athletic trainers to only understand a stage model designed after the Kübler-Ross (1969) five-stage model in order to pass the NATA certification examination. This 1969 stage model, originally based on observations of the terminally ill, has yet to be shown as accurate when applied to the injured athlete. Since many athletic trainers have expressed an interest in psychological rehabilitation strategies (Brewer et al., 1991; Fisher & Hoisington, 1993; Fisher, Mullins, & Frye, 1993; Gordon et al., 1991; Granito, Hogan, & Varnum, 1995; Larson et al., 1996; Wiese et al., 1991), it is critical that psychological theory and

research empower the sports medicine profession with a clearer understanding of psychological adjustment to athletic injury and its implications for the rehabilitation process. As the sports medicine community becomes more aware of the athlete's response to injury, these professionals can begin educating the athletes to how their emotional reactions relate to their rehabilitation progress. This information could potentially improve the quality of care given to the injured athlete, as well as the athlete's knowledge and active role in the rehabilitation process. A manual containing a review of the current literature on this subject as well as an introduction to some general psychological strategies will provide athletic trainers with a valuable and practical reference.

Delimitations

This project was delimited as follows:

The Manual – The manual is delimited to advanced undergraduate and newly certified athletic trainers. The focus of the manual is derived from literature dealing with stage models and cognitive appraisal models of psychological response and adjustment to athletic injury. The psychological strategies discussed in the manual are limited to those dealing with goal setting, modeling, imagery and relaxation, positive self-talk, and a social support system.

The Questionnaire – The questionnaire was sent to 30 selected judges. In order to gather a wide range of opinions, two categories of judges were selected according to their experiences, knowledge, and interest in this area of sport psychology. The two categories of judges included 20 certified athletic trainers and 10 sport psychologists.

Limitations

The Manual – This manual was limited to the availability of material that is written in the English language.

The Questionnaire – The questionnaire was limited to conditions where the judges may respond to questions in a socially acceptable manner, and they may base their responses on their own potentially biased opinions and backgrounds on the subject. Judges who volunteered to read the manual and respond to the questionnaire were selected. Since the judges were not all selected randomly from a general population, the results may not be generalized to the whole population.

Assumptions

It was assumed for this project that all judges critically read the created manual and respond truthfully to the given questionnaire.

Definition of Terms

Cognitive appraisal model of adjustment to injury - An individual's response to injury that is influenced by the interaction of personal factors and situational factors (Brewer, 1994).

Personal factors – Dispositional and/or historical attributes of the individual (i.e., trait anxiety, self-esteem, self-motivation, coping skills, extraversion, psychological investment in sport, and injury history) (Brewer, 1994).

Situational factors – Injury-related characteristics and variable aspects of the social and physical environments (i.e., medical prognosis, recovery progress, social support, injury status, and impairment of sport performance) (Brewer, 1994).

Injury – Harm or damage that requires rehabilitation and absence from physical competition (McDonald & Hardy, 1990).

Stage model of adjustment to injury – A predictable sequence of stages that an individual who experiences a disabling injury passes through on the way to positive adjustment (Brewer, 1994).

CHAPTER II

REVIEW OF LITERATURE

Introduction

The following discussion begins with a review of the different contemporary models of psychological adjustment to athletic injury and concludes with some general psychological strategies that can be applied to the rehabilitation program for injured athletes. The emotional as well as physical response of athletes who have sustained a serious injury has been the focus of several researchers in the past 15 years (Chan & Grossman, 1988; Crossman & Jamieson, 1985; Evans & Hardy, 1995; Gordon, 1986; Lynch, 1988; McDonald & Hardy, 1990; Pearson & Jones, 1992; Quackenbush & Crossman, 1995; Rotella & Heyman, 1986; Smith, Scott, O'Fallon, & Young, 1990; Smith, Scott, & Wiese, 1990). To understand the significance of psychological mood swings in the rehabilitation process of injured athletes, contemporary models of psychological adjustment to athletic injury must first be reviewed. As primary care providers, athletic trainers are central to the athlete's care from the onset of injury until the return to competition. It is the athletic trainer's job to make sure that athletes are healed both mentally as well as physically before safely returning to competition. The following review of literature is intended to provide advanced undergraduate and newly certified athletic trainers with a more formal education on this matter. The review of literature will include a brief discussion of emotion and the frameworks that maintain that adaptation to injury is facilitated by the expression of emotion. Next, a review of proposed stage models and cognitive appraisal models of stress, grief and loss used to

explain the psychological reactions that athletes undergo once they have sustained an injury will be included. Finally, the review of literature will conclude with a brief overview of the athletic trainer's performance domains and some general psychological strategies that can be used by athletic trainers in their rehabilitation programs.

Emotion

In order to rehabilitate an injured athlete, an understanding of the emotions that an athlete may feel during the healing process is important to all of those involved with the athlete's recovery. A better understanding of the emotions experienced by an injured athlete, particularly during the rehabilitation process, is increasingly becoming the focus of many researchers (McDonald & Hardy, 1990; Pearson & Jones, 1992; Pederson, 1986; Weiss & Troxel, 1986). Emotion is defined as a state of mind in which feeling, sentiment, or attitude is predominant (Quackenbush & Crossman, 1995). According to Izard, Kagan, and Zajonc (1988), the nature of the experienced emotion, and the direction and force of the experienced motivation are influenced by the perceptions of the external situation, plus the cognitive meaning of the external state. Determining just how many emotions exist and what constitutes the basic emotions remains inconsistent among published authors. Panksepp (1982), for example, identified four basic emotions (expectancy, fear, rage, and panic) while Izard (1977) identified 10 basic emotions (interest-excitement, joy, surprise, distress, anger, disgust, contempt, fear, shame, and guilt) (as cited in Quackenbush & Crossman, 1995). For athletic trainers, it is important to understand that an experienced emotion is usually associated with changes in skeletal muscular activity, facial behavior, vocal responses, and a number of biological

parameters, including autonomic endocrine and central nervous system activity (Izard et al., 1988). Research has also shown that negative emotions are related to diminished physiological functioning, that is, reduced blood flow, muscle constriction, and bracing; all of which are contraindications for health and healing (Lynch, 1988; Smith, Scott, O'Fallon et al., 1990).

Emotions that accompany an athletic injury have often been described as a reaction to a loss that an athlete has experienced. Although athletes may react to injury in many different ways, Gordon et al. (1991) suggest that "every athlete who experiences an injury that renders him or her even temporarily inactive or disabled will experience a painful loss, and the subsequent physical and emotional significance of this loss is likely to be equivalently great" (pp. 59). When one encounters a significant loss, "grief work" is the process of dealing with all of the emotions (Brown & Stoudemin, 1983). For the injured athlete, grieving may result from a loss of some aspect of the self. Although this loss normally is not permanent, the loss of participation and/or previous athletic ability may be perceived as a traumatic event. According to Suinn (1967, as cited in Quackenbush & Crossman, 1995), an athlete's psychological response to his or her injury generally depends upon three factors. The first factor consists of the injured athlete's prior psychological level of functioning. The second factor includes the nature of the disability, the injury location, the severity of the injury, the duration of rehabilitation, and the resulting changes in the person's life-style. The third factor involves the meaning of the disability to the patient. According to this interpretation, the emotional reactions that injured athletes experience will be very individual.

An athlete's emotional reactions to an injury can have a significant impact on the rehabilitation process (Lynch, 1988; Rotella & Heyman, 1986; Smith, Scott, O'Fallon et al., 1990; Weiss & Troxel, 1986). These emotions can both help and hinder how an athlete adapts to and is rehabilitated from the injury. According to Silva and Hardy (in press), the degree to which an athlete maintains negative affect, such as anger, determines the transition from incapacitation to rehabilitation. It is only when the athlete regains emotional control that he or she can acknowledge the severity and limiting capacities of the injury. This acceptance leads to a task-focused approach to the rehabilitation process that allows the athlete to move from self-protective behaviors to active coping behaviors.

Stage models and cognitive appraisal models are the two most popular models of stress, grief and loss used to explain the psychological reactions that athletes undergo once they have sustained a serious injury. A serious injury is one that requires an extensive amount of rehabilitation and absence from competition. The duration of this absence and thus the definition of injury tends to vary in the literature. The extent of psychological injury that athletes may experience along with physical injury varies greatly with the personal attributes of the athletes themselves and the context within which physical injury occurred. For example, self-esteem, trait anxiety, intrinsic motivation, coping skills, extra-version, neuroticism, psychological investment in sport, and injury history likely affect an athlete's response to injury (Brewer, 1994). Furthermore, various situational factors such as the nature and extent of injury, type of sport, time during the season in which the injury occurred, the athlete's role or status on

the team, and the perceived context of the injurious situation may also influence an athlete's reaction to injury (Pedersen, 1986; Weiss & Troxel, 1986).

A number of stage models of stress, grief and loss have been used to explain psychological reactions to athletic injury. Stage models of adjustment are generally based on the idea that the disability associated with injury constitutes a form of "loss" of one's self. Peretz (1970) defines loss as a state of being deprived of or being without something one has had. Four different types of loss have been identified based on Peretz's research conducted in the medical setting. The first type of loss is that of a loved one. In an injury situation, this loss could be related to the possible isolation and loss of contact with fellow teammates, coaches, and other individuals with whom one relates to in the athletic field. The second of Peretz's types of loss is the loss of some aspect of the self. He describes self as the mental picture that individuals paint of themselves physically and holistically. In the event of an injury, a person may begin to doubt his or her physical capabilities and status as well as his or her self-worth or self-esteem. A third type of loss, as described by Peretz, is the loss of external objects or possessions. Although less common, athletes in this case may experience this loss through reduced monetary income, medals, trophies, or sporting equipment. The final form of loss, according to Peretz, is developmental loss. This loss is experienced in the inability of the human body to grow and develop properly. Athletes may witness this loss through decreased flexibility, speed, and/or strength resulting from an injury. Such a loss may not manifest itself until much later in the athlete's life. Although these losses fit

nicely into different categories, an athlete's response to injury may include a sense of loss that extends into several of the categories.

Stage Models of Adjustment

A pattern among athletes experiencing loss due to an injury is the focus of several researchers attempting to propose stage models of response to athletic injury. It is assumed in most stage models of adjustment to athletic injury that the individual who experiences a disabling injury passes through a predictable sequence of stages on the way to positive adjustment (Brewer, 1994). For example, several authors have noted parallels between the responses of the terminally ill and injured athletes (e.g., Astle, 1986; Lynch, 1988; McDonald & Hardy, 1990; Nideffer, 1989; Pedersen, 1986; Rotella, 1982; Rotella & Heyman, 1986; Samples, 1987; Weiss & Troxel, 1986; Wiese & Weiss, 1987). These authors believe that athletes may exhibit signs of a grief response following injury that is similar to the stage model proposed by Kübler-Ross (1969) for the terminally ill. This five-stage model of the grief process resulting from over 200 interviews with terminally ill patients, is the one upon which many sport psychologists have compared their data of grief response to injury, despite its derivation from a population quite different from injured athletes. These authors claim that athletes react to injury by proceeding through five stages, which are commonly experienced by those suffering some type of loss. The first stage of the Kübler-Ross grief reaction is characterized by a sudden shock-like state, in immediate response to the injury. Common emotions during this time are denial and isolation. One may deny the loss or existence of a problem, and in-turn become isolated from others. In athletics, many advocates of this model suggest that such a reaction can

be seen in those athletes who continue to play despite the pain an injury is causing.

