To the Graduate Council:

I am submitting herewith a thesis written by Matthew T. Grubb entitled "Perceptions of Knowledge Regarding the Psychology of Injury Among Division I Athletic Trainers." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Human Performance and Sport Studies.

Leslee A. Fisher, Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:

Interim Vice Provost and
Dean of The Graduate School

PERCEPTIONS OF KNOWLEDGE REGARDING THE PSYCHOLOGY OF INJURY AMONG DIVISION I ATHLETIC TRAINERS

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ABSTRACT

The purpose of this study was to determine the different perceptions of knowledge regarding the psychology of injury among Division I athletic trainers who were certified and who were student trainers. Twenty NCAA Division I athletic trainers participated in the study. The group was divided into ten certified athletic trainers and ten student athletic trainers. The Athletic Training and Sport Psychology Questionnaire (ATSPQ) was used to determine attitudes, beliefs, and the application of a variety of psychological strategies and techniques athletic trainers may use in their work with injured athletes. The participants were administered the survey and asked to respond as accurately and honestly as possible. A t-test for related measures was conducted on the participants' responses and the results failed to show any significant differences in the statistical analysis of the responses between the two groups. This suggests that knowledge of the psychology of injury is quite similar for trainers differing in age, education, and experience. Suggestions for future researchers are offered, as well as recommendations for changes in current trends present in the education of athletic trainers.

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CHAPTER 1

INTRODUCTION

It has been reported that nearly one in six athletes in the United States have sustained an athletic injury severe enough to keep them out of activity (Cramer-Roh & Perna, 2000). When athletes become injured, they require immediate treatment and rehabilitation in order to speed their return to participation. Within the realm of sports medicine, athletic trainers, physical therapists, and other sports health care professionals have long recognized that their patients are more than just the sum of their injuries. Athletes are unique and individual cases unto themselves, bringing their social, emotional, and cognitive identities with them when they enter into any type of situation. One of the most fundamental qualities that sports medicine professionals must possess is the ability to interact and work with each individual who comes to them for assistance.

Student athletes in a collegiate setting are confronted with hectic schedules from their first day on campus. Maintaining academic responsibilities, practice and competition schedules, and the presence of a social life all combine to occupy most of the hours of an athlete's day. Inject into this mix the presence of an injury, possibly severe, and the resulting rehabilitation from that injury, and you have the ingredients for a potentially stressful situation. Thus, when an athlete presents him or herself for rehabilitation to an athletic trainer, he/she often brings the complications and intricacies of a personal and scholastic life into the training room. These patients are often in need of guidance, encouragement, support, and reinforcement.

Athletics are comprised of goal-oriented athletes who run, jump, throw, catch, shoot, tackle, and sweat in efforts to improve their performance and fulfill their dreams

(Russell, 2000). As in life, sport has its share of harsh realities, and one of the cruelest of those is athletic injury. At best, injuries are inconvenient and frustrating; at worst they are debilitating and devastating. For athletes who devote a tremendous amount of time, energy, and emotion to their sport, particularly those whose identities and self worth are closely related to their ability to perform in that sport, an injury can be emotionally crippling (Russell, 2000).

Sports medicine professionals who care for the physical aspects of an injury must operate within the realms of their expertise when diagnosing and treating an injured athlete's physical disabilities. However, too often an athlete's psychological well-being is neglected or completely ignored. An athlete's mental state will definitely have an impact on his or her rehabilitation from injury and ultimate return to successful, fulfilling participation (Russell, 2000). As athletic trainers are the primary health care professionals for injured athletes (NATA, 1992), the athletic trainer is in an excellent position to assist mental health professionals in dealing with the psychological aspects of athletic injuries and rehabilitation (Pedersen, 1986; Tuffey, 1991; Weiss & Troxel, 1986; Wiese & Weiss, 1987; Wiese, Weiss, & Yukelson., 1991; Wiese-Bjornstal & Smith, 1993, as cited in Larson, Starkey, & Zaichkowsky, 1996).

How might sport psychology consultation or counseling skills be applied to athletic training? The formal practice of counseling is defined by Biggs (1994) as "a helping process in which one person, a helper, facilitates exploration, understanding, and actions about developmental opportunities and problem conditions presented by a helpee or client" (p.63). While this is a functional definition, for the sports medicine

professional, a clearer distinction is needed. Holland, Magoon, and Spokane (1981) suggest that the critical elements involved in counseling include

- provision of social support,
- provision of information about choices,
- help with goal setting, and
- encouragement of decision-making based on identified alternative choices.

Placed in a setting of athletic injury, this definition helps sports medicine professionals understand what their role should and should not be when using counseling skills. Ray and Wiese-Bjornstal (1999) suggest that this definition implies that counseling is what happens when an athletic trainer lends an ear to athletes who want to talk about their problems. It implies that counseling is what happens when an athletic trainer provides information to athletes regarding the nature of their injuries. It acknowledges the importance of involving the athlete in the establishment of goals—not just rehabilitation goals, but personal development goals as well—rather than imposing goals on the athlete. Finally, it suggests that part of counseling is action- and future-oriented. Though this definition is admittedly broad, these authors propose that the definition reflects the fact that most athletes turn to the sports medicine professional with whom they already have a relationship when seeking assistance.

The counseling elements of the athletic trainer's role are fairly well defined. For example, the NATA's (National Athletic Trainers' Association) *Competencies in Athletic Training* (1992) mandates proficiency in counseling and related skills regarding the following entities:

- Psychological and emotional factors related to injury and rehabilitation

- Injury and illness risk reduction
- Physiological effects of physical activity
- Principles of nutrition
- Recognition of eating disorders
- Weight control
- Effects of drugs and ergogenic aids
- Personal hygiene
- Personal protection from exposure to infectious disease
- Recognition of signs and symptoms associated with common mental disorders
- Personal and community health issues
- Referral to mental health and social services
- Education and provision of health care information to athletes, coaches, parents, and the general public

The NATA Board of Certification's *Role Delineation Study* (1999) also cites the following areas of required knowledge for practicing athletic trainers:

- Psychology, guidance, theory, and application
- Common psychosocial conditions
- Appropriate intervention techniques
- Conflict resolution strategies
- Resources for professional referral
- The available psychosocial, community, family and health care support systems relating to treatment, rehabilitation and reconditioning
- Applicable methods and materials for education

- The psychosocial aspects of rehabilitation

Despite the apparent clarity of the presence of counseling skills in athletic training, there remains much doubt about the role athletic trainers play. In a study conducted by Moulton, Molstad, & Turner (1997), athletic trainers reported that their role went beyond the prevention and care of athletic injuries and included the role of educator and counselor. They also reported feeling comfortable discussing student athletes' personal issues but expressed concern about being adequately trained to provide appropriate professional responses. They believed athletes felt more at ease discussing personal issues because of the unique nature of the trainer/athlete relationship. Issues athletes frequently discuss with athletic trainers include conflicts with coaches or other athletes, career decisions, sexually transmitted diseases, injury mechanisms, academic concerns, social pressures, and rehabilitation protocol (Moulton et al., 1997). In light of the requirements placed on athletic trainers both by professional responsibility and personal dedication to their athletes, it would seem that trainers have a professional, legal, and ethical responsibility to provide basic counseling care for athletes when needed.

It should be noted that the objective of athletic training is not to prepare athletic trainers as professional counselors, but to allow them to recognize their counseling boundaries and limitations by increasing their knowledge. In this way, athletic trainers should be able to work more effectively within the confines of their profession, applying basic counseling skills and other psychological strategies to enhance their work with injured athletes. Through education and experience, athletic trainers should not only be more effective at applying these and other techniques to their trade, but also feel more comfortable with their colleagues in the mental health profession, and be more likely to

utilize those resources when the situation becomes necessary for further professional intervention. Never should it be expected that athletic trainers take the place of sport psychologists or other mental health professionals.

In spite of the assumed competencies of athletic trainers to provide some level of counseling assistance, little research has been conducted to assess trainers' perceptions of knowledge regarding the psychology of injury.

