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Athletic Trainers' Comfort and Competence in Addressing Psychological Issues of Athletes

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ATHLETIC TRAINERS' COMFORT AND COMPETENCE IN ADDRESSING PSYCHOLOGICAL ISSUES OF ATHLETES

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ABSTRACT

ATHLETIC TRAINERS' COMFORT AND COMPETENCE IN ADDRESSING PSYCHOLOGICAL ISSUES OF ATHLETES

by Gina M. Biviano, ATC

The purpose of this descriptive study was to determine the frequency with which athletic trainers address certain psychological issues related to injury and non-injury-related psychological issues with their student-athletes, their comfort and competence level with these discussions, and referral patterns to other mental health professionals. An electronic survey was adapted from Mann, Grana, Indelicato, O'Neill, and George (2007) and administered through www.surveymonkey.com®. A random sample of 1,000 athletic trainers (ATs) who were members of the NATA were invited to participate, which yielded a response rate of 31.1%. More than half (n=170, 55.7%) of all subjects had completed 1-2 psychology classes in their undergraduate education. ATs reported frequently encountering psychological issues both related to and unrelated to injury in their student-athletes. Furthermore, ATs believed it was their role to address injury and non-injury-related psychological issues with athletes. Respondents reported feeling slightly less competent and much less comfortable dealing with non-injury-related psychological issues with athletes as compared to injury-related issues. Lastly, the more comfortable and competent ATs were with psychological issues, the more likely they were to refer an athlete to a mental health professional.

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Chapter I.

INTRODUCTION

Injuries are an unfortunate consequence of involvement in athletic competition. With injury, there is a physical loss of function and attention is focused on the physical site of injury by all members of the sports medicine team (Tracey, 2003). This focus by the sports medicine team often remains solely on the physical aspect of the injury, leaving the resultant psychological consequences, which can impair rehabilitation compliance and possibly even physical recovery ignored (Cramer Roh & Perna, 2000; Tracy, 2003). In addition, psychological issues unrelated to athletic injury may impact the mental health of the athlete and actually predispose the athlete to injury due to physiologic changes in the body as a result of stress (Maddison & Prapavessis, 2005). For this reason, psychological issues unrelated to injury should also be addressed by health care professionals in order to appropriately treat both the physical and mental aspect of injury.

Certified athletic trainers (ATs) have a unique relationship with athletes, as they are the individuals who spend the most time with athletes throughout the injury process, rehabilitation, and return to activity. Research has indicated that the AT may be in the best position to provide psychological support because of the relationship that is built between the athlete and the athletic trainer (Cramer Roh & Perna, 2000; Moulton, Molstad, & Turner, 1997). In the cases where mental health professionals such as sport psychologists are not readily available to athletes, athletic trainers and other allied health professionals may be called upon to provide emotional support to athletes. For this

reason, ATs are in the position to provide counseling to athletes. ATs must be competent enough to address the psychological aspects of athletic injuries and rehabilitation in addition to non-injury related psychological issues that may predispose an athlete to injury (Cramer Roh & Perna, 2000).

Certified athletic trainers are allied health professionals who collaborate with physicians to optimize activity and participation of patients and clients. Athletic training education programs address the prevention, diagnosis, and intervention of emergency, acute, and chronic medical conditions involving impairment, functional limitations, and disabilities (NATA, 2009). Twelve content areas are included in AT preparation to ensure educational competency and clinical proficiency in psychology and counseling. These content areas specifically list the identification of psychological distress, counseling of athletes, and referral of athletes to counseling services when necessary as important components of the psychological and counseling competencies (NATA, 2004). A study by Stiller-Ostrowski and Ostrowski (2009) concluded that AT education programs are "doing an excellent job of preparing athletic trainers in the areas of common communication and interpersonal skills including athlete motivation" (p. 71). Specifically, the ATs were most competent to counsel athletes with injury rehabilitation, injury prevention, and nutrition. Participants also reported being underprepared to handle many other counseling situations, including: counseling and social support, mental skills training, and psychosocial referral (Stiller-Ostrowsky & Ostrowski, 2009).