Advocates further suggest that this reaction can also be seen in those athletes who refuse to take their injuries seriously and neglect to see a physician or athletic trainer. The second of Kübler-Ross' stages is anger. Some researchers suggest that this stage involves internal and/or external emotions of rage, envy or resentment regarding the athletes' condition due to the injury. For example, an athlete may become envious of a player who takes his or her spot on the team, or may become angry with him or herself for the occurrence of the injury. An athlete could also become resentful of his or her teammates who are not injured. The third stage of grief reaction is the bargaining stage. An individual at this stage may believe that if he or she can accomplish some type of task, then the loss will be lessened or postponed. An example may be that of an athlete who turns to prayer for recovery of an injury. Asking God to lessen the loss of the injury in exchange for "good behavior" or "obedience" is an example of bargaining behavior. The fourth stage is depression. In this stage, authors suggest that an athlete's intense preoccupation with the injury and withdrawal from friends and teammates may be noticeable. During this time athletes may experience insomnia, fatigue, crying, nightmares, or guilt about leaving the team. The final Kübler-Ross stage is that of acceptance. This stage is characterized by the recognition of the severity of the injury and acceptance of the loss that has been sustained. Researchers suggest that athletes at this stage may begin to display renewed interests and return to previously important activities, including activities that are related to their sport. Acceptance of the situation is key to the recovery phase of athletic injury. Despite this model's non-athletic origin,

many authors have used this model in an attempt to theorize how athletes might respond to injury.

Other theorists have described the individual reactions to loss in similar ways. McDonald and Hardy (1990) are two of several researchers who have noted parallels between the Kübler-Ross (1969) five-stage response of the terminally ill and injured athletes. Their study examined the affective response patterns of 5 severely injured, National Collegiate Athletic Association (NCAA) Division I athletes over a 4 week period. The fluctuating affective mood states of each athlete were assessed using the Profile of Mood States (POMS) questionnaire (McNair, Lorr, & Droppleman, 1971). The results of the study suggested a stage like process similar to that described by Kübler-Ross. However, instead of five stages, a two-stage process of adaptation to athletic injury resulted from the study. The first stage, although brief and intense, is the impact stage. This reactive stage includes the shock of injury as well as the feeling of panic, disorganization, and helplessness. The second stage, considered the adaptive stage, includes retreatment and acknowledgement. Retreatment, as defined by McDonald and Hardy, is considered a type of denial in which the individual either “retreats” into illness or into health. Acknowledgment, according to McDonald and Hardy, includes cycles of approach-avoidance. Similar to the Kübler-Ross theory, this two-stage model suggests that the athlete must take an active role in accepting the injury and directing his or her emotional energy into the rehabilitation process. However, with only 5 subjects under study and a limited measurement period, some critics believe that this stage model may

not contribute valid data to the body of literature focused on establishing a response pattern among athletes.

Similar to the methodology of the McDonald and Hardy (1990) study, Smith, Scott, O'Fallon et al. (1990) conducted a study focused on determining the presence, type, magnitude, and duration of the emotional response of athletes to injury. With a less criticized sample of 73 injured athletes and an evaluation time of up to 4 months, the POMS questionnaire as well as the Emotional Responses of Athletes to Injury Questionnaire (ERAIQ) was given every 2 weeks to assess affective mood states. The findings of this study suggest that the most seriously injured athletes experience high levels of depression, tension and anger simultaneously, in association with low vigor, which persisted until the second evaluation. At the time of the second evaluation, mood disturbance subsided and vigor increased. This change continued with the third evaluation. While no obvious grief-response stages were identified in this study, a general trend suggests that the emotional response during the rehabilitation period showed a progression from a negative to a more positive mood state. Furthermore, unlike other models describing the response of injured athletes, this study showed that denial was clearly absent from the emotional responses of athletes.

Weiss and Troxel (1986) proposed that injured athletes pass through four stages of response to injury. This model was based on the results of 10 interviewed injured athletes at the collegiate and elite levels. These athletes described common reactions to their injuries expressing disbelief, fear, rage, depression, tension, and fatigue as well as upset stomach, insomnia, loss of appetite, and inability to cope with all the factors of

recovery. The four stages proposed by Weiss and Troxel include: (1) What? – the injury stressor; (2) Think? – the cognitive appraisal of the injury and one's ability to deal with it; (3) Feel? – the emotional response to the stressor; and (4) Do? – the consequences of the stress. In the first stage, the injury itself places limitations or demands on the athlete. In the second stage, how the athlete begins to perceive and interpret the injury predicts the intensity of the emotions, whether positive or negative, that the athlete will experience. The third stage deals with how athletes respond emotionally to what has happened, effecting their recovery both psychologically as well as physiologically. The final stage in the injury process includes the behavioral consequence of the physical and psychological responses. Similar to the limitations experienced by McDonald and Hardy (1990), Weiss and Troxel (1986) based their four-stage model on information obtained from 10 subjects. This limited subject size is clearly a common problem with the methodology shared among many sport psychologists who are attempting to establish a pattern among injured athletes.

A three-stage model for the psychological recovery from an athletic injury has been proposed in two separate studies. Rose (1991, as cited in Quackenbush & Crossman, 1995) describes the first stage as initial shock and denial of the injury. This is similar to the impact stage proposed by McDonald and Hardy (1990). Complete engrossment with the injury, as well as attempts to explore its meaning and reorganize, are emotions involved in Rose's second stage of adaptation to injury. The third and final stage occurs when athletes refocus their energy and begin to reconnect with their normal routine and learn acceptance of the injury. Rose, like other authors, was also able to

point out the commonly cited finding of a positive shift in the athlete's mood state as a function of time (McDonald & Hardy, 1990; Smith, Scott, O'Fallon et al., 1990; Weiss & Troxel, 1986).

Pedersen (1986) also describes a three-stage model very similar to the model presented by Rose (1991, as cited in Quackenbush & Crossman, 1995). Applied to athletic injury, the first stage is characterized by denial of the injury, shock that the injury occurred, and anger. This first stage is considered the protest stage and is followed by the hopelessness stage. In this second stage, similar to that of Rose, the athlete understands that the injury has occurred and becomes very preoccupied with memories from the past and little hope for the future. Common emotions during this time may be depression, insomnia, fatigue, crying, or guilt about leaving the team. In the final stage, reorganization, the athlete is able to get over his or her loss and refocus their attention to previous activities. Once again, acceptance of the injury situation is key to this three-stage process.

Alternatively, Heil (1993) suggests a three-stage, cyclic model that differs slightly from the proposed three-stage models of Rose (1991, as cited in Quackenbush & Crossman, 1995) and Pedersen (1986). Heil argues that athletes who experience an injury may progress through stages of distress, denial and determined coping. In the stage of distress, an athlete may experience emotions of shock, anger, bargaining, anxiety, depression, isolation, guilt, humiliation, preoccupation, and helplessness (Udry, Gould, Bridges, & Beck, 1997). In the second stage, denial, the emotions of athletes may range from simple disbelief to complete unacceptance of the injury. Determined coping,

the final stage, is characterized by the athlete's use of coping strategies to work through the rehabilitation process. Once again, this approach is conceptually similar to other stage models given its emphasis on the positive adaptations to injury as rehabilitation progresses through time. Heil does add a new perspective to the stage models by suggesting that athletes may fluctuate between stages in a more cyclic manner. This allows for the possibility of "regression" throughout the "progression" of the rehabilitation process.

Chan and Grossman (1988) attempted to assess the emotional distress of 30 injured runners. Using responses on the POMS questionnaire, the Zung Depression Scale (Zung, 1965), and the Rosenberg Self-esteem Scale (Rosenberg, 1965), a group of 30 injured runners were compared to a group of 30 healthy athletes. The results suggested that significant elevations in depression, tension, and confusion in conjunction with reduced self-esteem were observed in the injured group. According to the authors, deprivation of a consistent running routine may have resulted in the loss of a coping strategy for those runners who tend to run for stress management and mood stabilization.

Finally, a retrospective study conducted by Udry et al. (1997) analyzed the responses of 21 US Ski Team athletes. In-depth interviews, followed by a content analysis, allowed the authors to analyze the psychological reactions of the elite athletes who had dealt with a season-ending injury. The immediate reactions to injury were divided into four broad areas: (1) injury-relevant information processing/awareness, (2) emotional upheaval/reactive behavior, (3) positive outlook/coping attempts, and (4) other. Similar to Smith, Scott, O'Fallon et al. (1990), minimal support for the denial component

was found by Udry et al. (1997). In their discussion, the authors suggest that the inconsistent recognition of a denial stage among proposed stage models may result from different interpretations of an individual's response. For example, athletes may have difficulty accurately assessing the severity of an injury or level of pain they are processing. This delay in processing the information regarding the injury may be mistaken as a denial stage among the researchers. To solve this problem, a common definition of denial should be established to avoid confusion in the literature. Udry et al. suggest that denial should be reserved for those athletes who are noncompliant despite their awareness of the severity of the sustained injury.

Despite the popularity of stage models in the applied literature, the notion of a pattern of distinct emotional responses to loss has yet to be agreed upon. Consistent and substantial evidence for the assumption that there is a consensual, stage like pattern of response to athletic injury is difficult to find among sport psychologists. Silver and Wortman (1980, as cited in Brewer, 1994) conducted a review of literature on coping with undesirable life events, including physical injury, and concluded that there is no stage like pattern of response to negative life events. According to Quackenbush and Crossman (1995), McDonald and Hardy (1990), and Smith, Scott, O'Fallon et al. (1990), severely injured athletes experienced intense emotional disturbance immediately following their injury and that the distress diminished over time, suggesting a two-stage process. These studies showed that no discrete stages of emotional response were identified and that denial was not necessarily included in the emotional responses of the subjects. Perhaps these widely cited studies are easier to compare based on their similar

methodology. Their results were in part obtained using the POMS questionnaire making the studies more compatible for comparison.

In summary, research has carefully tested the major claims of stage models. Behaviors consistent with the various stages have been observed in injured athletes, but a common sequence of discrete emotional reactions to athletic injury has not been widely supported. Nonetheless, there are two elements that are common amongst most of the reviewed stage models. First, the reaction to loss is perceived as a process that occurs over time and includes the involvement of the athlete as a primary participant in his or her recovery. Second, all of the proposed stage models, despite the numbers and names of the stages, tend to show a progression of emotions that ultimately leads toward acceptance of the injury. It is important to stress that athletic trainers are required to only know the stage model proposed by Kübler-Ross (1969) in order to pass the NATA certification examination. The stages are in the same consecutive order, only some questions will omit the bargaining stage. Furthermore, published athletic training education books refer to Kübler-Ross' stage model to educate athletic trainers on the grief response to athletic injury (Arnheim, 1997). The use of the Kübler-Ross grief model as the backbone from which so many theorists have based their research has dominated the literature. A number of other grief models have been proposed within the clinical setting which are based on various subject populations. Of those models, the conceptualization of loss and grief as provided by Averill (1968) and Bowlby (1991) may be very applicable to the injury context and worthy of further examination (Evans & Hardy, 1995).