Statement of Purpose

The purpose of this study was to determine the different perceptions of knowledge regarding the psychology of injury among Division I collegiate athletic trainers. This study will focus specifically on the differences of those perceptions between student athletic trainers and certified athletic trainers, and whether or not there is an observable contrast between the two groups when considering such factors such as age, experience, and education. Obviously, there are psychological effects of experiencing an injury, effects which sometimes require as much rehabilitation as the physical injury. If athletic trainers, both student and certified, are in a position to assist with this psychological rehabilitation, then it would be reasonable to expect them to have knowledge of potential psychological elements that could be present in an injury rehabilitation setting. In addition, it would be reasonable to expect athletic trainers to have knowledge of skills and techniques that could benefit them in their treatment of injured athletes. If this hypothesis were rejected, then it would send a signal that many athletic trainers are unable to adequately meet the psychological needs of their athletes and might be in need of further education related to this issue.

Definition of Terms

In this study, the following definitions were employed:

Injury: An act that damages or hurts a person. In the present study, injury is assumed to result from a sports-related activity (Arnheim & Prentice, 2000).

Rehabilitation: The process of restoring a person to an optimal state of health; in this study, as it relates to participation in athletics (Arnheim & Prentice, 2000).

Athletic training: The field that encompasses all phases of health care in a sports environment, including injury prevention, diagnosis and management, primary first aid, and rehabilitation (Arnheim & Prentice, 2000).

Certified athletic trainer (ATC): An individual who has received his/her education in the various disciplines of athletic training and has passed the certification exam given by the National Athletic Trainers' Association (NATA) (Arnheim & Prentice, 2000).

Student athletic trainer: An individual studying and learning the disciplines of athletic training under the supervision and instruction of certified athletic trainers (Arnheim & Prentice, 2000).

Psychology of injury: The aspect of injury that includes the mental and cognitive ramifications of sustaining an athletic injury (Arnheim & Prentice, 2000).

Assumptions

The following assumptions were made in this study:

1. The Athletic Training and Sport Psychology Questionnaire (ATSPQ) was a valid and reliable inventory to assess the knowledge and perceptions of injury psychology among athletic trainers.
2. The athletic trainers answered the questionnaire honestly and accurately.

Limitations

The following limitations existed in this study:

1. The principal investigator has been trained as an athletic trainer but has not yet become certified.
2. It should be noted that the principal investigator is also a student athletic trainer at the Division I institution in the study. The investigator is or has been associated with a majority of the individuals participating in the study on a regular basis for the past 3 years. It is conceivable that the responses provided by the subjects could be subject to some bias due to their relationship with the principal investigator.

Delimitations

The following delimitation existed in this study:

1. This study took place at only one NCAA Division I school and may not be reflective or applicable to other NCAA Division I, II, or III schools.
2. The sample size (N=20) is relatively small.

Personal Significance of the Study

After being involved in athletics for many years, both as an athlete and as an athletic trainer, I have seen and experienced firsthand the physical and psychological trauma of what it is to be seriously injured. I have also experienced firsthand not having the psychological ramifications of my injury addressed by those who were assisting me with my rehabilitation, nor by anyone else for that matter. In my particular case, I suffered a serious re-injury near the completion of my first rehabilitation, requiring

further surgery and rehabilitation. To say the least, this was a traumatic experience; one I feel could have been more positively impacted had there been some psychological intervention to accompany my physical rehabilitation.

Significance of the Study

At this time, athletic trainers may not have the knowledge or skills needed to help promote the psychological rehabilitation of athletes during an injury. It is my hope that the results of this study will help to point out some of the deficits in the training and education of athletic trainers concerning the psychological counseling of injured athletes, and make athletic trainers conscious of the need for effective psychological intervention on behalf of injured athletes. With this increased awareness, athletic trainers will hopefully be able to work with other support staff in order to promote psychological health among injured athletes. This training should include information on such issues as when sports medicine professionals should or should not counsel, psychosocial risk factors before injury, psychological responses to injury, and foundations of effective interaction.

Various groups of administrators stand to gain from the results of this study as well. It is apparent that many people in administrative positions in athletic training, sport psychology, and in universities are not as informed as perhaps they should on the presence of psychological distress among injured athletes. The fact that current trends in the formal education of athletic trainers do not include ample coursework in practical psychological principles supports this notion. Changes need to be considered to improve communication and awareness between the governing bodies of athletic training, sport psychology, and universities so that athletic trainers will be able to positively address the

psychological needs of injured athletes. Hopefully, this study will go towards helping to improve relations among these groups of influence.

While the subject of this thesis holds significance for athletic trainers and administrators, both present and future, the ones who potentially will gain the most will be the injured athletes. Injured athletes are entitled to receive as thorough and complete a rehabilitation, both physically and mentally, from their sports medicine professional as is possible. By improving the quality of education of athletic trainers, the quality of care provided for the athletes is improved as well. Not only does this ensure that they will have an opportunity for a successful transition back into their sport, but into their everyday lives as well.

CHAPTER 2

REVIEW OF LITERATURE

Regardless of gender, an athlete has a 50% chance of becoming injured (Arnheim, 2000). This figure rises as high as 86% among high school football players (Lerch, 1984, as cited in Cramer-Roh & Perna, 2000). This high percentage of injuries places sports medicine professionals, particularly athletic trainers, in a very important role as they attempt to rehabilitate athletes from these injuries. Years are spent in the classroom and on the courts and fields of play to help athletic trainers learn how to diagnose and treat athletic injuries. Despite the fact that psychological health is promoted in the basic competencies of knowledge required of athletic trainers, very little of an athletic trainer's education is focused on the psychological aspects of injury and rehabilitation. In this chapter, literature is reviewed concerning the following topics: why athletic trainers should help counsel athletes, psychosocial risk factors prior to sport injuries, psychological responses to injury, and the foundations of effective interaction for athletic trainers.

Why Athletic Trainers Should Help Counsel Athletes

Although it has been established that sports medicine professionals are in an excellent position to help counsel their patients on a wide variety of subjects, the question may be still asked as to why athletic trainers should provide any counseling service at all. Isn't it enough to attend to the physical needs of athletes according to the training the athletic trainer has received? Shouldn't the quality of mental health be left to mental health professionals? There are a number of reasons why athletic trainers should be

involved in the counseling of athletes in their care. The first reason that trainers have is a legal and an ethical duty to practice basic counseling skills for athletes within the scope of appropriate training and their license to practice. A common area of negligent behavior on the part of athletic trainers and other sports medicine professionals is a failure to warn patients of the potential risks of treatment (Ray & Wiese-Bjornstal, 1999). A critical component of warning patients involves obtaining their informed consent before initiating treatment. Informed consent includes the following elements (American Physical Therapy Association [APTA], 1995, as cited in Ray & Wiese-Bjornstal, 1999):

- Description of the treatment or medical intervention
- Risks of the treatment or medical intervention
- Expected benefits of the treatment or medical intervention
- Explanation of the risks of foregoing the treatment or medical intervention
- Explanation of alternative treatments

Each of these involves a substantial counseling component. In order to offer the preceding activities in a rehabilitation setting, there must be clear communication between the trainer and the athlete. This enables the athlete to become educated about the process of injury and rehabilitation. Any questions the athlete has should be answered and a treatment plan should be developed based on goals discussed with the athlete--goals that wouldn't be known to the athletic trainer unless s/he talks and listens to the athlete.

The code of ethics of the National Athletic Trainers Association (NATA), as well as the American Physical Therapy Association (APTA) and American Medical Association (AMA) requires practitioners to place the patient's welfare above all other

considerations (Ray & Wiese-Bjornstal, 1999). This would be difficult to do unless athletic trainers enter into relationships with athletes that are characterized by rapport, effective interpersonal communication, and empathy—all critical elements of counseling behavior. One factor, and arguably the primary one, in injury and illness prevention is the ability of sports medicine professionals to convince patients to alter their behavior (Ray & Wiese-Bjornstal, 1999). This involves both individual and group education on an ongoing basis. Education is a critical element of counseling, and sports medicine professionals have an ethical responsibility to educate athletes.

Lastly, athletic trainers should involve themselves in counseling injured athletes because they often represent the first line of defense in the identification of psychological conditions that can range from mild to severe (Heil, Bowman, & Bean, 1993; Smith, Scott, & Wiese, 1990). Because early intervention in psychological or emotional problems is usually most effective (Stewart, 1989, as cited in Ray & Wiese-Bjornstal, 1999), and because athletic trainers are in such frequent contact with both injured and healthy athletes, they are often in a role that will allow them to provide the initial stages of counseling on a wide variety of health-related topics. Athletic trainers and other sports medicine professionals are well suited for this role since they are usually viewed with respect, authority, and trust (Kane, 1982, 1984, as cited in Ray & Wiese-Bjornstal, 1999). It is important that the issues the athletic trainer chooses to provide counseling for be selected with care and be based on his or her level of expertise.