While it is known that ATs encounter psychological issues related to injury with athletes, as the previous study noted, only one study has evaluated the frequency with

which ATs encounter psychological issues that are not related to injury (Brown, 2006). This is important as research has indicated that when placed in a stressful situation an athlete with high competitive anxiety, many concurrent life events of stress, and low coping resources may exhibit a substantial stress response, which could result in generalized muscle tension and attentional disruptions, that place him or her at a higher risk for injury (Johnson, Ekengren, & Andersen, 2005; Williams & Andersen, 1998). A study assessing the frequency and perceived preparation and competence of ATs with psychological issues that are not related to injury has important implications for the athletic training profession. A study of this kind would ensure that ATs are practicing within all aforementioned competencies covered during athletic training undergraduate preparation.

Therefore, the current study was modeled after Mann and colleague's (2007) research, which sought to determine the types of psychological issues encountered by team physicians. Purposes of this study were: (1) to explore the frequency with which athletic trainers discuss certain psychological issues related and unrelated to injury with their athletes; (2) to identify the perceived comfort and competence levels of ATs in addressing non-injury related psychological issues with their athletes; (3) to assess perceptions of ATs regarding the availability and effectiveness of various mental health resources in managing an athlete's psychological issues, in addition to the referral patterns to these professionals; and (4) to determine if demographic variables such as: practice setting, years of experience, gender, or alternate credentials are related to ATs'

perceptions of comfort and competence in dealing with psychological issues related and unrelated to injury with the athletes they treat.

This thesis is presented in three chapters, with the intent to construct and submit an article for submission to the *Journal of Athletic Training* (see Appendix A). Chapter I is the introduction, Chapter II is the proposed journal article, and Chapter III includes the extended support material prepared for the proposal: the introduction chapter, literature review, and methods section.

Chapter II, the journal article, was written according to *Journal of Athletic Training* submission guidelines (see Appendix A) and details the current study. The study utilized a web-based survey collecting device, surveymonkey.com®, and is descriptive in nature. The study intended to determine the frequency with which athletic trainers address certain psychological issues related and unrelated to injury with their student-athletes, their comfort and perceived competence level with these discussions, and referral patterns to other mental health professionals. Results of the study indicated the most common injury related psychological issues encountered by ATs were fears about surgery and re-injury, the avoidance of rehabilitation by the athlete, self-doubt about performing at the same level after injury, emotions about the long-term effects of injury, dealing with stress, and concerns that the consequences of the injury would disappoint others. The most common non-injury related psychological issues encountered were stress or pressure, anxiety, burn-out, family or relationship problems, and difficulties adjusting to a new environment. There were no significant differences

between demographic variables in the ATs perceived competence or comfort level with either injury related or non-injury related psychological issues.

Chapter III is the original thesis proposal which contains the introduction, literature review, and methods. The original chapters include, Chapter I: the introduction and evaluates the need for the current research; and Chapter II: the literature review, which was the basis for the research and will be referred to in the discussion section. By highlighting the background research, a foundation for the current research is established. Chapter III, the methods section from the original thesis proposal, outlines the protocol used within the current study. The participants, survey instrument, how the study was conducted, and how the data was analyzed are discussed within this chapter.

Psychological concerns in athletes are common topics of discussion as research has established that psychological issues in the athlete's personal life may predispose him or her to injury (Johnson et al., 2005). In addition, when injury does occur, both physical and mental aspects of injury must be addressed before the athlete can safely return to their sport. The literature has established that athletes regularly approach their ATs with personal issues and therefore may feel more comfortable seeking an ATs' help as opposed to a professional trained in psychology (Maniar, Curry, Sommers-Flanagan, & Walsh, 2001; Mouton, Molstad, & Turner, 1997; Washington-Lofgren, Westerman, Sullivan, & Nashman, 2004). For this reason, ATs must be educated and prepared to deal with injury and non-injury psychological issues in their athletes. It remains unknown how often, how competent, or how comfortable ATs feel with addressing psychological issues not related to injury in athletes. Therefore, this study explored psychological

issues that are both related to injury and unrelated to injury in athletes in addition to the ATs' perceived competence and comfort level in addressing non-injury related psychological issues. The overarching goal was to justify the need for increased educational competencies within psychology during an AT's undergraduate athletic training education program or entry-level graduate athletic training education program.