Perhaps the greatest weakness of the stage model approach is its inability to account for individual differences (Brewer, 1994; Smith, Scott, O'Fallon et al., 1990; Udry et al., 1997). Although several factors have been consistently discovered across many studies as responses to athletic injury, several variations do exist. This may be due to the methodological differences, selected sample characteristics, differences in the nature of the loss, or differences in the experiences of grief. Furthermore, the literature on injury response is dominated by authors who choose to analyze the topic descriptively. While retrospective and case study designs may provide researchers with some information on the psychological response to injury, there is a need for more empirical evidence to support stage models of response to injury in the athletic domain (Brewer, 1994). Inconsistent definitions of injury, as well as various emotional responses such as denial, are common features of many studies. Overall, it seems as though contemporary theorists have spent more time and effort criticizing and comparing proposed stage models of grief than in proposing models of grief response to injury that can be empirically tested. The continued existence of such limitations not only hampers the understanding of the psychological responses of athletes to injury, it also hinders the contribution and application of grief response models, and the ability to effectively address the issues with intervention strategies (Evans & Hardy, 1995).

It is up to all athletic trainers to be critical of the research and more importantly, to be active in pursuing research that better answers the questions that need to be asked. An empirical study assessing the psychological response of many athletes in the sports domain has yet to show a stage like pattern that has been accepted in the literature by

those sport psychologists who continue to probe at the question. The significance of such information would greatly benefit the injury rehabilitation process for all of those involved (i.e. the athlete, the athletic trainer, and the sport psychologist). In his review and critique of psychological adjustment to athletic injury, Brewer (1994) quoted Frank, Elliot, Corcoran, & Wonderlich (1987):

It is imperative that psychological theory and empirical information furnish the sports medicine community with an accurate set of assumptions regarding the psychological adjustment to athletic injury, as assumptions serve as expectations that can influence the psychological responses of individuals undergoing rehabilitation (pp.97).

Cognitive Appraisal Models of Adjustment

Whereas stage models fail to account for individual differences in response to athletic injury, cognitive appraisal models were developed to explain such differences. Cognitive appraisal models propose that the way in which the individual interprets an athletic injury determines the emotional response. Therefore, the way in which the injury is perceived is considered more critical to understanding emotional reactions than the fact that injury has occurred. Cognitive appraisal models are influenced by the interaction of personal and situational factors. Among the personal factors hypothesized to affect cognitive appraisals of athletic injury are trait anxiety, self-esteem, self-motivation, coping skills, extraversion, neuroticism, psychological investment in sport, and injury history (Brewer, 1994; Wagman & Khelifa, 1995). There is little evidence for the role of personal factors in emotional adjustment to athletic injury as few studies have directly

addressed this relationship. However, five personal variables; psychological investment in sport, physical self-esteem, age, pessimistic explanatory style, and hardiness, have been correlated with emotional reactions to injury (Brewer, 1994). A number of situational factors have been hypothesized to influence the cognitive appraisal and emotional adjustment process as well. Significant positive relationships between post-injury emotional adjustment and the following situational variables have been obtained: recovery progress (McDonald & Hardy, 1990), social support for rehabilitation (Brewer et al., 1991), physician-rated current injury status, and impairment of sport performance (Brewer et al.). Inversely related situational variables to post-injury emotional adjustment are injury severity (Smith, Scott, O'Fallon et al., 1990), duration of injury (McDonald & Hardy, 1990; Smith, Scott, O'Fallon et al., 1990), impairment of daily activities (Crossman & Jamieson, 1985), and life stress (Kerr & Minden, 1988; Nideffer, 1989). Other situational factors that potentially influence postinjury emotional distress but are currently without support include personal control over recovery, time of athletic season, point in athletic career, type of sport, social pressures, injury onset, injury course, rehabilitation self-efficacy, and pain (Brewer, 1994). Essentially, this model deals with what the injured athlete is thinking (cognitive appraisal) and feeling (emotional response) in regard to the occurrence of the injury. The behavioral response deals with the actions of the athlete based on his or her thoughts and feelings about the injury. This bidirectional model suggests that athletes will evaluate the demands of a certain situation, their own ability to meet such demands, and the consequences of either failing or succeeding to meet those demands. Any perceived imbalance between the situational

demands and individual response capabilities may result in anxious reactions that interfere with the rehabilitation process (Wagman & Khelifa, 1995). Because of this model's individualized approach, some researchers believe that when applied to athletic injury, it is more advanced than the stage model approach (Brewer, 1994; Brewer, Linder, & Phelps, 1995; Wagman & Khelifa, 1995). An approach that includes individual differences in coping with athletic injury is more beneficial than a stage model approach into which individual experience must be made to fit. Exploration of cognitive appraisal models of emotional adjustment to athletic injury is only beginning.

Summary

Regardless of how the response to injury is described, the basic implication in both models of adjustment is that athletes will manifest different reactions to injury. This is perhaps due to an interaction of both personal attributes and the situational factors surrounding injury. The variable and changing nature of the responses, however, supports the belief that psychological mood swings do occur and can effect not only the physical rehabilitation of injured athletes but their psychological rehabilitation as well. To date, however, empirical evidence describing the emotional reactions that can occur in injured athletes and the relationship with the rehabilitation process is lacking. The purpose of this project is to review the literature on affective responses of injured athletes and create a manual for advanced undergraduate and newly certified athletic trainers. This manual will provide them with a more formal education on the subject as well as offer some general psychological strategies to be applied to rehabilitation programs.

However, it is imperative that athletic trainers know their limitations when dealing with the emotions of an athlete throughout the rehabilitation process.

Domains of the Certified Athletic Trainer

The NATA completed its third role delineation validation study for the entry-level athletic trainers' certification examination in 1994. One major function of the certification program is to protect the public from the practice of an incompetent individual. The NATA considers five performance domains as essential components for competent functioning at the entry level: 1) prevention 2) recognition and immediate care 3) rehabilitation and reconditioning 4) health care administration 5) professional development. Although each performance domain possesses its own body of unique knowledge and skill, some subject matter consistently appeared across all domains. These overlapping areas have been termed "universal competencies". Psychology/counseling is one of the universal competencies recognized by the NATA. For example, athletic trainers can facilitate the education of healthy and injured athletes in areas such as alcohol and/or drug abuse and performance anxiety to assist in the prevention of athletic injury. Recognizing the psychological signs and symptoms of athletic injury and illness is a major component in the recognition, evaluation and immediate care of athletic injury. Furthermore, athletic trainers must understand the psychological implications of injury to assist in rehabilitation as well as understand how to communicate with and refer injured athletes to the appropriate health care provider (health care administration/professional development). Based on this information, the athletic trainer's role as a counselor is considered important for entry-level certified

athletic trainers. For this reason, athletic trainers need to be able to assess more than just physical injuries. However, the counseling services of the athletic trainer must be guided by professional, moral, ethical, and legal directives. Certain psychological problems will demonstrate recognizable signs and symptoms (Hederson & Carroll, 1993). Still, it is very important that athletic trainers do not overstep their professional limitations.

Athletic trainers who feel uneasy or unqualified should not hesitate to refer athletes to other professionals whose training and education enables them to deal with problematic athletes. To refer the athlete is consistent with NATA and American Psychological Association (APA) guidelines. Clearly, the intent of the counseling mission of the certified athletic trainer is directed toward education, recognition, and referral of athletes for appropriate services in the area of personal, social or mental health problems.

Once athletic trainers reach the limit of help they are capable of providing, they may still serve athletes in several very important ways. For example, if an athletic trainer refers an athlete to a sport psychologist, the athletic trainer can continue to aid the injured athlete by providing him or her with assurance that seeking professional psychological help is not a sign of weakness but rather a step toward taking charge of one's life. Furthermore, because the first hints of physical-psychological problems are often demonstrated in the training room, it is important that athletic trainers continue to keep the lines of communication open between the athlete, the coaching staff, doctors, psychologists, and any administrators who are involved (Henderson & Carroll, 1993).

Psychological Strategies

Sport psychology is a positive, growth-oriented, educational process that stresses mental discipline and personal responsibility that can facilitate rehabilitation performance (Perrin, 1999). An injured athlete will experience emotional response to trauma. Some signs may include the athlete's lack of interest in schoolwork and campus events or a general decline in a formerly positive attitude (Henderson & Carroll, 1993). In response, athletic trainers must design a rehabilitation protocol that addresses both the physical and psychological needs of the injured athlete (Flint, 1993; Lynch, 1988; Pearson & Jones, 1992; Weiss & Troxel, 1986; Wiese & Weiss, 1987). Several authors suggest that psychological skills such as goal setting, imagery and relaxation training, negative thought stoppage, and social support can be used to provide psychological rehabilitation in conjunction with physical recovery protocols (Heil & Fine, 1993; Lynch, 1988; Pearson & Jones, 1992; Rotella & Heyman, 1986; Tuffey, 1991; Wagman & Khelifa, 1995; Weiss & Troxel, 1986; Wiese & Weiss, 1987). It is important to keep in mind that while these techniques may aid in an athlete's psychological recovery from injury, athletic trainers must be able to recognize when a referral is necessary. According to Fisher (1990), three aspects of self-confidence that become important in the rehabilitation process include competence, control, and commitment. Competence relates to the feelings that any task can be accomplished. In terms of athletic injury, competence refers to an athlete's successful return to competition. Control describes the athlete's feeling that he or she has the ability to take charge of his or her own rehabilitation program. Finally, commitment refers to the athlete's willingness, dedication, and capability to stick

to their rehabilitation protocol. As Fisher indicates, “any strategy that promotes any of these three ends will increase the likelihood of treatment adherence” (p. 154).

The final section of this review of literature discusses a variety of psychological intervention strategies that may be used to supplement the physical rehabilitation process. These include, but are not limited to, goal setting, modeling, imagery and relaxation, positive self-talk, and social support systems.

Goal Setting. The use of goal setting has many potential applications throughout the rehabilitation process. The striving for and attainment of short and long term goals can provide a sense of accomplishment that is both motivating and allows for individual progress to be measured or observed. In the rehabilitation setting, results from Ievleva and Orlick (1993) indicated that athletes who were involved in goal setting on a consistent basis healed faster than athletes who did not utilize goal setting. For this reason, athletes and athletic trainers must work together to establish realistic goals throughout the healing process. These goals should be specific and measurable, written down, and posted where the athlete will frequently see them (Wiese & Weiss, 1987). Furthermore, these goals should be evaluated periodically and revised if necessary. If the goals are established in a measurable and observable manner, evaluation of goal attainment should be easy. Along the same line, athletic trainers must provide the injured athlete with feedback regarding his or her progress in relation to the set goals. Such an approach to goal setting can help motivate injured athletes to continue to strive and put forth the effort necessary for a full recovery. Furthermore, strategies for achieving these goals should be discussed by the athletic trainer and the injured athletes. Such strategies

may involve the learning and practice of other psychological skills such as modeling, imagery and relaxation techniques, positive self-talk, and social support.