Although athletic trainers and other sports medicine professionals may be first-line counselors for many problems, they are clearly not qualified to handle some situations. Sports medicine professionals who lack training in the identification of

psychological problems should refer athletes with those problems to an appropriate mental health professional. Athletic trainers are in a position to positively impact referral as well. Again, the trainer's familiarity and relationship with an athlete is important when referring athletes to mental health professionals. Athletic trainers are in a position to emphasize to the athlete that seeking help is a sign of maturity and self-direction, not weakness (Ray & Wiese-Bjornstal, 1999). When observed from a professional and ethical standpoint, there is a clear case for athletic trainers practicing basic counseling skills when working with injured athletes. Trainers who are concerned with the overall health and well being of their athletes are good candidates to provide basic assessment and referral for injured athletes.

Psychosocial Risk Factors Prior to Sport Injuries

One of the most important functions of sports medicine professionals is injury prevention. Therefore, the identification of factors that may predispose athletes to injury is essential in order to develop effective interventions before the actual occurrence of sport injury (Ray & Wiese-Bjornstal, 1999). Athletic trainers are often comfortable recommending physical prevention strategies, yet it is also to their advantage to recommend psychosocial prevention strategies. In order to be in a position to recommend such strategies, athletic trainers need to understand the precursors to injury (Ray & Wiese-Bjornstal, 1999). Precursors are the many factors that create a climate for athletic injury. They can be grouped into four major areas:

- Physical
- Environmental
- Sociocultural

- Psychological

As mentioned earlier, athletic trainers and other sports medicine professionals are familiar with many physical and environmental risk elements, and qualified to recommend preventive measures for these risks. Yet most trainers are not familiar with the sociocultural and psychological factors that may affect the occurrence of sport injury.

It has been shown that psychological factors may predispose some athletes to athletic injury (Williams & Andersen, 1998; Gieck, 1994; Kelley, 1990). Andersen and Williams (1988) outlined several injury-predisposing psychological factors, based primarily on the stress-response model of athletic injury. These authors examined research that provided links between stress and negative health consequences. A simplified interpretation of their research points to personality and a history of stressors as factors that are most likely to increase or decrease the likelihood of a stress response. This includes both cognitive and physiological or attentional changes—which in turn affects the occurrence of sport injury when the athlete participates in a potentially injurious sport situation (Ray & Wiese-Bjornstal, 1999).

Personality traits are defined as situation-independent, psychological attributes with which a person can be characterized (Junge, 2000). Although there have yet to be any studies demonstrating that personality factors directly or indirectly influence injury, it is believed by many experts that factors such as self-concept, psychological hardiness, competitive trait anxiety, and locus of control are likely candidates that affect the risk of sport injury (Ray & Wiese-Bjornstal, 1999; Gould, Petlichkoff, Prentice, & Tedeschi, 2000). An example might be a student athlete driven to excel in their sport who pushes to the point of injury and beyond due to personal and parental expectations for success.

While personality traits are not solely responsible for causing injury, athletic trainers would do well to notice changes in an athlete's behavior and mood such as depression, irritability, mood swings, and diminished motivation that may indicate the athlete is under duress. These symptoms, if taken to the practice and competition fields, could create distractions that lead to injury. Therefore, early recognition and attention to such symptoms could be key in prevention.

A second major psychological factor predicted by the Andersen and Williams' (1988) model as affecting the stress response is the athlete's history of stressors. These can include major life events as well as chronic daily problems (Williams & Roepke, 1993, as cited in Ray & Wiese-Bjornstal, 1999). Major life events—also known as life stress—consist of major changes in a person's life, such as a death of a family member, divorce, or a serious illness. Major life events can be positive as well. Marriage, the birth of a child, or the start of a new career are significant occurrences, yet they can introduce stress into a person's life (Junge, 2000). The general research findings suggest that high levels of life stress are associated with frequent injuries (Williams & Roepke, 1993, as cited in Ray & Wiese-Bjornstal, 1999) and that the risk of injury increases in proportion to the level of life stress (Williams & Andersen, 1998).

The other category of stress levels includes chronic daily problems that are simply described as daily hassles. While seen as a minor rather than a major life event, daily problems can accumulate and be just as problematic as a major life event. Daily hassles for athletes might include disagreements with coaches or teammates, pressure to perform in the classroom, and financial concerns, they might also include more positive events such as socializing with friends and boyfriend or girlfriend relationships. The available

research suggests that daily hassles should be included as a factor related to injury vulnerability (Williams & Andersen, 1998). Again, athletic trainers who interact with athletes on a daily basis at practice, competition, and rehab are in a prime position to observe these behaviors and take steps to assist the athlete in handling the pressures of life. Awareness and recognition of the basic life stressors that routinely affect athletes is a key to prevention of injury. Athletic trainers can be an extremely valuable resource for athletes to cope with such stressors.

The factors of personality and the individual's personal history of stressors interact with many other variables to elevate the stress response. Two primary mechanisms—attentional disruption and increased muscle tension—place certain individuals at greater risk for sport injury (Andersen & Williams, 1988). Research has demonstrated that stress disrupts athletes' attention by reducing peripheral attention or increasing central vision distractibility (Williams & Andersen, 1998; Williams, Tonyman, & Andersen, 1991, as cited in Russell, 2000). This can be very troublesome in athletic environments such as football and basketball in which there is constant activity on the field or court. Athletes in these arenas of competition must be able to focus their attention on the full field of view and as well as on other things in play, such as other participants, equipment, or apparatus in order to prevent a collision. A second related attentional factor is increased state anxiety—a situation-specific form of anxiety—that can cause internal distraction via irrelevant thoughts (Ray & Wiese-Bjornstal, 1999). Increased state anxiety can cause athletes to pay more attention to thoughts in their head rather than to what is happening on the field. Again, if athletes are not able to respond

appropriately to important environmental cues, they may be at greater risk of injury because of failure to recognize and avoid potentially dangerous situations.

The second operative mechanism in a high-stress condition is increased muscle tension (Ray & Wiese-Bjornstal, 1999; Russell, 2000). This increased muscle tension interferes with normal coordination and increases athletes' chance of injury. As a result, athletes who are tense are often less fluid in their play. Muscular co-contractions associated with inefficient motor performance can lead to greater fatigue and the sense of muscles fighting each other rather than working together smoothly (Ray & Wiese-Bjornstal, 1999). Again, it is important for athletic trainers to recognize the mechanisms—psychological, social factors, and physiological—that might increase the likelihood of injury so that they can assist in necessary prevention.

Psychological Responses to Injury

In a recent study, 47% of 482 certified athletic trainers surveyed responded that they believed every injured athlete suffers psychological trauma (Larson, Starkey, & Zaichkowsky, 1996). For many people, athletes included, physical injury and the resulting treatment and rehabilitation can be a very stressful situation. The impact of athletic injury is dependent on a number of factors, including the nature and severity of the injury, the importance of the sport in the athlete's life, and the reaction of the athlete's support network to the injury (Petitpas & Danish, 1995). The complexity of these and other factors makes predicting individual reactions to injury difficult at best. However, a few reactions have been reported consistently enough to warrant further discussion.

Suinn (1967, as cited in Petitpas & Danish, 1995) was one of the first researchers to suggest that athletes view the loss of athletic ability due to injury in much the same

way as an individual faced with permanent disablement or similar loss. He proposed a sequence of mental/emotional events that includes shock, denial, depression or anxiety, and partial or complete acceptance. Others (Astle, 1986; Rotella, 1984; Rotella & Heyman, 1986; Weiss & Troxel, 1986) have suggested that athletes frequently undergo a grieving process for the temporary or permanent loss of athletic self. This process follows Kubler-Ross's (1969, as cited in Petitpas & Danish, 1995) familiar grieving stages of denial, anger, bargaining, depression, and acceptance.