Chapter II.

JOURNAL ARTICLE

Athletic Trainers' Comfort and Competence in Addressing Psychological Issues of Athletes

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Context: Due to the amount of time certified athletic trainers (ATs) spend with their athletes, ATs are often the only health care providers to treat both the physical and psychological consequences of injury. It is unknown how often ATs address non-injury related psychological issues with athletes that may predispose them to injury. ***Objective:*** To determine the types of psychological issues that athletic trainers encounter and their perceived comfort and competence with the intervention of psychological issues with their student-athletes. ***Design:*** Quantitative survey research. ***Setting:*** An online survey was adapted from Mann et al (2007) to assess certified athletic trainers' comfort, competence, and referral patterns in regard to psychological issues in their student-athletes. ***Patients or other Participants:*** One-thousand randomly selected certified athletic trainers who were current members of the National Athletic Trainers' Association (NATA) were surveyed. ***Main Outcome Measure(s):*** Descriptive statistics including means, medians, frequencies, and modes were used to analyze the certified athletic trainers' demographic information. Two separate logistic regression analyses were used to determine if the ATs' demographic information predicted their comfort or competence levels. An analysis of variance (ANOVA) was used to determine if there was a difference between the ATs practice setting and their perceived comfort and competence level. ***Results:*** ATs reported frequently encountering psychological issues both related and unrelated to injury in their student-athletes. Respondents reported feeling slightly less competent dealing with non-injury related psychological issues as compared to injury related psychological issues (means, 3.5 and 3.9 respectively on a 5-point scale). They also reported feeling much less comfortable dealing with non-injury related psychological issues with athletes than with injury related psychological issues (means, 3.7 and 4.1 respectively). ***Conclusions:*** Most ATs believe it is their role to address psychological issues with athletes; however it is still unknown why some ATs have more perceived comfort or competence with psychological issues than their AT counterparts. ***Key Words:*** athletic injury/ psychology, sport psychology, athletic trainer-athlete communication.

Key Points

- Injury related psychological issues were more frequently discussed by ATs than non-injury related psychological concerns with the athletes they treated.
- Higher levels of perceived comfort and competence could not be predicted based on demographic information.
- Most ATs surveyed were somewhat interested in receiving additional training in psychological techniques or skills for both injury and non-injury related psychological issues found in athletes.

Although physical activity has been cited for many health benefits, injury is an unfortunate and inherent risk of sport.[1] Athletes may experience psychological, emotional, or behavioral problems as a result of their physical injury.[2] It has been suggested that between 5-19% of athletes report post-injury psychological distress levels that are similar to individuals receiving treatment for mental health problems.[3] This response may be attributed to the stress, frustration, and anger that can result from a difficult rehabilitation process and the inability to participate in sport.[3-4] Addressing the psychological aspect of athletic injury is especially important as returning injured athletes to sport before they are psychologically ready can lead to fear, anxiety, re-injury, injury to different body parts, depression, and a decrease in performance.[3,5]

As health care providers for the physically active, certified athletic trainers (ATs) are not only trusted medical professionals, but often the first individuals to become aware of athletes' psychological problems.[6] Because of the consistent and frequent contact with athletes due to the nature of the athletic training profession, ATs are in an ideal position to significantly impact an athlete's psychological recovery.[6] Furthermore, the literature has established that athletes regularly approach their athletic trainers with personal issues and, therefore, may feel more comfortable seeking out an athletic trainer for help as opposed to a professional trained in psychology.[7-9] For this reason, ATs must be educated and prepared to deal with injury related psychological issues as well as non-injury related psychological concerns that may affect the athlete's mental health, performance, and participation in sport. The frequency with which ATs discuss psychological issues not related to injury with athletes and their perceived competence or comfort level with these discussions remains unknown. There are documented findings in the literature that suggest ATs feel unprepared or underprepared to detect psychological conditions, counsel athletes, and make referrals to appropriate health care professionals.[10] The published survey conducted 14 years ago by Misasi et al[10] utilized a small sample of ATs from colleges and universities. The investigators found injury rehabilitation and prevention, nutrition, and drug use/abuse to be the psychological areas most often addressed. It is not known whether the results of their investigation would be applicable to a larger number of ATs from various practice settings. Recently, a study by Stiller-Ostrowski et al[11] evaluated AT education programs and confirmed that ATs are underprepared to handle many counseling situations, including: counseling and social support, mental skills training, and psychosocial referral. Certain counseling situations that were noted by the AT participants as particularly hard to address included: alcohol problems, drug use/abuse, sexual, relationship, financial or racial issues, family matters and suicide.[11]