Modeling. One technique that has been given minimal attention in the psychological rehabilitation of athletic injuries is the use of modeling or observational learning. Modeling is often used in the athletic domain as an instructional tool for motor skill development and social behavior. However, modeling can also be used in the rehabilitation of athletic injury as a tool for motivation, injury-rehabilitation information, and behavioral cues for recovering athletes (Flint, 1993). A key component to a successful recovery from athletic injury involves learning how to cope with the process of rehabilitation and eventual return to competition. According to Flint, athletes who have never experienced a major injury can learn a great deal about the healing process and the possibility of recovery from athletes who have already effected a complete recovery from injury. Upon experiencing the first injury, athletes have no experience on which to base their expectations for a full recovery. A possible fear of the unknown may delay their recovery process (Rotella & Heyman, 1986). In this case, rehabilitated athletes become ideal models for the injured athletes (Flint, 1993; Weiss & Troxel, 1986; Wiese & Weiss, 1987). By talking to the model, injured athletes may gain knowledge about rehabilitation, strategies used to encourage rehabilitation adherence, obstacles to be expected, strategies for handling setbacks, realistic expectations for future recovery, and the confidence that if others can recover from injury, so can they (Flint, 1993). Athletic trainers can serve an important function of networking and coordinating peer modeling

by connecting an injured athlete with another athlete who has recovered successfully from a similar injury (Wiese & Weiss, 1987).

Imagery and Relaxation. Imagery enables an athlete to mentally practice physical and performance skills that may allow return to previous activities (Wagman & Khelifa, 1995). Imagery techniques can be used by athletic trainers as a tool that spans across many of the athletic training domains. As several studies show, increased levels of stress often result in injury (Anderson & Williams, 1988; Hardy & Riehl, 1988; Kerr & Minden, 1988; Nideffer, 1989). The resultant injury may be a result of fatigue, lack of concentration, mental distraction, etc. To lessen the impact of stressors and, thus, the potential for injury, imagery techniques that enhance relaxation and perspective toward specific situations of stress may be developed and implemented throughout the season as circumstances arise (Green, 1992). In this sense, imagery and relaxation can be used by athletic trainers as a tool for the prevention of athletic injury. For benefit throughout the rehabilitation stages, an injured athlete may be instructed to project him or herself back or forward in time and describe the emotions associated with different stages of rehabilitation from retrospective or futuristic perspectives. By doing this, the athlete is encouraged to recognize various stages of recovery. For example, although the athlete may recognize the possibility of becoming depressed during the rehabilitation process, he or she may also recognize that depression may be part of the process that eventually leads to recovery (Green). Ievleva and Orlick (1991) reported a decreased recovery time for injured athletes who did not engage in injury-replay imagery, concluding that athletes

must use their intellect to guide the neuropsychological processes of the brain in such a manner as to facilitate recovery.

According to Wiese et al. (1991), athletic trainers may be reluctant to advocate the use of imagery techniques mainly because of their feelings of being unqualified to use such techniques and/or not believing in their efficacy. The fact that the athlete may have the capacity to expedite recovery with the use of cognitive strategies such as imagery and relaxation does not seem to be recognized to the degree that it should be (Green, 1992). Athletes can be trained to use imagery and visualization in conjunction with relaxation exercises in order to deal with the stress and anxiety associated with an injury. Such strategies may also be used to reduce pain at the site of the injury (Wiese & Weiss, 1987). According to Henderson and Carroll (1993), through imagery, athletes may develop neural pathways to the muscles that are used in a particular activity. If the messages are positive and skill oriented, athletes may actually be able to strengthen the neural pathways for certain sport specific movements (Suinn, 1980). Therefore, it is important that athletic trainers help injured athletes maintain a positive mental attitude about healing throughout the rehabilitation process. Furthermore, information gathered from the athletic trainer concerning the anatomy and physiology of the injury will facilitate the athlete's use of rehabilitative imagery. Aside from the physical healing benefits, athletes can use these skills to rehearse the motions and emotions they may experience upon their return to competition. From a sport psychology point of view, it seems reasonable to suggest that there exists a logical link between the relationship of imagery used to

enhance sport performance and the impact of imagery during the healing process of athletic injury.

In summary, specific mind-sets that might be addressed through the use of imagery and relaxation may include the following: maintaining a positive outlook, controlling stress, reducing pain, using positive and descriptive self-talk, and sustaining belief in the rehabilitation process. Performance-related imagery, such as mental rehearsal, may be used while attending practices and competitions in which the athletes imagine themselves as if they were playing. Imagery may also be used to facilitate the closure of the rehabilitation process once the athlete has returned to competition.

Self-talk. Positive self-talk is also believed to facilitate healing during the rehabilitation process. Self-talk can be defined as the things one says to one's self (Perrin, 1999). This talk is not necessarily spoken out loud, although it may be. Weiss and Troxel (1986) suggest that many injured athletes have a tendency to dwell on negative or irrational thoughts and beliefs about themselves, their injury, or their return to competition. The athletic trainer is in a position to monitor the athlete's thoughts and inner dialogue and direct the athlete toward positive, self-enhancing thoughts, as opposed to negative, irrational thoughts (Wiese & Weiss, 1987). The athlete must first understand that negative thoughts can delay recovery, and then become aware of and monitor these thoughts. Tuffey (1991) suggests a common technique known as "thought stopping", which means to put up a "red flag" in one's mind when negative thoughts are prevailing. This strategy alerts the individual and serves as a cue to consciously alter thoughts in a more positive direction. Another useful strategy is to have an athlete generate a list of

negative thoughts experienced during rehabilitation. These negative thoughts can then be coupled with positive thoughts that can be substituted for the negative thoughts (Perrin, 1999). Therefore, changing negative self-talk to positive self-talk requires that the athlete is aware of his or her thoughts, stops the negative thoughts, and that he or she has the ability to respond with countering thoughts.

Social support. It is reported that the treatment and recovery process for injured athletes is often enhanced by social support (Hardy & Crace, 1993; Ievleva & Orlick, 1991; Silva & Hardy, 1991; Smith & Milliner, 1994; Weiss & Troxel, 1986; Wiese & Weiss, 1987). Athletic trainers can be helpful by providing emotional, informational, and tangible support throughout the rehabilitation process (Hardy & Crace, 1993). This final means of facilitating rehabilitation involves using other individuals to provide social support in the form of structured support groups and the before mentioned, peer modeling. For example, support may be provided by formerly injured athletes who have achieved successful rehabilitation, by groups of currently injured athletes, by the athlete's coaches, fellow team members, and non-athletic peers. These support groups should be created to help the athlete realize that he or she is not alone during the rehabilitation process.

In conclusion, the fact remains that the use of psychological techniques, such as goal setting, modeling, relaxation and imagery, positive self-talk, and social support will not increase until the educational barriers are weakened. Athletic trainers are capable of using these psychological techniques which go beyond the traditional skills of communication and motivation. It is simply a matter of education and application. A

manual entitled Psychological response to athletic injury has been created to help reduce the educational barriers that limit athletic trainers. The manual is equipped with a simple introduction to some of the general psychological strategies that can be applied to any rehabilitation program. For a more formal education, a list of relevant resources is also included at the end of the manual. It is desired that this manual will capture the interest of the athletic training community and provide them with the education and confidence required for the application of these general psychological strategies in their rehabilitation protocols.

CHAPTER III

METHODOLOGY

The manual Psychological response to athletic injury was written for advanced undergraduate and newly certified athletic trainers. The manual is intended to 1) provide athletic trainers with an awareness of the current literature on the psychological response and adjustment of athletes to injury and 2) provide athletic trainers with some general psychological strategies they may be able to employ in their rehabilitation programs. A copy of the manual (see Appendix A), a cover letter and questionnaire (see Appendix B), and a human consent form (see Appendix C) were sent to 30 judges. The judges were asked to review the manual, and complete and return the questionnaire and human consent form. The completed questionnaires were analyzed using descriptive statistics. The following chapter describes the process of creating and evaluating the manual entitled Psychological response to athletic injury.

The Manual

The information gathered for the manual, Psychological response to athletic injury, consisted of both primary and secondary research sources found in professional journals and books dealing with the subject of psychological response and adjustment to injury within the athletic domain. The literature was separated into two contemporary models of adjustment to athletic injury: (a) stage models of adjustment, and (b) cognitive appraisal models of adjustment. A brief review and cited critiques of relevant research was included in the review of literature section of this project. Additionally, the performance domains of an athletic trainer and some psychological strategies were

discussed. Once the information was collected and reviewed, a discussion of all material relevant to the athletic training field was summarized in the form of a manual. The manual consists of the following sections: I) Purpose and scope II) Why target athletic trainers? III) Understanding emotions IV) Stage models of adjustment to injury V) Cognitive appraisal models of adjustment to injury VI) Psychological strategies.

The Judges

The criteria for the selection of judges was based on their availability, experience, knowledge, and interest in this area of sport psychology. The two categories of judges were certified athletic trainers and sport psychologists. The selected certified athletic trainers were all located in the Bay Area and their experiences ranged from being certified for a minimum of 2 years to a maximum of 22 years. The selected sport psychologists were located throughout the nation and represented a wide range of expertise. Each judge was contacted first in person and/or by phone and was included only if they verbally agreed to review the manual and answer the questions objectively. Based on the possibility that some of the questionnaires might not be returned, a sample size of 30 was selected (20 athletic trainers and 10 sport psychologists).

The Questionnaire

The questionnaire consists of seven questions concerning the presentation, focus, and clarity of the manual. A cover letter accompanied the questionnaire explaining how the questionnaire was to be completed. A Likert scale of measurement numbered 1-4: 1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree, followed each question. The judges were instructed to circle only one number in response to each question. A

space was left at the end of each question to allow for additional comments regarding the strengths of the manual and suggestions for improving the manual.

Pilot Study of the Questionnaire. In order to test whether the cover letter and questionnaire were effective and clearly understood by the judges, a pilot study was conducted using three certified athletic trainers. The athletic trainers were chosen based on their convenient location at the time the questionnaire was first completed as well as their interest in the project. Each athletic trainer was instructed to read the cover letter and questionnaire and orally comment on its clarity and comprehensibility.

Procedures

The manual, questionnaire, human consent form, and a cover letter explaining how the questionnaire was to be completed were sent to the selected judges (20 certified athletic trainers and 10 sport psychologists). The judges were given three weeks to review the manual and fill out the questionnaire. A self-addressed stamped envelope was provided. The questionnaires and signed human consent forms were returned and all confidentiality was maintained.

Data Analysis

The completed questionnaires were analyzed using descriptive statistics. The quantitative analysis of each response included the total scores, their mean, mode, standard deviation and percentages. Representative comments of the manuals strengths and suggestions for improvement were also recorded. Further evaluation and actual changes to the manual can be done by the author for publication at a later date.

Summary

The manual Psychological response to athletic injury, a cover letter, questionnaire, and human consent form were sent to 30 selected judges to review and critique the manual and its content and structure. The manual consists of six sections: I) Purpose and scope II) Why target athletic trainers? III) Understanding emotions IV) Stage models of adjustment to injury V) Cognitive appraisal models of adjustment to injury VI) Psychological strategies. The manual was specifically written for advanced undergraduate and newly certified athletic trainers. The questionnaire contains seven questions answered by a 4-point Likert scale of measurement, with space provided for comments. The completed questionnaires were analyzed using descriptive statistics.

CHAPTER IV

RESULTS

Results of the Pilot Study

The three judges selected to review the cover letter and questionnaire stated that the cover letter and questionnaire were effective and clearly understood. Few suggestions toward the physical layout of the questionnaire were made. Both the cover letter and the questionnaire were understandable and no content changes were made.