Threat to personal identity is another potential harm to an injured athlete. Many researchers have observed that athletes who are overly committed to their sport make themselves vulnerable to ego-identity loss and depression (Elkin, 1981, as cited in Petitpas & Danish, 1995). Little (1969, as cited in Petitpas & Danish, 1995) has identified this scenario as *athletic neurosis* and describes it as follows:

> "a bereavement reaction to the loss of a part of the self, the overvalued physical prowess. Athleticism may not be neurotic in itself; but, like exclusive and excessive emotional dependence on work, intellectual pursuits, physical beauty or any other overvalued attribute or activity, athleticism can place the subject in a vulnerable pre-neurotic state leading to manifest neurotic illness in the event of an appropriate threat, or actual enforced deprivation, especially if it is abrupt or unexpected" (p. 195).

Basically, Little's observations suggest that overidentification with athletics could lead to emotional upset if an individual is forced to suddenly cease their sport activity, as in the case of an injury. The level of emotional upset would be a function of a person's coping abilities coupled with the quality and availability of social support (Pearson & Petitpas, 1990; Junge, 2000). Identified maladaptive behaviors include acute depression, substance abuse, guilt, irritability, as well as threats to self-concept, belief systems,

values, commitments, and social and emotional functioning. The potential impact of injuries on role identity should not be underestimated.

It has been noted that feelings of separation and loneliness can also result from athletic injury. If injured athletes are no longer able to participate with his/her teammates, then they lose a key element of their social support system. Despite urgings from sports medicine and mental health professionals alike to remain involved with their team in some capacity, some athletes feel guilty about letting down their teammates and coaches and often find watching practice or games highly stressful (Petitpas & Danish, 1995). Some injured athletes find it easier to withdraw rather than confront their feelings; at the same time teammates may ignore injured athletes because of uncertainties about how to respond or because they fear the injured athlete is a sign of bad luck. Feelings of inadequacy can often cause friends and teammates to avoid the injured athlete (Rotella & Heyman, 1986). This withdrawal can be particularly troublesome if it occurs when social support is needed most. This withdrawal often occurs simultaneously with an increase in unstructured time during the day. The 3 to 5 hours a day that was previously committed to practice, competition, or conditioning is now devoid of activity. Helping athletes plan strategies to cope with their unstructured time is often critical to the success of any psychological intervention. Sports medicine professionals need to be aware of individual needs and differences in planning appropriate interventions.

Injured athletes face an uncertainty about their futures that can be frightening and stressful for them. Athletes begin to question their ability to cope with everything that is happening to them. The loss of a daily routine, the pain and discomfort of the injury and rehabilitation, the separation from team and friends, and the threats to future plans can

each lead to fear and anxiety. It is therefore not surprising for many athletes to begin to have self-doubts. They ask themselves questions like: Will I recover? What if I am reinjured? Will I be able to regain my position on the team? What if I can never play again? The emotional reactions to injury can consume a person's life. Feeling helpless in the face of stress and uncertainty, athletes can become externally controlled by the injury itself (Weiss & Troxell, 1986). Helping injured athletes regain a sense of control often becomes the primary goal of counseling.

Lastly, and perhaps most damaging, is the resulting loss of confidence in athletic ability that results from injury. With all the physical and emotional changes that take place, it is not surprising that athletes' levels of self confidence and their skills would decrease. Athletes often feel that they are indestructible (Rotella, 1984). They learn how to push their bodies to the limit, often taking risks with their health in the process. However, once they are hurt, they may begin to question that indestructible quality or attempt to return to competition before they are ready on a psychological level. Athletes that play tentatively or that are protective of their injured part demonstrate this inability to recover fully psychologically. The spontaneity and assertiveness in their play is no longer there, and the cautiousness that replaces it translates into performance decrements that can further damage confidence and lead to more stress and frustration (Petitpas & Danish, 1995). The end result can be reinjury, a new injury to another body part, performance problems, or emotional upsets that can further drain motivation and the desire to compete (Rotella & Heyman, 1986).

Foundations of Effective Interaction for Athletic Trainers

Clearly, the potential risks to athletes involved in sports are great. As seen in the previous sections, the consequences of injury extend much farther than that of physical disability. Oftentimes, athletes are wounded much deeper than torn ligaments or fractured bones. They have fractured mental and emotional states to go along with their bodies. Thus their needs go beyond that of just physical care. They need to know that there are people in their corner who can sympathize with their frustration, their pain from their injury, and the emptiness they are feeling from not being able to do the things they love to do. Athletic trainers are in an excellent position to identify those athletes who are having difficulty adjusting to an injury and, if necessary, help to provide basic counseling. So how do trainers to provide the kind of care a psychologically fragile athlete needs? The tendency is to be afraid of the word "counseling," but in truth the concept includes the component of social support.

Because of the frequent interaction between athletic trainers and athletes, the athletic trainer is in a unique position to provide a variety of types of social support to the athlete. Social support has been defined as "an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient" (Cobb, 1976, as cited in Barefield & McCallister, 1997). Social support in rehabilitation from athletic injury appears to be a critical environmental factor. Perceived social support has been found to be a positive predictor of adherence to the rehabilitation protocol in previous work on injured college athletes (Duda, Smart, & Tappe, 1989 as cited in Ray & Wiese-Bjornstal, 1999). Providing social support is not restricted to certified athletic trainers. A recent survey of student athletes, (Barefield and

McCallister, 1997) revealed that there was no significant difference in the perceived amount of social support received from staff and student trainers. Furthermore, there was no difference in the athletes' level of satisfaction with certified and student athletic trainers' provision of social support. This suggests that the nature of the support is what the athletes are seeking, rather than the perceived qualifications of the individual providing that support. So the question then develops into just exactly how are athletic trainers able to provide social support? Ray and Wiese-Bjornstal (1999) partition social support down into four tangible categories: rapport, empathy, education, and communication.

First, the importance of establishing a rapport between the athlete and the athletic trainer is critical. In a study conducted by Fisher, Mullins, and Frye (1993), 100% of surveyed athletic trainers responded that rapport between themselves and an injured athlete was vital to the athlete's commitment to his/her rehabilitation. Building rapport involves getting to know the athlete long before an injury ever occurs. Getting to know the athletes, what makes them tick, conversing with them about their days, their sports, their lives; joking lightheartedly with them; and sharing some of their own lives is essential for athletic trainers who want to provide effective treatment. Not only do athletic trainers have the opportunity to make their job more enjoyable by building rapport with athletes, but they also gain valuable insight about their athletes, such as behavioral tendencies, personality dispositions, and emotional stability.

Another essential component of effective interaction is empathy. Empathic behavior conveys a message of support and acceptance to the injured athlete. Empathy involves a capacity to view the world through the eyes of others, accurately sense their

feelings, and skillfully listen in order to hear not only the obvious message but also the subtle shadings of which the patient may not even be aware (Cormier & Hackney, 1993). The basic premise of empathy is genuine caring for the other person. Empathy may or not be capable of being learned; however, the chances of improving empathic ability increase through experience. Just as taping techniques must be practiced, attempting to place oneself in an injured athlete's place during every interaction can only increase the level of a trainer's empathy. One strategy for the athletic trainer might be to put into words what he or she thinks the athlete actually means in their dialogue together. In this way athletes can either restate their position so that the athletic trainer can again try to understand the underlying message, or assure the athletic trainer that he or she has an accurate account of the athlete's experience.

Another key factor in the trainer's interaction with injured athletes is education. Educating athletes about their injuries can prepare them for what might lie in store and prevent some of the surprises or shock that may occur during treatment. Providing as much accurate information as possible about the injury and the recovery process can help the athlete become a collaborator in the treatment and reduces the possibility of exaggerated worry or fear of the unknown (Petitpas & Danish, 1995). Danish (1986, as cited in Petitpas & Danish, 1995) suggests that injured athletes want information on specific topics including the following:

- The nature of the injury and the medical reasons for initiating treatments
- The goals of treatment
- Details of medical procedures that will be performed
- Possible sensations or side effects

- Coping strategies for adjusting to the upcoming treatment

Athletes injured for the first time may not be aware that the changes that may occur, both psychologically and physically, often do not occur smoothly. Athletic trainers can help athletes understand this and help them cope with setbacks or plateaus in rehabilitation.