The current investigation is modeled after *The Sports Medicine Sport Psychology Survey*,[2] previously administered to 4,347 sports medicine physicians, to explore psychological issues that are both related and unrelated to injury in athletes encountered by ATs.

Therefore, there were four purposes constructed for the current study. The first purpose was to explore the frequency with which ATs discussed a list of certain psychological issues with athletes. Second, the questionnaire intended to identify the perceived comfort and competence levels of athletic trainers when addressing injury and non-injury related psychological issues with their athletes. The third purpose was to assess the perceptions of ATs regarding the availability and effectiveness of various mental health resources in managing an athlete's psychological issues. This section also inquired about the frequency of referral to these professionals and their interest in receiving additional training regarding the counseling and intervention of psychological concerns in athletes. Lastly, the questionnaire was used to determine if demographic variables such as: practice setting, years of experience, gender, or alternate credentials could predict an AT's perceptions of comfort and competence in dealing with psychological issues related and unrelated to injury with the athletes they treat.

METHODS

Participants

One-thousand certified athletic trainers were randomly selected by the National Athletic Trainers' Association (NATA) Research and Education Foundation (REF). The Foundation requested participation in a survey regarding psychological issues in athletes. The ATs were e-mailed a request to take the web survey through surveymonkey.com®. The survey was approved by the San José State University's Institutional Review Board prior to data collection. Informed consent was detailed on the survey's welcome page and consent was implied by the completion of the online questionnaire. The survey remained open for a total of 4 weeks after the initial e-mail. A follow-up e-mail was sent at week 3 and the survey closed a week later for data analysis.

Instrument

The *Certified Athletic Trainers Sport Psychology Survey* is a 32-item survey adapted from Mann et al.[2] The intent of the survey was to evaluate ATs management of psychological issues with athletes, including their perceived competence and comfort level, and referral patterns. The first 9 questions consisted of demographic information (e.g., gender, age, experience level, practice setting, years at current practice, highest degree achieved, certifications, and psychological education). The following 12 questions addressed injury related and non-injury related psychological issues including the frequency, type, perceived competence and comfort (on a 5-point scale), and responsibility of ATs to address these issues. The last section of the survey evaluated the ATs referral patterns and interest in receiving additional training in psychological techniques or skills to help athletes deal with injury or non-injury related mental-health issues.

The survey used in the current study was examined in a pilot study with 21 ATs for content validity. Grammatical changes were made based on the reviews.

Statistical Analysis

Survey data was analyzed using descriptive statistics, repeated-measures

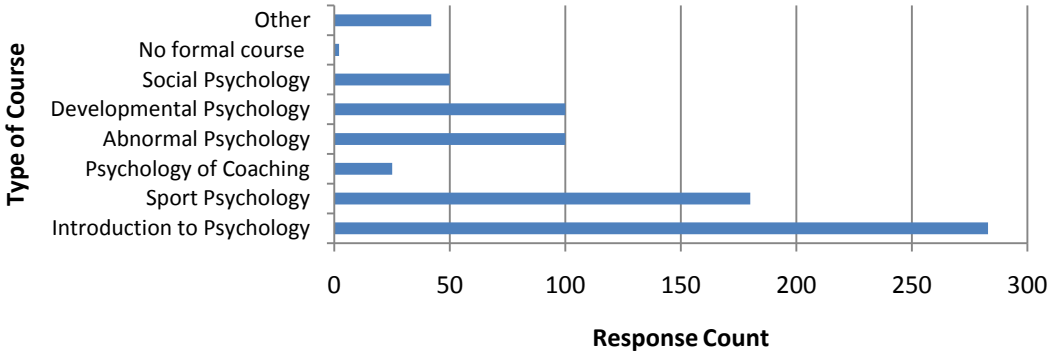

Figure 1. Type of psychology course completed during undergraduate preparation

analysis of variance (ANOVA), and two regression analyses. An ANOVA was used to determine if there was a difference between AT's practice setting and their perceived comfort and competence level. The two regression analyses were used to predict if demographic variables were significant predictors of comfort and/or competence levels of ATs. All statistics were analyzed with SPSS (version 16.0; SPSS Inc, Chicago, IL).