Results of the Questionnaires

A total of 30 judges received a copy of the manual Psychological response to athletic injury (see Appendix A), a cover letter and questionnaire consisting of seven questions directly associated with the manual itself (see Appendix B), and a human consent form (see Appendix C). The questionnaires were sent to 20 certified athletic trainers and 10 sport psychologists. Out of the 30 questionnaires sent, a total of 26 responses were received, an 87 percent return rate (see Table 1). Three weeks were allowed for response. Out of the 26 returned questionnaires, one was improperly completed and excluded from the analysis.

The judges were instructed to read and critique the manual using the questionnaire. Questions 1 through 5 used a 4-point Likert scale: 1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree. Question 6 and 7 did not use the 4-point Likert scale. Question 6 addressed the length of the manual. Space for comments regarding the strengths of the manual and suggestions for improving the manual was left at the end of each question. Question 7 allowed for further suggestions and/or feedback about the

manual. Of the 25 correctly completed questionnaires, total scores, means, modes, standard deviations and percentages were calculated for each question. The data were divided into the two categories of judges (certified athletic trainers and sport psychologists). Totals and percentages were calculated for each question. Results of questions 1-7 are contained in Tables 2-13.

Table 1

Questionnaire Response Rates Divided Into Categories

<u>Overall Questionnaire Response Rates</u>			
	<u>Sport Psychologists</u>	<u>Certified Athletic Trainers</u>	<u>Total</u>
Sent Out	10	20	30
Returned	7	19	26
Usable	7	18	25

87% Return Rate

83% Usable

Question 1: Do you think the manual clearly provides athletic trainers with useful information on the psychological response to injury?

Table 2

Judges Responses to Question 1

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
All Judges (<u>n</u> =25) Totals (%)	6 (24%)	17 (68%)	2 (8%)	0
Judges Divided <u>By Category</u>				
Sport Psychologists (<u>n</u> = 7)	1 (14%)	5 (71%)	1 (14%)	0
Certified Athletic Trainers (<u>n</u> = 18)	5 (28%)	12 (67%)	1 (5%)	0
	<u>M</u> = 1.84	<u>SD</u> = .55	mode = 2	

Representative Comments:

Supportive:

- ... Clearly informative, easily read material.
- ... Good topics covered and they are clearly explained!
- ... Logical order, clearly laid out, easy to follow.
- ... Good for student athletic trainers and entry level ATC.

Critical and/or Suggestive:

- ... More detail for the use of the various techniques and suggestion of what technique to use with certain athletes and situations.
- ... Pick a model you believe in and sell it.

- ... If targeted for larger population of ATC's, should be more in depth. As it is currently, maybe too basic for anyone in the field for more than 5 years.
- ... List specific emotions often experienced in loss/grief and the adjustment process.

Question 2: Do you think the manual is focused on the important topics?

Table 3

Judges Responses to Question 2

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
All Judges (n=25) Totals (%)	7 (28%)	18 (72%)	0	0
Judges Divided <u>By Category</u>				
Sport Psychologists (n = 7)	1 (14%)	6 (86%)	0	0
Certified Athletic Trainers (n = 18)	6 (33%)	12 (67%)	0	0
	<u>M</u> = 1.72	<u>SD</u> = .46	<u>mode</u> = 2	

Representative Comments:

Supportive:

... Quite useful / insightful. Provides the door for open-thought and stimulating ATC
(certified athletic trainer) growth.

... Multiple theories included, not focused on just one.

... It introduces interesting and extremely useful subjects that could prove very effective
and beneficial to the athletes.

... The five psychological skills are clearly the more important ones as shown in the
literature.

Critical and/or Suggestive:

- ... Information on 1) transition model 2) factors that may predispose people to injury 3) psychological aspects of pain 4) referral process 5) case example(s) may be beneficial.
- ... Include how to apply the theories you discuss.
- ... Creating a chart of negative responses that an athlete might give and possible responses or action that the athletic trainer could use to buffer the negative responses might be useful.

Question 3: Do you think the material in the manual adequately covers the appropriate information in:

A. Section One: Purpose and scope?

Table 4

Judges Responses to Question 3A

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
All Judges ($n=25$) Totals (%)	11 (44%)	12 (48%)	1 (4%)	1 (4%)
Judges Divided By Category				
Sport Psychologists ($n = 7$)	1 (14%)	6 (86%)	0	0
Certified Athletic Trainers ($n = 18$)	10 (56%)	6 (33%)	1 (5%)	1 (5%)
	$\underline{M} = 1.68$	$\underline{SD} = .75$	mode = 2	

Representative Comments:

Supportive:

... Great introduction!

... Gives a good background and gradually narrows the information.

... Explains exactly what the manual is going to provide for the athletic trainer.

... It covered a wide variety and facets of a subject that can have a drastic impact on an athlete's life.

Critical and/or Suggestive:

... May need to provide venues for further study outside of citing literature.

- ... I don't come away with an understanding of the scope at all. I would bullet the points you are going to discuss.
- ... Need to describe that it is an informative manual.
- ... Use of the term "psychological problems" may lead athletic trainers to think this is only for more seriously mentally ill people.

Question 3: Do you think the material in the manual adequately covers the appropriate information in:

B. Section Two: Why target athletic trainers?

Table 5

Judges Responses to Question 3B

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
All Judges ($n=25$) Totals (%)	13 (52%)	11 (44%)	1 (4%)	0
Judges Divided <u>By Category</u>				
Sport Psychologists ($n = 7$)	0	7 (100%)	0	0
Certified Athletic Trainers ($n = 18$)	13 (72%)	4 (23%)	1 (5%)	0
	$\underline{M} = 1.52$	$\underline{SD} = .59$	mode = 1	

Representative Comments:

Supportive:

- ... The rationale used to justify targeting athletic trainers is strong and logical!
- ... Covers subject matter very well and includes precautions.
- ... Points out the necessity of the mental aspect of rehabilitation.
- ... Includes logical reasons why athletic trainers should understand the psychological process.

Critical and/or Suggestive:

- ... In the table, I didn't know what UC: meant, maybe that shouldn't be abbreviated.
- ... Include 1-2 sentences regarding the referral process.

Question 3: Do you think the material in the manual adequately covers the appropriate information in:

C. Section Three: Understanding Emotions?

Table 6

Judges Responses to Question 3C

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
All Judges ($n=245$) Totals (%)	5 (20%)	18 (72%)	2 (8%)	0
Judges Divided <u>By Category</u>				
Sport Psychologists ($n = 7$)	1 (14%)	5 (72%)	1 (14%)	0
Certified Athletic Trainers ($n = 18$)	4 (23%)	13 (72%)	1 (5%)	0
	$\underline{M} = 1.88$	$\underline{SD} = .53$	mode = 2	

Representative Comments:

Supportive:

... Succinct!

... Brief / concise – to the point

... Nice section because this is a weak area for many recently certified and student athletic trainers.

... Again, it gives a good base of information that allows its readers to understand the “why” in addition to the “how”.

Critical and/or Suggestive:

... Include examples.

... Give references.

Question 3: Do you think the material in the manual adequately covers the appropriate information in:

D. Section Four: Stage models of adjustment to injury?

Table 7

Judges Responses to Question 3D

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
All Judges (<u>n</u> =25) Totals (%)	9 (36%)	14 (56%)	2 (8%)	0
Judges Divided <u>By Category</u>				
Sport Psychologists (<u>n</u> = 7)	1 (14%)	4 (57%)	2 (29%)	0
Certified Athletic Trainers (<u>n</u> = 18)	8 (44%)	10 (56%)	0	0
	<u>M</u> = 1.72	<u>SD</u> = .61	mode = 2	

Representative Comments:

Supportive:

... Good graphics.

... Graphs / charts are very helpful. Good summary and analysis.

... Good brief descriptions of the various stage models; provides a good basis for background information.

... Good history of evolvement and argument that no one agrees.

Critical and/or Suggestive:

... May pick only one model you think best covers material.

... Would like to see this expanded.

... Mention Scholsberg's transition model.

Question 3: Do you think the material in the manual adequately covers the appropriate information in:

E. Section Five: Cognitive appraisal models of adjustment to injury?

Table 8

Judges Responses to Question 3E

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
All Judges ($n=25$) Totals (%)	9 (36%)	14 (56%)	1 (4%)	1 (4%)
Judges Divided <u>By Category</u>				
Sport Psychologists ($n = 7$)	2 (29%)	3 (43%)	1 (14%)	1 (14%)
Certified Athletic Trainers ($n = 18$)	7 (39%)	11 (61%)	0	0
	$\underline{M} = 1.76$	$\underline{SD} = .72$	mode = 2	

Representative Comments:

Supportive:

- ... Seems like a more valid approach.
- ... Again, concise and to the point.
- ... Support is strong for using this model.
- ... Very applicable due to the individual differences that exist in athletes; helps to account for those difference.

Critical and/or Suggestive:

... Would like to see this expanded.

... Maybe include an example of how this works with a case study.

... Could use more examples and detail.

Question 3: Do you think the material in the manual adequately covers the appropriate information in:

F. Section Six: Psychological Strategies?

Table 9

Judges Responses to Question 3F

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
All Judges ($n=25$) Totals (%)	14 (56%)	11 (44%)	0	0
Judges Divided <u>By Category</u>				
Sport Psychologists ($n = 7$)	2 (29%)	5 (71%)	0	0
Certified Athletic Trainers ($n = 18$)	12 (67%)	6 (33%)	0	0
	$\underline{M} = 1.44$	$\underline{SD} = .51$	mode = 1	

Representative Comments:

Supportive:

... Very good section; well organized. This section is the most beneficial.

... Specific and applicable to athletes and the rehabilitation process.

... This is the strongest part of the manual. It includes the best explanation and useful information for athletic trainers.

... Broke down strategies into categories well.

Critical and/or Suggestive:

- ... Discuss what counseling services an athlete might receive from whom and their credentials. Need more on relaxation.
- ... I think there should be a list of steps on “how to” do this.
- ... Tough to convey large quantity of material in limited section.
- ... A manual should be a ready resource with everyday examples. Include more examples after the theoretical statements.

Question 4: Do you think the manual can be helpful for athletic trainers in working with injured athletes?

Table 10

Judges Responses to Question 4

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
All Judges ($n=25$) Totals (%)	6 (24%)	17 (68%)	2 (8%)	0
Judges Divided By Category				
Sport Psychologists ($n = 7$)	1 (14%)	5 (72%)	1 (14%)	0
Certified Athletic Trainers ($n = 18$)	5 (28%)	12 (67%)	1 (5%)	0
	$\underline{M} = 1.84$	$\underline{SD} = .55$	mode = 2	

Representative Comments:

Supportive:

- ... It covers a variety of related subject matter in regards to psychological response to injury.
- ... Very informative. Concise and to the point. Easy to find information.
- ... I think it's a good supplement/resource for athletic trainers and serves as a reminder of how important the psychological aspect is.

Critical and/or Suggestive:

- ... Manual is helpful for the novice ATC, yet for the more experienced, psychology-minded, is limited.

- ... I think going into more detail about how to help with the “grieving” process would be more informative and helpful.
- ... Needs to be outlined and sectioned more so it can be utilized for specific information that the athletic trainer may want from the manual.

Question 5: Do you think the writing style of the manual is understandable for athletic trainers?