Lastly, the notion of communicating completes the spectrum of the athletic trainer's provision of social support. Effective communication encompasses responding both verbally and nonverbally, as well as practicing active listening. Two recent surveys of athletic trainers have documented the important role of effective communication skills in the work they do. In a survey of athletic trainers, Wiese, Weiss, and Yukelson (1991) noted that the trainers themselves rated communication skills among the most important psychological skills for enhancing athletes' injury recovery. Ford and Gordon (1993) surveyed Australian sport physiotherapists to determine ways they provide social support and found strong evidence for the importance of developing effective communication skills. Among their key findings, Ford and Gordon noted that the physiotherapists provided a necessary bridge between the injured athlete and the physicians and coaches. The top-rated recommendations for providing social support emphasized improving communication between members of the sport rehabilitation team. An athletic trainer who is able to maximize his or her ability to truly listen to what his/her athletes are saying, through verbal communication and nonverbal communication, is then able to respond effectively in a way that provides the highest quality of care to athletes.

Summary

There is a wide range of reasons for athletic trainers to provide basic counseling techniques—especially social support—to athletes who are injured. Not only does the literature suggest that trainers have both a legal and ethical responsibility, but also that it is within the scope of the athletic training profession to provide psychological support. The concern is for the overall health of the athlete, and the quality of that health has to do very much with athletes' total well-being. Athletic trainers who refuse to acknowledge the importance of psychological rehabilitation as well as physical rehabilitation are addressing only half of the problem, which could lead to disastrous results.

Research shows that there are a number of psychosocial risk factors that lead to injury occurrence. The trainer's recognition of such things as changes in emotions, daily behavior, and attitude, as well as the presence of stressors is key for helping athletes avoid situations that may lead to injury.

Much research indicates that there is a psychological response to injury. Most of the literature identifies a grief reaction due to the loss of athletic identity. Feelings of loneliness, separation, and a loss of confidence in self-as-athlete are a few of the identified responses to injury. Athletic trainers working with injured athletes should be sensitive to these reactions as well as others that may be present during the course of rehabilitation.

Research suggests that there are many avenues available to athletic trainers to assist athletes who are at risk of injury. Social support has been identified as a critical element in the injury recovery process in much of the available research. Rapport, empathy, education, and communication are four of the elements that have been noted as

being particularly important for athletic trainers in assisting athletes recover from the psychological aspect of an injury experience.

Though the literature suggests that athletic trainers' role in the athletes' recovery from psychological as well as physical injury is very apparent, there is little research on trainers' self perceptions of this role. More often than not, athletic trainers are uncertain as to how to address the situation of interacting with an injured athlete who is psychologically disarrayed. This uncertainty stems from an incomplete education and insufficient knowledge as to what the appropriate intervention strategy is. Clearly, trainers that are unaware or fail to recognize the psychological aspects of injury stand to have little positive impact. Studies are needed to establish whether or not athletic trainers are receiving the proper education and training concerning the various aspects of injury psychology, including identification of dangerous situations and available techniques for treatment.

CHAPTER 3

METHODS

The purpose of this study was to determine the different perceptions of knowledge of the psychology of injury among Division I athletic trainers. In this chapter, a description of the participants in this study, the questionnaire used to investigate athletic trainers' perceptions of knowledge, and the procedures employed are discussed.

Participants

All of the participants were NCAA Division I athletic trainers. Both male and female trainers were surveyed. Of the 20 participants, 8 (40%) were male and 12 (60%) were female. Of these, one was African-American, one was Asian, and the remaining 18 were Caucasian. Of the twenty trainers, 10 were certified athletic trainers and 10 were student athletic trainers. The sample of certified athletic trainers included 1 head athletic trainer, 2 assistant athletic trainers, 3 associate athletic trainers, and 4 graduate assistants. Ages ranged from 20 to 28 years among the students (M=22.90, SD=2.42), and 22 to 45 among the ATCs (M=30.20, SD=7.57). Education levels among the students ranged from 3 years of college experience (n=2) to those who held a master's degree (n=1), with 3 possessing bachelor's degrees. Most of the ATCs in the study held a master's degree (n=6), while the remaining 4 held a bachelor's degree. Total years of athletic training experience ranged from 2 to 8 among the students (M=4.35, SD=2.07), and 5 to 25 years among the ATCs (M=11.30, SD=7.26). Total hours spent a day working at athletic training ranged from 4 to 7 among the students (M=5.50, SD=0.85) and from 8 to 14 among the ATCs (M=9.90, SD=1.79).

Instrumentation

The Athletic Training and Sport Psychology Questionnaire (ATSPQ) was adapted by Larson, Starkey, and Zaichkowsky (1996) from instruments developed by Wiese, Weiss, and Yukelson (1991) and Brewer, Van Raalte, and Linder (1991). The ATSPQ examines the attitudes, beliefs, and application of a variety of psychological strategies and techniques athletic trainers may use in their work with injured athletes. Demographic questions were added to the beginning of the survey by the principal investigator to provide basic information about the participants such as age, gender, years of athletic training experience, and education level. The survey used in this study can be found in the Appendices portion of this thesis (Appendix C), on page 54.

Procedures

All participants were contacted individually by the principal investigator, given a letter of information (Appendix A) concerning the study and procedures, and asked whether they would be willing to participate. Those agreeing to participate were provided a letter of consent (Appendix B) and a copy of the questionnaire (Appendix C).

Upon return of the consent form to the principal investigator, the athletic trainers were asked to complete the questionnaire. Each athletic trainer was encouraged to answer the questionnaire as truthfully and as accurately as possible. Upon completion of the survey, the questionnaires were hand-collected by the principal investigator.

CHAPTER 4

RESULTS

In this chapter, the method of data analysis is discussed followed by a presentation of the results.

Data Analysis

Survey responses were analyzed using SPSS for Windows Release 10.1.3. Independent t-tests were conducted for each item on the survey to determine whether differences exist between the student athletic trainers and the certified athletic trainers. The alpha level was set at 0.05, and the Bonferoni adjustment technique was calculated to minimize the experimental error rate. As a result, all comparisons were made at an alpha = 0.0015. Percentages were calculated on the open-ended responses of the ATSPQ in order to identify the four behaviors indicated by the athletic trainers.

Results

A total of 20 questionnaires were distributed, and all 20 were returned. Based on the responses from the first question of the ATSPQ, athletic trainers reported observing stress/anxiety as a common condition associated with athletic injuries, as well as treatment compliance problems, depression, and anger (See Table 1), (See Table 2 for information from the independent t-test).

The second question of the survey was a two-part question. The first portion asked the athletic trainers to identify the top 4 behaviors they observed in athletes who

Table 1: Conditions Associated with Athletic Injuries (N=20)

Condition	NATA Certified	N	Mean	Std. Deviation
Stress/anxiety	Yes	10	4.40	.699
	No	10	3.60	.699
Anger	Yes	10	3.50	.707
	No	10	3.30	.675
Treatment compliance problems	Yes	10	3.90	.738
	No	10	3.60	.516
Depression	Yes	10	3.40	.699
	No	10	2.20	.919
Problems with attention/concentration	Yes	10	3.30	.675
	No	10	2.90	.568
Exercise addiction	Yes	10	2.80	.919
	No	10	2.70	1.252

Note: 1)Never; 2)rarely; 3)occasionally; 4)often; 5)very often.

Table 2: Independent Samples Test for Table 1

	t-test for Equality of Means		
	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Stress/anxiety	.020	.80	.313
Anger	.526	.20	.309
Treatment compliance	.306	.30	.285
Depression	.004	1.20	.365
Problems with	.169	.40	.279
Exercise addiction	.841	.10	.491

($p \leq .05$)

were successful in coping with injury. Athletic trainers observed athletes successfully coping with an injury doing the following: "dedicated, determined, or strong desire to return to sport"; "compliance with rehabilitation/treatment program"; "motivated to work hard during rehabilitation"; and "positive attitude about injury and life" (See Table 3).

Athletic trainers also observed a number of traits in athletes who do not cope successfully with an athletic injury. As before, athletic trainers were asked to identify the top 4 observed behaviors. In the second portion of question 2, the top identified behaviors were "no motivation, lazy, poor work effort with rehabilitation"; "do not comply with rehabilitation/treatment program"; "frustrated, impatient with injury/rehabilitation"; and "withdraw from team, other activities" (See Table 4).