Table 11

Judges Responses to Question 5

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
All Judges ($n=25$) Totals (%)	9 (36%)	16 (64%)	0	0
Judges Divided <u>By Category</u>				
Sport Psychologists ($n = 7$)	3 (43%)	4 (57%)	0	0
Certified Athletic Trainers ($n = 18$)	6 (33%)	12 (67%)	0	0
	$\underline{M} = 1.64$	$\underline{SD} = .49$	mode = 2	

Representative Comments:

Supportive:

... Excellent, well-organized, clear, and good diagrams!

... It does a good job of presenting, defining, and using psychological terms when applicable; it's very straight forward and easy to understand.

Critical and/or Suggestive:

... Somewhat of a tough flow between each section.

... It could be expanded upon and sequential transition smoothed into more cohesion.

Question 6: Do you think the length of the manual should be:

Table 12

Judges Responses to Question 6

	Shortened 1	kept as is 2	lengthened 3
All Judges ($n=25$) Totals (%)	4 (16%)	14 (56%)	7 (28%)
<u>Judges Divided By Category</u>			
Sport Psychologists ($n = 7$)	0	5 (72%)	2 (28%)
Certified Athletic Trainers ($n = 18$)	4 (22%)	9 (50%)	5 (28%)
	$\underline{M} = 2.12$	$\underline{SD} = .67$	mode = 2

Representative Comments:

Supportive:

... Good length, any longer, you run the risk of losing readers and if it's any shorter, you lose valuable information.

... If you make it any longer, people won't read it.

Critical and/or Suggestive:

... Psychological strategies lengthened.

... If this is truly going to be a manual that athletic trainers can turn to, sections employing a step-by-step instructional processes may have to be added.

However, this will lengthen the manual.

... Lengthen just to add some concrete examples of how to apply the techniques.

- ... It can serve as an introduction, but fails to provide enough detail to give athletic trainers the confidence that they can use the strategies presented and how to determine which strategy to use.
- ... One of the concerns we (sport psychologists) have is that people may do as much damage as good if sport psychology skills are not implemented appropriately. I believe that the limited information provided in this manual may result in lack of effect and thus results will be compromised. Athletes will think that skills do not work.
- ... If adding specifics lengthened the manual a little, I think that would be OK.

Question 7: Is there any further information or comments that you believe would be helpful to improve the manual?

Table 13

Judges Responses to Question 7

Supportive:

- ... Overall, great idea, design, and content!
- ... Overall, I think this serves as a good general guide for athletic trainers who have not had exposure to sport psychology.
- ... Athletic trainers could use such a detailed process of how to deal with the psychological responses to athletic injuries.
- ... The manual is very good! It's informative, but to the point. The background information on psychological theories is good because it presents what is important without going into unnecessary detail.
- ... I think it's an informative manual and something that could be implemented in our (athletic training) undergraduate training more thoroughly. Thanks!

Critical and/or Suggestive:

- ... I know there was color in the original. It would have been nice to see what it would have actually looked like (I understand the expenses). You could have asked some questions on the appearance of the manual.
- ... I just think some specific examples should be added to certain areas such as the "Cognitive appraisal models of adjustment" and "Relaxation and Imagery" techniques. I mean taking an example of an injured athlete and bringing them through this model and ways to help.

- ... Include examples of statements athletic trainers could use with athletes in different stages of acute injury and rehabilitation.
- ... If the manual is purely to stimulate thought and to provide means toward allowing ATC's a brief synopsis then this achieves its goals. If necessary, it may need to be expanded upon to provide more information on how some of the techniques are achieved in each of the psychological strategies.
- ... I think the manual is an excellent idea, however I think of a manual as a reference tool. It seemed that this was more of a review of literature until psychological strategies were presented at the end of the manual.
- ... In my mind, a manual is something one goes to for help regarding a problem. The manual then gives the reader a logical step-by-step process on how to solve the problem. I didn't think that this manual did that. There was a lot of good information, but I would liked to have seen a Table of Contents which directed me to different areas.
- ... This manual goes over the topics "lightly" to say the least. It does not for example create an "applied sport psychology consultant" of the athletic trainer. I have been told over and over that athletic trainers are so time-stressed , I doubt the manual could be any longer.
- ... This is an attractive, interesting manual that would be made even better with a little more specific information.

CHAPTER V

DISCUSSION AND RECCOMENDATIONS

Discussion

The manual, Psychological response to athletic injury, was sent to 30 judges to be analyzed for its content and structure. Twenty-six judges returned their questionnaires and 25 were used in the analysis. The manual contained six sections: I) Purpose and scope II) Why target athletic trainers? III) Understanding emotions IV) Stage models of adjustment to injury V) Cognitive appraisal models of adjustment to injury VI) Psychological strategies. The overall responses of the reviewers to the manual were positive. Questions were analyzed using a 4-point Likert Scale (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree) and additional suggestive and/or critical comments were noted.

Collectively, the judges responses for each question gave the manual a good review (see Tables 1-13). A majority of the ratings were “strongly agree “ and “agree” with few “disagree” and only two “strongly disagree” ratings. The most highly rated areas were the manual’s adequacy of covering the appropriate information in “Why target athletic trainers” (question 3B) and “Psychological strategies” (question 3F). The lowest rated areas were the manual’s adequacy of covering the appropriate information in “Understanding emotions” (question 3C) and the length of the manual (question 6), indicating that many of the judges wanted to maintain the length of the manual or see the manual lengthened. The widest range of scores were given to the manual’s adequacy of

covering the appropriate information in “Purpose and scope” (question 3A) and “Cognitive appraisal models of adjustment to athletic injury” (question 3E).

The judges were divided into two categories; certified athletic trainers and sport psychologists. Overall, the manual received good reviews from both judges. However, the sport psychologists were slightly more critical of the manual than the certified athletic trainers. The comments of the sport psychologists indicated that they believed this manual only briefly covered the issue of psychological response to injury and that the topic deserved much more detail. The greatest concern of some of the sport psychologists was the manual’s lack of concrete detail regarding the use of psychological strategies and the referral process. One sport psychologist said that he or she feared the psychological strategies could do more damage than good if they are not implemented appropriately. He or she believed that the limited amount of information included in the manual could result in a lack of effect and compromised results. On the other hand, several sport psychologists expressed their belief that the manual provided athletic trainers with a general overview that would serve to spark the interest of athletic trainers in this often overlooked area of injury rehabilitation.

A majority of the certified athletic trainers “strongly agreed” with the manual’s adequacy in covering the appropriate material in “Why target athletic trainers” and “Psychological strategies” (72% and 67%, respectively). Based on their comments, certified athletic trainers indicated a strong need for education and skill development within this area of sport psychology as it pertains to the rehabilitation process. Many commented on their lack of knowledge in psychological response to athletic injury. A

majority of the certified athletic trainers commented on the manual's educational intent yet they expressed the need for a more detailed account of "how" to employ the information they had obtained. Only 28% of the certified athletic trainers wanted the manual to be lengthened while 22% thought the manual should be shorter. The remaining 50% of the certified athletic trainers believed that the manual should remain at its current length. So, while the need for more detail and examples was expressed, certified athletic trainers did not want to see the manual lengthened to include specific examples and "how to" steps.

Summary

In summary, the judges overall responses for each question regarding the structure and content of the manual were collectively high, indicating that a majority of the reviewers answered "strongly agree" or "agree" to the items on the questionnaire. Based on the comments of all of the judges, the main problem with the manual seemed to be its lack of concrete examples throughout the text. While many of the sport psychologists thought the manual provided athletic trainers with a good base from which to expand their knowledge, many of the certified athletic trainers expressed a need to have the manual provide a step-by-step process for applying psychological strategies throughout the rehabilitation process. For this same reason, several of the judges commented on their definition of a manual as a specific reference tool with a Table of Contents and specific instruction on "how to" employ certain skills or strategies. Overall, the judges believe in the importance of the manual's topic and the need for such a tool in the treatment of athletic injury.

Recommendations

In the future, projects of this type should consider the following recommendations:

1. Questionnaires should be sent to more reviewers, especially sport psychologists.
2. The intent of the manual should be clearly defined.
3. Concrete examples should be included throughout the manual.
4. A preliminary questionnaire assessing what athletic trainers want and need in a manual may be used to direct the scope of the manual.

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APPENDIX A

MANUAL Psychological response to athletic injury

Injury to athletes is a common consequence of participation in sport with approximately three to five million athletic injuries occurring in the United States each year. Many athletic trainers continue to strive to discover effective and applicable methods of safely returning athletes to competition as quickly as possible. However, often overlooked in the injury treatment intervention process is the psychological component of injury. Sport-related injury can often bring about certain psychological problems that keep the athlete from recovering as planned. These psychological problems must be identified and understood by athletic trainers if they are to aid in the athlete's complete mental and physical recovery from injury.

The information in this manual is based on research of contemporary models of psychological response and adjustment to athletic injury. A specific focus is given to the investigation of affective responses of injured athletes during the rehabilitation process. Specifically, what transient, fluctuating, affective mood states of injured athletes can be identified and assessed throughout the rehabilitation process, and what are their effects on rehabilitation progress? This manual will both educate advanced undergraduate and newly certified athletic trainers on the literature surrounding the psychological response and adjustments that athletes may experience as a result of injury, as well as provide athletic trainers with some general psychological skills that may be employed in rehabilitation programs.

Many athletic trainers are aware that a successful recovery from injury is as much a mental as a physical victory. As a result of the injury, treatment, and lengthy rehabilitation time, an athlete's emotions can vary throughout the rehabilitation process from negative responses such as anger, frustration, and discouragement to positive responses such as being motivated, hopeful, and optimistic. This inconsistent fluctuation in mood states can have a negative effect on rehabilitation progression. Therefore, athletic trainers must be aware of both the physical and emotional needs of injured athletes to effectively return them to a competitive level. However, in an environment where athletic trainers are the primary health care professionals for injured athletes from the onset of injury throughout the rehabilitation process, few possess the knowledge and skill concerning psychological rehabilitation. In agreement with this point, athletic trainers have indicated a need for more formal education on the psychological factors and strategies associated with the rehabilitation of athletic injuries.

The National Athletic Trainers Association (NATA) considers five performance domains as essential components for competent functioning at the entry level: 1) prevention 2) recognition and immediate care 3) rehabilitation and reconditioning 4) health care administration 5) professional development. Although each performance domain possesses its own body of unique knowledge and skill, some subject matter consistently appeared across all domains. These overlapping areas have been termed "universal competencies" (UC). Psychology/counseling is one of the universal competencies recognized by the NATA. For example, athletic trainers can facilitate the education of healthy and injured athletes in areas such as alcohol and/or drug abuse and performance anxiety to assist in the prevention of athletic injury. Recognizing the psychological signs and symptoms of athletic injury and illness is a major component in the recognition,

evaluation and immediate care of athletic injury. Furthermore, athletic trainers must understand the psychological implications of injury to assist in rehabilitation as well as understand how to communicate with and refer injured athletes to the appropriate health care provider (health care administration/professional development). Based on this information, the athletic trainer's role as a counselor is considered important for entry-level certified athletic trainers. However, it is very important that athletic trainers do not overstep their professional limitations. Athletic trainers who feel uneasy or unqualified should not hesitate to refer athletes to other professionals whose training and education enables them to deal with problematic athletes. To refer the athlete is consistent with NATA and American Psychological Association (APA) guidelines. Clearly, the intent of the counseling mission of the certified athletic trainer is directed toward education, recognition, and referral of athletes for appropriate services in the area of personal, social or mental health problems.

Once athletic trainers reach the limit of help they are capable of providing, they may still serve athletes in several very important ways. For example, if an athletic trainer refers an athlete to a sport psychologist, the athletic trainer can continue to aid the injured athlete by providing him or her with assurance that seeking professional psychological help is not a sign of weakness but rather a step toward taking charge of one's life. Furthermore, because the first hints of physical-psychological problems are often demonstrated in the training room, it is important that athletic trainers continue to keep the lines of communication open between the athlete, the coaching staff, doctors, psychologists and any administrators who are involved.

- Prevention of Athletic Injuries

- Recognition and Immediate Care of Athletic Injuries

- Rehabilitation and Reconditioning of Athletic Injuries

- Health Care Administration

- Professional Development

-NATA Board of Certification June, 1995

UC: Psychology/Counseling

- Prevention through educational programs for healthy & injured athletes (i.e. alcohol, drug, performance anxiety).

- Recognition of the psychological signs and symptoms of athletic injury and illness.

- Rehabilitation of the psychological implications of injury.

- Health Care Administration via communication with, referral to appropriate health care provider.

- Professional Development by continuing to develop interpersonal and communication skills.

In order to rehabilitate an injured athlete, an understanding of the emotions that an athlete may feel during the healing process is important to all of those involved with the athlete's recovery. A better understanding of the emotions experienced by an injured athlete, particularly during the rehabilitation process, is increasingly becoming the focus of many researchers.

Emotion is defined as a state of mind in which feeling, sentiment, or attitude is predominant. Determining just how many emotions exist and what constitutes the basic emotions remains inconsistent among published authors. Emotions that accompany an athletic injury have often been described as a reaction to a loss that an athlete has experienced. When one encounters a significant loss, "grief work" is the process of dealing with all of the emotions. For the injured athlete, grieving may result from a loss of some aspect of the self. Although this loss normally is not permanent, the loss of participation and/or previous athletic ability may be perceived as a traumatic event. Such emotional reactions to an injury can have a significant impact on the rehabilitation process. These emotions can both help and hinder how an athlete adapts to and is rehabilitated from the injury. For athletic trainers, it is important to understand that an experienced emotion is usually associated with changes in skeletal muscular activity, facial behavior, vocal responses, and a number of biological parameters, including autonomic endocrine and central nervous system activity. Research has also shown that negative emotions are related to diminished physiological functioning, that is, reduced blood flow, muscle constriction, and bracing; all of which are contraindications for health and healing.

[REDACTED]
An individual's response to injury that is influenced by the interaction of personal factors and situational factors (Brewer, 1994).

[REDACTED] Dispositional and/or historical attributes of the individual (i.e., trait anxiety, self-esteem, self-motivation, coping skills, extraversion, psychological investment in sport, and injury history) (Brewer, 1994).

[REDACTED] Injury-related characteristics and variable aspects of the social and physical environments (i.e., medical prognosis, recovery progress, social support, injury status, and impairment of sport performance) (Brewer, 1994).

[REDACTED] Harm or damage that requires rehabilitation and absence from physical competition (McDonald & Hardy, 1990).

[REDACTED] A predictable sequence of stages that an individual who experiences a disabling injury passes through on the way to positive adjustment (Brewer, 1994).

[REDACTED]

A number of stage models of stress, grief and loss have been used to explain psychological reactions to athletic injury. Stage models of adjustment are generally based on the idea that the disability associated with injury constitutes a form of "loss" of one's self. Peretz (1970) defines loss as a state of being deprived of or being without something one has had. A pattern among athletes experiencing loss due to an injury is the focus of several authors attempting to propose stage models of response to athletic injury. It is assumed in most stage models of adjustment to athletic injury that the individual who experiences a disabling injury passes through a predictable sequence of stages on the

way to positive adjustment. Many researchers believe that athletes may exhibit signs of a grief response following injury that is similar to the stage model proposed by Kübler-Ross (1969) for the terminally ill. This five-stage model of the grief process resulting from over 200 interviews with terminally ill patients, is the one upon which many sports psychologists have compared their data of grief response to injury, despite its derivation from a population quite different from injured athletes. These authors claim that athletes react to injury by proceeding through five stages, which are commonly experienced by those suffering some type of loss:

The Kübler-Ross Model 1969

Other theorists have described the individual reactions to loss by using similar stage models. Pedersen (1986) describes a three-stage model of adjustment. Applied to athletic injury, the first stage is characterized by denial of the injury, shock that the injury occurred, and anger. This first stage is considered the protest stage and is followed by the hopelessness stage. In this second stage, the athlete understands that the injury has occurred and becomes very preoccupied with memories from the past and little hope for the future. Common emotions during this time may be depression, insomnia, fatigue, crying, or guilt about leaving the team. In the final stage, reorganization, the athlete is able to get over their loss and refocus their attention to previous activities. Acceptance of the injury situation is key to this three-stage process.

McDonald and Hardy (1990) are two of several authors who have noted parallels between the Kübler-Ross (1969) five-stage response of the terminally ill and injured athletes. The results of the study suggested a stage like process similar to that described by Kübler-Ross. However, instead of five stages, a two-stage process of adaptation to athletic injury resulted from the study.

Smith, Scott, O'Fallon, and Young (1990) conducted a study focused on determining the presence, type, magnitude, and duration of the emotional response of athletes to injury. The findings of this study suggest that the most seriously injured athletes experience high levels of depression, tension and anger simultaneously, in association with low vigor, which persisted until the second evaluation. At the time of the second evaluation, mood disturbance subsided and vigor increased. This change continued with the third evaluation. While no obvious grief-response stages were identified in this study, a general trend suggests that the emotional response during the rehabilitation period showed a progression from a negative to a more positive mood state.

Despite the popularity of stage models in the applied literature, the notion of a pattern of distinct emotional responses to loss has yet to be agreed upon. Consistent and substantial evidence for the assumption that there is a consensual, stage like pattern of response to athletic injury is difficult to find among sport psychologists. Nonetheless, behaviors consistent with the various stages have been observed in injured athletes. There are two common elements amongst most of the reviewed stage models. First, the reaction to loss is perceived as a **process** that occurs over time and includes the involvement of the athlete as a primary participant in his or her recovery. Second, all of the proposed stage models, despite the numbers and names of the stages, tend to show a **progression** of emotions that ultimately leads toward acceptance of the injury. It is only when the athlete regains emotional control that she/he can acknowledge the severity and limiting capacities of the injury. This acceptance leads to a task-focused approach to the rehabilitation process that allows the athlete to move from self-protective behaviors to active coping behaviors.

Perhaps the greatest **weakness** of the stage model approaches is their inability to account for individual differences. Although several factors have been consistently discovered across many studies as responses to athletic injury, several variations do exist. This may be due to the methodological differences, selected sample characteristics, differences in the nature of the loss, or differences in the experiences of grief. Furthermore, the literature on injury response is dominated by authors who choose to analyze the topic descriptively. While retrospective and case study designs may provide researchers with some information on the psychological response to injury, there is a need for more empirical evidence to support stage models of response to injury in the athletic domain.

Whereas stage models fail to account for individual differences in response to athletic injury, cognitive appraisal models were developed to explain such differences. Cognitive appraisal models propose that the way in which the individual interprets an athletic injury determines the emotional response. Therefore, the way in which the injury is perceived is considered more critical to understanding emotional reactions than the fact that injury has occurred.

Cognitive appraisal models are influenced by the interaction of personal and situational factors. Among the personal factors hypothesized to affect cognitive appraisals of athletic injury are trait anxiety, self-esteem, self-motivation, coping skills, extraversion, neuroticism, psychological investment in sport, and injury history. A number of situational factors have also been hypothesized to influence the cognitive appraisal and emotional adjustment process as well. Such situational factors include medical prognosis, recovery process, social support, impairment of sport performance and/or of daily activities, and injury timing during athletic career.

Essentially, this model deals with what the injured athlete is thinking (cognitive appraisal) and feeling (emotional response) in regard to the occurrence of the injury. The behavioral response deals with the actions of the athlete based on his or her thoughts and feelings about the injury. This bidirectional model suggests that athletes will evaluate the demands of a certain situation, their own ability to meet such demands, and the consequences of either failing or succeeding to meet those demands. Any perceived imbalance between the situational demands and individual response capabilities may result in anxious reactions that interfere with the rehabilitation process. Because of this model's individualized approach, many researchers believe that when applied to

athletic injury, it is more advanced than the stage model approach. An approach that includes individual differences in coping with athletic injury is more beneficial than a stage model approach into which individual experience must be made to fit. Exploration of cognitive appraisal models of emotional adjustment to athletic injury is only beginning.

Regardless of how the response to injury is described, the basic implication in both models of adjustment is that athletes will manifest different reactions to injury. This is perhaps due to an interaction of both personal attributes and the situational factors surrounding injury. The variable and changing nature of the responses, however, supports the belief that psychological mood swings do occur and can effect not only the physical rehabilitation of injured athletes but their psychological rehabilitation as well. In response, athletic trainers must design a rehabilitation protocol that addresses both the physical and psychological needs of the injured athlete. Several authors suggest that psychological skills such as goal setting, imagery and relaxation training, negative thought stoppage, and social support can be used to provide psychological rehabilitation in conjunction with physical recovery. It is important to keep in mind that while these techniques may aid in an athlete's psychological recovery from injury, athletic trainers must be able to recognize when a referral is necessary.

The use of goal setting has many potential applications throughout the rehabilitation process. The striving for and attainment of short and long term goals can provide a sense of accomplishment that is both motivating and allows for individual progress to be measured or observed. Athletes who were involved in goal setting on a consistent basis have been shown to progress through rehabilitation faster than athletes who did not utilize goal setting. For this reason, athletes and athletic trainers must work together to establish realistic goals throughout the healing process.

These goals should be specific and measurable, written down, and posted where the athlete will frequently see them. These goals should also be evaluated periodically and revised if necessary. If the goals are established in a measurable and observable manner, evaluation of goal attainment should be easy. Along the same line, athletic trainers must provide the injured athlete with feedback regarding their progress in relation to the set goals. Such an approach to goal setting can help motivate injured athletes to continue to strive

and put forth the effort necessary for a full recovery. Furthermore, strategies for achieving these goals should be discussed by the athletic trainer and the injured athletes. Such strategies may involve the learning and practice of other psychological skills such as the use of modeling, imagery and relaxation techniques, positive self-talk, and social support.

Modeling is often used in the athletic domain as an instructional tool for motor skill development and social behavior. However, modeling can also be used in the rehabilitation of athletic injury as a tool for motivation, injury-rehabilitation information, and behavioral cues for recovering athletes. A key component to a successful recovery from athletic injury involves learning how to cope with the process of rehabilitation and eventual return to competition. Athletes who have never experienced a major injury can learn a great deal about the healing process and the possibility of recovery from athletes who have already effected a complete recovery from injury. Upon experiencing the first injury, athletes have no experience on which to base their expectations for a full recovery. A possible fear of the unknown may delay their recovery process. In this case, rehabilitated athletes become ideal models for the injured athletes. By talking to a model, injured athletes may gain knowledge about rehabilitation, strategies used to encourage rehabilitation adherence, obstacles to be expected, strategies for handling setbacks, realistic expectations for future recovery, and the confidence that if others can recover from injury, so can they. Athletic trainers can serve an important function of networking and coordinating peer modeling by connecting an injured athlete with another athlete who has recovered successfully from a similar injury.