In response to the third question, of the 10 certified athletic trainers surveyed, 9 (90%) responded that they had referred an athlete to some form of counseling service for complications from his/her injury. Of the 9 that responded positively, 7 (78%) responded "yes" when asked if there was a written procedure for referral. Of the 10 student athletic trainers, 6 (60%) responded that they had referred an injured athlete for counseling. Of that 6, 4 (67%) responded "yes" when asked if there was a written procedure for referral.

The surveyed athletic trainers were also asked to identify the frequency in which they used various intervention techniques. Among those viewed the most important were "creating variety in rehab exercises", "using short-term goals", and "encouraging positive self-thoughts" (See Table 5), (See Table 6 for results from the t-test).

Table 3: Behaviors, Characteristics, and Attitudes of Athletes Who Cope Successfully With Injury (N=20)

	NATA Certified	
Characteristics	No	Yes
Comply with rehabilitation/treatment program	70%	50%
Positive attitude about injury and life	30%	40%
Motivated to work hard during rehabilitation	50%	60%
Dedicated, determined, or strong desire to return to sport	60%	80%
Asks questions, knowledgeable about injury and rehab	10%	10%
Is focused, uses goals in rehabilitation process	50%	10%
Confident in their ability as an athlete/person	20%	10%
Stays involved with their team	0%	40%
Involved with activities outside of athletics	10%	0%
Accepts, copes with injury	30%	30%
Good family, coach, peer support	20%	40%
Good communication with athletic trainer and/or coach	20%	20%
Good student academically	10%	0%
Good pain tolerance	20%	10%

Note: This was an open-ended question in which athletic trainers were asked to list the top 4 observed behaviors.

Table 4: Behaviors, Characteristics, and Attitudes of Athletes Who Do Not Cope With Injury (N=20)

	NATA Certified	
Characteristics	No	Yes
Do not comply with rehabilitation/treatment program	70%	70%
Apathetic, depressed, feel hopeless or indifferent	20%	30%
No motivation, lazy, poor work effort with rehabilitation	80%	80%
Blame others or use injury as an excuse	10%	10%
Withdraw from team, other activities	30%	40%
Poor communication with athletic trainer or coach	40%	30%
Deny injury severity, fail to cope with injury	10%	20%
Lack self-confidence	10%	10%
Negative attitude toward injury and life	10%	40%
Frustrated, impatient with injury/rehabilitation	70%	20%
Lack of focus or goals in rehabilitation	20%	10%
Poor pain tolerance	20%	20%
No family, coach, peer support	10%	20%

Note: This was an open-ended question in which athletic trainers were asked to list the top 4 observed behaviors.

Table 5: Skills and Techniques Used by Athletic Trainers in Working With Injured Athletes (N=20)

Skills/Techniques	NATA Certified	N	Mean	Std. Deviation
Keeping the athlete involved with the team	Yes	10	4.00	.943
	No	10	3.90	.876
Using short term goals	Yes	10	4.50	.707
	No	10	4.40	.699
Creating variety in rehabilitation exercises	Yes	10	4.50	.527
	No	10	4.70	.483
Encouraging positive self-thoughts	Yes	10	4.00	.816
	No	10	4.10	.876
Encouraging effective communication skills	Yes	10	3.90	1.370
	No	10	4.20	.789
Enhancing self-confidence	Yes	10	3.40	1.075
	No	10	4.00	.943
Reducing stress/anxiety	Yes	10	3.50	1.080
	No	10	3.40	.966
Improving social support	Yes	10	2.90	1.370
	No	10	2.50	.972
Reducing depression	Yes	10	2.30	.949
	No	10	2.50	.972
Teaching muscular relaxation techniques	Yes	10	1.90	.568
	No	10	1.30	.483
Using/teaching relaxation techniques	Yes	10	1.90	.738
	No	10	1.40	.516
Using mental rehearsal/visualization	Yes	10	1.80	1.033
	No	10	1.50	1.080
Teaching emotiional control strategies	Yes	10	1.90	.994
	No	10	1.10	.316

Note: 1)Never use; 2)25% of the time; 3)50% of the time; 4)75% of the time; 5)100% of the time.

Table 6: Independent Samples Test for Table 5

	Statistics		
	t-test for Equality of Means		
	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Keeping the athlete involved with the team	.809	.10	.407
Using short term goals	.754	.10	.314
Creating variety in rehabilitation exercises	.388	.20	.226
Encouraging positive self-thoughts	.795	.10	.379
Encouraging effective communication skills	.556	.30	.500
Enhancing self-confidence	.201	.60	.452
Reducing stress/anxiety	.830	.10	.458
Improving social support	.461	.40	.531
Reducing depression	.647	.20	.429
Teaching muscular relaxation techniques	.020	.60	.236
Using/teaching relaxation techniques	.096	.50	.285
Using mental rehearsal/visualization	.534	.30	.473
Teaching emotiional control strategies	.034	.80	.330

($p \leq .05$)

The sixth question of the survey asked the athletic trainers to identify the frequency with which they believed an athlete to be affected psychologically by an injury. Both groups (100%) responded that an athlete was affected at least 50% of the time, with 90% responding 75% of the time or higher.

The athletic trainers in the study were also asked to identify certain skills and techniques they felt were important to learn in order to be able to work more effectively with injured athletes. Among those skills seen as important were "using effective communication", "enhancing the listening skills of the athletic trainer", and "setting realistic goals" (See Table 7), (See Table 8 for results from the independent t-test).

Table 7: Important Skills and Techniques for Athletic Trainers to Learn (N=20)

Skills/Techniques	NATA Certified	N	Mean	Std. Deviation
Understanding individual motivation	Yes	10	4.20	.919
	No	10	4.40	.516
Setting realistic goals	Yes	10	4.30	.949
	No	10	5.00	.000
Using effective communication	Yes	10	4.80	.422
	No	10	5.00	.000
Enhancing listening skills of the AT	Yes	10	4.80	.422
	No	10	4.80	.422
Creating variety in rehabilitation exercises	Yes	10	4.70	.675
	No	10	4.60	.516
Enhancing self-confidence of injured athlete	Yes	10	4.20	.789
	No	10	4.40	.699
Encouraging positive self-thoughts	Yes	10	4.30	.483
	No	10	4.30	.675
Reducing stress/anxiety	Yes	10	3.80	1.317
	No	10	4.10	.876
Reducing depression	Yes	10	3.50	1.080
	No	10	4.20	.919
Teaching concentration skills	Yes	10	3.00	1.155
	No	10	3.40	.699
Teaching emotional control strategies	Yes	10	3.10	.994
	No	10	3.20	.632
Teaching muscular relaxation techniques	Yes	10	3.00	.943
	No	10	3.40	.699
Teaching the use of mental imagery	Yes	10	3.00	1.054
	No	10	3.40	1.075
Improving social support for injured athletes	Yes	10	3.80	1.398
	No	10	4.10	.316

Note: 1)Not important; 2)somewhat important; 3)indifferent; 4)important; 5)very important.

Table 8: Independent Samples Test for Table 7

	t-test for Equality of Means		
	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Understanding individual motivation	.556	.20	.333
Setting realistic goals	.045	.70	.300
Using effective communication	.168	.20	.133
Enhancing listening skills of the AT	1.000	.00	.189
Creating variety in rehabilitation exercises	.714	.10	.269
Enhancing self-confidence of injured athlete	.556	.20	.333
Encouraging positive self-thoughts	1.000	.00	.262
Reducing stress/anxiety	.556	.30	.500
Reducing depression	.136	.70	.448
Teaching concentration skills	.361	.40	.427
Teaching emotional control strategies	.791	.10	.373
Teaching muscular relaxation techniques	.295	.40	.371
Teaching the use of mental imagery	.412	.40	.476
Improving social support for injured athletes	.523	.30	.453

($p \leq .05$)

For the eighth question, 90% of the certified athletic trainers viewed the psychological aspect of injury as important to treat. Similarly, 100% of the students responded in the same fashion.

For the last question, 80% of the certified athletic trainers and 100% of the students responded that curriculum designed to educate athletic trainers in various methods of basic psychological counseling was important.

In the next chapter, a discussion of the results of the survey will be provided, along with suggestions for future actions for consideration.

CHAPTER 5

DISCUSSION

In the previous chapter, results from the distributed survey of 20 Division I student- and certified athletic trainers were presented. In this chapter, a discussion of the results of the study is presented, including suggestions for improvement and recommendations for future investigators.