Imagery enables an athlete to mentally practice physical and performance skills that may allow return to previous activities. Imagery techniques can be used by athletic trainers as a tool that spans across many of the athletic training domains. As several studies show, increased levels of stress often result in injury. The resultant injury may be a result of fatigue, lack of concentration, mental distraction, etc. To lessen the impact of stressors and, thus, the potential for injury, imagery techniques that enhance relaxation and reaction toward specific situations of stress may be developed and implemented throughout the season as circumstances arise. In this sense, imagery and relaxation can be used by athletic trainers as a tool for the prevention of athletic injury.

For benefits throughout the rehabilitation process, an injured athlete may be instructed to project him or herself back or forward in time and describe the emotions associated with different stages of rehabilitation from retrospective or futuristic perspectives. By doing this, the athlete is encouraged to recognize various stages of recovery. For example, although the athlete may recognize the possibility of becoming depressed during the rehabilitation process, he or she may also recognize that depression may be part of the process that eventually leads to recovery. Studies have reported a decreased recovery time for injured athletes who did not engage in injury-replay imagery, concluding that athletes must use their intellect to guide the neuropsychological processes of the brain in such a manner as to facilitate recovery.

Athletic trainers may be reluctant to advocate the use of imagery techniques mainly because of their feelings of being unqualified to use such techniques and/or not believing in their efficacy. The fact that the athlete may have the capacity to expedite recovery with the use of cognitive strategies such as imagery and relaxation does not seem to be recognized to the degree that it should be. Athletes can be trained to use imagery/visualization in conjunction with relaxation exercises in order to deal with the stress and anxiety associated with an injury. Such strategies may also be used to reduce pain at the site of the injury. Also through imagery, athletes may develop neural pathways to the muscles that are used in a particular activity. If the messages are positive and skill oriented, athletes may actually be able to strengthen the neural pathways for certain sport specific movements. Therefore, it is important that athletic trainers help injured athletes maintain a positive mental attitude about healing throughout the rehabilitation process. Furthermore, information gathered from the athletic trainer concerning the anatomy and physiology of the injury will facilitate the athlete's use of rehabilitative imagery.

Aside from the physical healing benefits, athletes can use these skills to rehearse the motions and emotions they may experience upon their return to competition. From a sport psychology point of view, it seems reasonable to suggest that there exists a logical link between the relationship of imagery used to enhance sport performance and the impact of imagery during the healing process of athletic injuries.

In summary, specific mind-sets that might be addressed through the use of imagery and relaxation may include the following: maintaining a positive outlook, controlling stress, reducing pain, using positive and descriptive self-talk, and sustaining belief in the rehabilitation process. Performance-related imagery, such as mental rehearsal, may be used while attending practices and competitions in which the athletes imagine themselves as if they were playing. Imagery may also be used to facilitate the closure of the rehabilitation process once the athlete has returned to competition.

Positive self-talk is also believed to facilitate healing during the rehabilitation process. Self-talk can be defined as the things one says to one's self. This talk is not necessarily spoken out loud, although it may be. Many injured athletes have a tendency to dwell on negative or irrational thoughts and beliefs about themselves, their injury, or their return to competition. The athletic trainer is in a position to monitor the athlete's thoughts and inner dialogue and direct the athlete toward positive, self-enhancing thoughts, as opposed to negative, irrational thoughts. The athlete must first understand that negative thoughts can delay recovery, and then become aware of and monitor these thoughts.

A common technique known as "thought stopping" has been suggested by several sport psychologists. This means to put up a "red flag" in one's mind when negative thoughts are prevailing. This strategy alerts the individual and serves as a cue to consciously alter thoughts in a more positive direction. Another useful strategy is to have an athlete generate a list of negative thoughts experienced during rehabilitation. These negative thoughts can then be coupled with positive thoughts that can be substituted for the negative thoughts. Therefore, changing negative self-talk to positive self-talk requires that the athlete is aware of her or his thoughts, stops the negative thoughts, and that she or he has the ability to respond with a countering positive thought.

The treatment and recovery process for injured athletes is often enhanced by social support. Athletic trainers can be helpful by providing emotional, informational, and tangible support throughout

the rehabilitation process. This method of facilitating rehabilitation involves using other individuals to provide social support in the form of structured support groups and the before mentioned, peer modeling. For example, support may be provided by formerly injured athletes who have achieved successful rehabilitation, by groups of currently injured athletes, by the athlete's coaches, fellow team members, and non-athletic peers. These support groups should be created to help the athlete realize that she or he is not alone during the rehabilitation process.

Summary of Psychological Strategies

- GOAL SETTING
- MODELING
- RELAXATION & IMAGERY
- POSITIVE SELF-TALK
- SOCIAL SUPPORT

In conclusion, the fact remains that the use of psychological techniques, such as goal setting, modeling, relaxation and imagery, positive self-talk, and social support will not increase until the educational barriers are weakened. Athletic trainers are capable of using these psychological techniques which go beyond the traditional skills of communication and motivation. It is a simple matter of education and application. This manual has been created to help destroy the educational barriers that limit athletic trainers and increase the confidence required for the application of these general psychological skills. This manual provides a simple introduction to some of the general psychological techniques that can be applied to any rehabilitation program. For a more formal education, a list of relevant resources has been included.

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APPENDIX B

To Selected Reviewers of **Psychological response to athletic Injury:**

Enclosed is a manual on the psychological response of athletes to athletic injury. The manual is focused towards athletic trainers to enhance their education on the subject. You have been asked to help evaluate this manual because of your experience and/or knowledge of this topic.

Please review the manual and answer the questions as completely as possible. When you are finished, please return the questionnaire and signed human consent form to me as soon as possible.

Thank you for your interest and valued input!

Sincerely,

A handwritten signature in black ink that reads "Janelle Reasor". The signature is fluid and cursive, with the first name "Janelle" and last name "Reasor" clearly distinguishable.

Janelle Reasor

*Please note, you have been given a black and white copy of the manual to review. The final project will be in color.

Questionnaire For
Psychological response to athletic Injury

Please circle title: Sport Psychologist Certified Athletic Trainer

Please answer the following questions as completely as possible. Circle the number that best represents your answer.

After Reviewing the Manual:

1. Do you think that the manual clearly provides athletic trainers with useful information on the psychological response to injury?

Strongly agree	agree	disagree	strongly disagree
1	2	3	4

Strengths of the manual:

Suggestions for improvement:

2. Do you think that the manual is focused on the important topics?

Strongly agree	agree	disagree	strongly disagree
1	2	3	4

Strengths of the manual:

Suggestions for improvement:

3. Do you think the material in the manual adequately covers the appropriate information in:

A. Section One: Purpose and scope?

Strongly agree	agree	disagree	strongly disagree
1	2	3	4

Strengths of the manual:

Suggestions for improvement:

B. Section Two: Why target athletic trainers?

Strongly agree	agree	disagree	strongly disagree
1	2	3	4

Strengths of the manual:

Suggestions for improvement:

C. Section Three: Understanding Emotions?

Strongly agree	agree	disagree	strongly disagree
1	2	3	4

Strengths of the manual:

Suggestions for improvement:

D. Section Four: Stage models of adjustment to injury?

Strongly agree agree disagree strongly disagree

1 2 3 4

Strengths of the manual:

Suggestions for improvement:

E. Section Five: Cognitive appraisal models of adjustment to injury?

Strongly agree agree disagree strongly disagree

1 2 3 4

Strengths of the manual:

Suggestions for improvement:

F. Section Six: Psychological strategies?

Strongly agree agree disagree strongly disagree

1 2 3 4

Strengths of the manual:

Suggestions for improvement:

4. Do you believe the manual can be helpful for athletic trainers in working with injured athletes?

Strongly agree	agree	disagree	strongly disagree
1	2	3	4

Strengths of the manual:

Suggestions for improvement:

5. Do you think the writing style of the manual is understandable for athletic trainers?

Strongly agree	agree	disagree	strongly disagree
1	2	3	4

Strengths of the manual:

Suggestions for improvement:

6. Do you think the length of the manual should be:

Shortened	kept as is	lengthened
1	2	3

Comments:

7. Is there any further information or comments that you believe would be helpful to improve the manual?

Thank you for your time and effort. Your comments are greatly appreciated!

Janelle

APPENDIX C

San José State
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**College of Applied
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**Department of Human
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HUMAN CONSENT FORM
Psychological Response to Athletic Injury:
A Manual for Athletic Trainers
Janelle K. Reasor

I have been asked to participate in reading and critiquing a manual created for athletic trainers entitled Psychological response to athletic injury. I understand that critiquing this manual will consist of carefully reading the manual and anonymously answering the questions on the given questionnaire. I realize that there are no reasonably foreseeable risks or discomforts anticipated in this project. I understand that no discernible benefits or compensation are expected. However, I will receive a completed copy of the manual and questionnaire statistics if I desire. The completed manual may be published but no information that could identify me will be included. I have been given an opportunity to ask whatever questions I may have had and all such questions and inquiries were answered to my satisfaction. I understand that I am free to not answer specific items or questions on the questionnaire. I understand that any data or answers to questions will remain confidential with regard to my identity. I further understand that I am free to withdraw my consent and terminate my participation at any time without prejudice in future relations with San Jose State University or any other participating institutions.

Further questions can be answered by Janelle Reasor, the author of the manual at (408) 243-6708. Complaints about this project may be presented to Thesis Chair, Dr. David Furst at (408) 924-3039 or to Department Chair, Dr. Carol Christensen at (408) 924-3035. Questions about research, subject's rights, or research-related injury may be presented to acting Associate Vice President for Graduate Studies and Research, Nabil Ibrahim Ph.D. at (408) 924-2480.

- The signature of a subject on this document indicates agreement to participate in the study.
- The signature of a researcher on this document indicates agreement to include the above named subject in the research and attestation that the subject has been fully informed of his or her rights.
- A signed and dated copy of this consent form has been provided for my records.

Date

Volunteer's Signature

Date

Investigator's Signature

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APPENDIX D

San José State
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TO: Janelle Kay Reasor
1180 Reed Ave., #54
Sunnyvale, CA 94086

FROM: Nabil Ibrahim, *N. Ibrahim*
Acting AVP, Graduate Studies & Research

DATE: March 1, 1999

The Human Subjects-Institutional Review Board has approved
your request to use human subjects in the study entitled:

"Psychological Response to Athletic Injury: A
Manual for Athletic Trainers"

This approval is contingent upon the subjects participating in
your research project being appropriately protected from risk.
This includes the protection of the anonymity of the subjects'
identity when they participate in your research project, and
with regard to any and all data that may be collected from the
subjects. The Board's approval includes continued monitoring
of your research by the Board to assure that the subjects are
being adequately and properly protected from such risks. If at
any time a subject becomes injured or complains of injury, you
must notify Nabil Ibrahim, Ph.D., immediately. Injury includes
but is not limited to bodily harm, psychological trauma and
release of potentially damaging personal information.

Please also be advised that all subjects need to be fully
informed and aware that their participation in your research
project is voluntary, and that he or she may withdraw from the
project at any time. Further, a subject's participation, refusal to
participate, or withdrawal will not affect any services the
subject is receiving or will receive at the institution in which
the research is being conducted.

If you have any questions, please contact me at
(408) 924-2480.

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