The purpose of this study was to determine whether differences existed between Division I certified athletic trainers and student athletic trainers regarding knowledge of the psychology of injury. Because this study was conducted at only one university, the responses to the survey may be more specific to the athletic training staffs involved in this study. However, many of the responses generated in this study reflect most of the same ideas and trends seen in current literature concerning the presence of psychological counseling in athletic training. The Athletic Training and Sport Psychology Questionnaire (ATSPQ) was used to investigate participants' perceptions. When the results of the survey were examined, no significant difference was detected in the mean responses of the two groups. However, there were some interesting results in the data.

The most frequently observed conditions associated with injury in both students and certified athletic trainers were stress and anxiety, depression, anger, and treatment compliance problems, which corresponds to the findings in the study conducted by Larson, Starkey, and Zaichkowsky (1996). While, there was no observable statistical difference, there was a notable difference in the response. Certified athletic trainers responded to observing stress/anxiety and depression more frequently than the students. This could be reflective of the differences in education stemming from more experience,

and the fact that the certifieds often are involved in a more supervisory role. This allows them to observe more, thus allowing them to perhaps notice behaviors students would be unable to see themselves. However, techniques used to help reduce these conditions were not used very often. Reducing stress/anxiety and teaching emotional control strategies were among the lesser-used skills according to the results of the survey. Larson et al (1996) suggest that this may be due to inadequate time to treat the conditions or the trainers may believe that by treating the physical nature of an injury, they are treating the anger, stress, and anxiety they see in the injured athlete as well.

As seen in the study conducted by Wiese, Weiss, & Yukelson (1991) and in Gould, Petlichkoff, Prentice, and Teceschi's discussion on the psychology of sports injuries (2000), athletic trainers report a variety of characteristics among athletes who cope or do not cope with injury, and the athletic trainers in this study were no different. Positive characteristics included compliance and a willingness to work with the athletic trainer (70% student; 50% certified), dedication and desire in returning to their sport (60% student; 80% certified), and motivation to work hard during rehab (50% student; 60% certified). Negative qualities included no motivation or poor work effort (80% for both groups), withdrawal (30% student; 40% certified), poor communication (40% student; 30% certified), and noncompliance with the treatment program (70% for both groups). Interestingly, students identified having a focus or goals during rehab much more as a positive behavior than did the certifieds (50% student; 10% certified), and likewise for identifying frustration/impatience with rehab as a negative behavior (70% student; 20% certified). This is reflective of the fact that students are most often the ones interacting with the injured athletes on a daily basis. Students are the ones doing most of

the physical work, such as going to practice, working in the training room, and usually conducting the rehabilitations of injured athletes. It is not surprising that students are responding higher than certifieds on issues such as rehabilitation compliance and the frustration/impatience of the athlete.

Overall, most of the athletic trainers indicated that they had referred an injured athlete to a mental health professional. However, discrepancy arose in the second part of the question concerning the presence of a written or otherwise known procedure for referral. According to the Role Delineation Validation Study for the Entry-Level Athletic Trainer's Certification Examination (NATABOC, 1990), most, if not all athletic trainers should have responded "yes" to this question. Seven of nine (78%) certified athletic trainers and 4 of 6 (67%) student trainers who had referred athletes were able to identify a type of procedure, written or otherwise, for referral after responding that they had in fact referred athletes. This proves interesting, since all the athletic trainers work at the same Division I institution. Perhaps trainers may not be as informed as they should be concerning referral, especially students who spend a large portion of time interacting with the athletes, particularly during injury rehabilitation. The preferred type of referral resource was a team sport psychologist or special support group provided by the university.

The next two questions were in regards to skills and techniques athletic trainers personally used or felt were important to learn when dealing with injured athletes. Particularly noteworthy were the questions asked concerning social support, stress and anxiety, depression, and communication. Both groups of athletic trainers responded that they did not use skills to reduce stress or depression, or to improve social support and

communication as often as skills such as using short-term goals and creating variety in rehabilitation. However, both groups responded that improving social support for injured athletes, reducing stress, anxiety, and depression, and especially enhancing the listening skills of athletic trainers and using effective communication were important skills to learn and be confident using.

In the study conducted by Larson, Starkey, and Zaichkowsky (1996), almost 90% of the surveyed athletic trainers responded that it was "Relatively important" or "Very important" to treat the psychological aspect of an athletic injury. This corresponds to the responses found in this study as well; 100% of students and 90% of ATCs responded that it was "Important" or "Very important" to treat the psychological aspect of an athletic injury. This finding is significant in that it suggests the athletic trainers in this study view the psychological well being of injured athletes as important, and that they desire more information on how to treat such situations appropriately. Both Larson et al. (1996) and Moulton, Molstad, and Turner (1997) found that athletic trainers viewed courses in sport psychology or other curriculum designed for training in counseling as an important component in their education. Again, this same opinion is reflected in the results of this study; 100% of students and 80% of ATCs responded that a curriculum designed to educate athletic trainers in various methods of basic counseling was "Important" or "Very important". While a total of 90% (18) of the respondents supported the importance of such a curriculum, only 2 (10%) of the 20 surveyed said they had taken coursework designed to develop skills in basic counseling. This points to a definite need for formal education in psychological techniques in current educational curriculums. If so many of the athletic trainers surveyed in this study responded that athletes were affected

psychologically by an injury, then it would stand to reason that these athletic trainers would believe that counseling and other psychological skills have a place in the formal education of an athletic trainer.

Conclusions

Based on the results of this study, the following conclusion seems warranted: trainers feel that counseling has a place in the athletic training profession. The question still remains as to how to effectively implement the necessary training and expertise to ensure that athletic trainers are able to maximize their effectiveness in working with injured athletes. Stemming from the results of this study, it can be concluded that certified athletic trainers and student athletic trainers have similar perceptions regarding the psychology of injury and the psychological techniques available to treat it. However, trainers are unable or reluctant to address conditions that are appearing during the course of their interactions with injured athletes, especially stress and anxiety, depression, anger, and treatment compliance problems. This inability or hesitation to deal with these situations is detrimental to the effectiveness of the treatment being provided. There are some suggestions for administration in sports medicine and the mental health profession to recognize when considering the improvement of current methods of treatment and education.

Recommendations

In accordance with NATA guidelines, ATCs are required to fulfill 80 continuing education units (CEUs) in a 2-year period to keep their certifications current and active. These CEUs are available in the form of NATA-approved coursework or workshops. These workshops could be presented by professionals (sport psychologists, counselors,

ATCs) who are considered experts in the practical aspects of the psychological nature of athletic injury.

A second suggestion would be to include formal instruction in the psychological aspects of injury in athletic training curriculums. This would mean a change in most current athletic training curriculums. Administration from the NATA and universities need to collaborate on implementing an applied sport psychology class into current education programs designed specifically for athletic trainers. The focus of a such a class should be on more practical skills and techniques, such as goal setting, communication skills, and when to make a referral rather than on theory or other abstract concepts.

It should be emphasized that since student athletic trainers play a large role in the interaction with athletes, both injured and non-injured, they should be educated in how do address the psychological aspect of an injury. Administration staffs should be particularly clear in establishing policies concerning issues of confidentiality and clarity in the referral process to mental health professionals. Students should be very clear as to what procedures for referral to a mental health professional are currently used by an institution, and what resources are available for referral. Also key in the education of students is establishing a rapport with athletes and the provision of social support. Certified athletic trainers provide much of the education for student trainers concerning the techniques and skills for evaluating and treating injuries. They should also demonstrate provision of social support through their own verbal and nonverbal communication, so that students might be able to incorporate similar skills in their own interactions with athletes.

Lastly, it is vitally important that the level of commitment to the quality of the psychological health of athletes and those treating them be unshakable. In the world of intercollegiate athletics, the pressure to perform up to expectations and succeed is high. Student athletes and athletic trainers alike both are working together in a volatile atmosphere that demands results. Athletes are expected to perform at levels to produce victories for their respective teams while maintaining their commitment as social and academic individuals. When they become injured, the pressure to perform does not lessen. It could be that the pressure intensifies, since the team demands a service that they are unable to fulfill anymore. As a result, the need to return to competition intensifies. This makes the duty of athletic trainers much more important almost instantly, since they are the ones responsible for returning injured athletes to play. With injury, the stress of an athletic trainer increases, particularly if it is one of the more skilled athletes that is injured. In this stressful situation, the athletic trainer's ability to practice sound psychological techniques can be compromised in substitute for treating the physical injury as quickly as possible. The situation can become very destructive for all involved if the injury recovery is a long process. Steps should be made to assure that access to sport psychologists or other mental health professionals is guaranteed to all parties involved, including athletic trainers. By simply being recognizable and being seen around the department, and interacting with athletes, athletic trainers, and administrators alike, sport psychologists can do much to ensure that they are seen as an important component in the injury process. Offering voluntary stress management sessions, teaching relaxation techniques and mental imagery, and just being available are

a few of the things mental health professionals can do to help provide a more healthy atmosphere for athletes to recover and for athletic trainers to do their jobs.

The following recommendations are offered for the consideration of future investigators:

1. Administer the ATSPQ to a larger sample of athletic trainers to obtain a more diverse response pool so that assumptions may be made on more reliable data. This should include trainers at other Division I institutions as well as Division II and III.
2. Conduct a qualitative survey of athletic trainers, both student and certified, asking them to describe their experiences in the training room. Analysis of the responses and the differences could bring more valuable information to light on the presence of the psychology of injury in athletic training.

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APPENDICES

Appendix A
Letter of Information for Participant

Hello. My name is Matthew T. Grubb, and I am a graduate student in Exercise Science and Sport Management at the University of Tennessee. I would like to submit to you a questionnaire on the presence of psychological counseling in the sports medicine profession. More specifically, I am interested in knowledge regarding the psychology of injury among Division I athletic trainers.

All results from the questionnaire will be confidential. Because confidentiality is an important issue, several measures will be undertaken. Be assured that any discussion of your responses will be kept private and confidential. Your name will not be used in any of the results that are described in any written manuscripts. Furthermore, no one but me will have access to the information from the study. The completed questionnaire forms will be stored at my personal residence, and will be destroyed once the study is completed. Your participation in this project is entirely up to you, and there will be no penalties should you decide not to be involved. Also, if you agree to take part, you may stop at any time.

If you would like to know more about this project, please call me at (865) 974-6485, or e-mail me anytime (e-mail: mgrubb2@utk.edu). This project has been approved by the Human Subject's Review Board at the University of Tennessee. If you have any questions regarding the University of Tennessee's regulations for research, please call (865) 974-3466.

Sincerely,

Matthew T. Grubb
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Appendix B
Consent Form

I acknowledge that the research procedures described on the attached form have been explained to me and that any questions that I have asked have been answered to my satisfaction. I have been informed of all procedures in the study. I know that I may ask now, or in the future, any questions I have about the study or the research procedures. I have been assured that records relating to me will be kept confidential and no information will be released or printed that would disclose my personal identity without my permission. I understand that I am free to withdraw at any time.

_____ _____
(Signature of Participant) (Name of Participant

_____
(Date)

Matthew T. Grubb
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Appendix C

Age:

Gender:

Race:

Year in school (circle one): Undergraduate Graduate Post-graduate

Highest level of education obtained:

Years of athletic training experience:

Primary sports worked with:

Hours a day spent working at athletic training:

NATA Certified (Y/N):

Have you taken any psychological education classes other than those required by general curriculum requirements?

If yes, please list/describe them here:

Have you taken any classes designed to develop counseling skills?

If yes, please list/describe them here:

Athletic Training and Sport Psychology Questionnaire

1.) How often do you encounter the following conditions in association with athletic injuries:
1) Never 2) Rarely 3) Occasionally 4) Often 5) Very often

Stress/anxiety _____

Anger _____

Treatment compliance problems _____

Depression _____

Problems with attention/concentration _____

Exercise addiction _____

2.) Please rank in order the top four behaviors/characteristics in each of the two groups:

Behaviors, Characteristics, and Attitudes of Athletes Who Cope Successfully With Injury

---

Comply with rehabilitation/treatment program _____

Positive attitude about injury and life _____

Motivated to work hard during rehabilitation _____

Dedicated, determined, or strong desire to return to sport _____

Asks questions, knowledgeable about injury and rehabilitation _____

Is focused, uses goals in rehabilitation process _____

Confident in their ability as an athlete/person _____

Stays involved with their team _____

Involved with activities outside of athletics _____

Accepts, copes with injury _____

Good family, coach, peer support _____

Good communication with athletic trainer and/or coach _____

Good student academically _____

Socially outgoing _____

Good time management skills _____

Good pain tolerance _____

Behaviors, Characteristics, and Attitudes of Athletes Who Do Not Cope With Injury

---

Do not comply with rehabilitation/treatment program _____

Apathetic, depressed, feel hopeless or indifferent, self-pity _____

No motivation, lazy, poor work effort with rehabilitation _____

Blame others or use injury as an excuse _____

Anger, aggressive behavior _____

Withdraw from team, other activities _____

Poor communication with athletic trainer or coach _____

Deny injury severity, fail to cope with injury _____

Lack self-confidence _____

Negative attitude toward injury and life _____

Frustrated, impatient with injury/rehabilitation _____

Lack of focus or goals in rehabilitation _____

High level of anxiety, stress _____

Decreased effort/achievement with school work _____

Poor pain tolerance _____

No family, coach, peer support _____

3.) Have you ever referred an injured athlete for counseling for situations related to their injury?
If yes, approximately how many times?

1) Once or twice 2) 3 to 5 times 3) 6 to 10 times 4) More than 10 times

4.) Do you have a written procedure for referring athletes for counseling services?

If so, briefly describe the process below:

5.) Please rate the percentage of times you have personally used each specific skill or technique in your work with injured athletes using the following scale:

1) Never 2) 25% 3)50% 4)75% 5)100%

Keeping the athlete involved with the team _____

Using short term goals _____

Creating variety in rehabilitation exercises _____

Encouraging positive self-thoughts _____

Encouraging effective communication skills _____

Enhancing self-confidence _____

Reducing stress/anxiety _____

Improving social support _____

Reducing depression _____

Teaching muscular relaxation techniques _____

Using/teaching relaxation techniques _____

Using mental rehearsal/visualization _____

Teaching emotional control strategies _____

6.) What percentage of time do you believe an athlete is affected psychologically by an injury?

1) Never 2)25% 3)50% 4)75% 5)100%

Additional Comments:

7.) Indicate the degree of importance of each of the following psychological skills or techniques for trainers working with an injured athlete?

1)Not important 2)Somewhat important 3)Indifferent 4)Important 5)Very important

---

Understanding individual motivation _____

Setting realistic goals _____

Using effective communication _____

Enhancing listening skills of the AT _____

Creating variety in rehabilitation exercises _____

Enhancing self-confidence of injured athlete _____

Encouraging positive self-thoughts _____

Reducing stress/anxiety _____

Reducing depression _____

Teaching concentration skills _____

Teaching emotional control strategies _____

Teaching muscular relaxation techniques _____

Teaching the use of mental imagery _____

Improving social support for injured athletes _____

8.) In your opinion, how important is the treatment of the psychological aspect of an athletic injury?

1)Not important 2)Somewhat important 3)Indifferent 4)Important 5)Very important

9.) In your opinion, how important is curriculum designed to educate athletic trainers in various methods of basic psychological counseling?

1)Not important 2)Somewhat important 3)Indifferent 4)Important 5)Very important

VITA

Matthew Thomas Grubb was born in Knoxville, TN, on September, 11, 1977. Born and raised in nearby Lenoir City, he attended Lenoir City High School and graduated in 1995.

Matt entered Pellissippi State Technical Community College in August 1995 to complete prerequisite classes for physical therapy. In August 1998, he transferred to the University of Tennessee, Knoxville to pursue a career in Athletic Training. There he began serving as a student athletic trainer in the Women's Athletic Training Department. During that time, Matt worked specifically with the volleyball and tennis teams. In May 2000, Matt graduated from the University of Tennessee, Knoxville with a Bachelor of Science degree in Exercise Science.

In July 2000, Matt decided to pursue a Master's Degree at the University of Tennessee, Knoxville. Completing his education as a student athletic trainer during that time, Matt is currently completing his Master of Science degree in Human Performance and Sports Studies with a concentration in Sport Management. He is scheduled to complete degree requirements in August 2001. Matt will sit for his NATA certification exam in August as well, with intentions of continuing his career in sports medicine where he plans to incorporate basic counseling skills as well as other psychological principles and techniques into his work.