RESULTS

Demographics

A total of 311 (155 male, 156 female) of 1000 ATs responded to the invitation e-mails sent, yielding a response rate of 31.1%. Of the respondents, the majority (68.7%) of ATs were distributed between 26-44 years of age. The sample was composed of 120 secondary school ATs (38.7%), 99 university ATs (31.9%), 29 ATs employed in a clinic setting (9.35%), 23 college ATs (7.41%), 17 junior college ATs (5.48%), 12 ATs in the non-traditional setting (3.87%), 7 ATs in professional sports (2.26%), and 3 ATs in youth sports (0.96%). The majority (n=172, 55.8%) of respondents had achieved a Masters degree.

More than half (n=170, 55.7%) of all subjects had completed 1-2 psychology related classes in their undergraduate education, and 34.1% (n=104) had taken 3-4 courses. The type of psychology course completed in their undergraduate preparation varied among participants. However, 91.9% of ATs reporting they had completed an introduction to psychology course (Figure 1).

Injury Related Psychological Issues

Among the ATs, 84.9% indicated that they often (n=91, 30.5%) or sometimes (n=162, 54.4%) discussed emotional and behavioral problems with athletes that were related to injury. Table 1 illustrates the frequency with which injury related issues were discussed with athletes. Respondents most frequently discussed fears about surgery and re-injury, the avoidance of rehabilitation by the athlete, the athlete's own self-doubt about performing at the same level after injury, emotions about the long-term effects of injury, dealing with stress, and concerns that the

Table 1. Frequency (%) with which injury related issues are discussed with athletes.

Issue	Often	Sometimes	Rarely	Never
Fears about re-injury	56.0	40.3	3.7	0.0
Fears about surgery (for athletes about to have surgery)	47.3	40.3	12.3	0.0
Concerns that the consequences of the injury, such as missing games or diminished performance will disappoint others (e.g., parents, coaches, teammates)	37.1	45.2	16.1	1.7
Avoidance of rehabilitation or sport-related activities	31.0	41.8	25.3	2.0
Concerns and self-doubt about not being able to perform at the same level after injury/surgery	29.7	52.0	17.3	1.0
Unwillingness to be patient with recovery/rehabilitation	27.4	46.2	23.4	3.0
Dealing with stress related to injury and rehabilitation	24.9	44.4	28.6	2.0
Emotions about the potential long-term effects of injury, re-injury, continued participation in sports	24.2	49.0	25.2	1.7
Emotions (e.g., anger, sadness, loss of identity) about the potential end of an athletic career due to injury	22.3	44.0	30.3	3.3
Inability to motivate self to engage in rehabilitation tasks	18.5	43.3	32.2	6.0
Feelings of hopelessness about recovering or getting better	17.0	47.7	33.0	2.3
Anxiety related to pain	15.0	40.3	36.7	8.0
Denial of serious injury or consequences of the injury	14.4	41.9	35.6	8.1
Difficulty emotionally dealing with pain	13.7	33.1	44.5	8.7
Depression/frustration due to weight gain or loss of conditioning following injury	12.0	36.1	41.5	10.4
Feeling isolated or alone after injury	10.4	30.4	44.1	15.1
Difficulties emotionally letting go of the injury event(s); intrusive thoughts	8.7	28.0	50.3	13.0
Addiction to or dependence on painkillers	3.0	18.7	40.0	38.3

Table 2. Frequency (%) with which non-injury related issues are discussed with athletes.

Issue	Often	Sometimes	Rarely	Never
Stress/Pressure	30.6	54.9	13.5	1.0
Family/relationship problems (i.e. divorce)	18.5	41.4	33.0	7.1
Anxiety	17.3	50.7	27.2	4.8
Burn-out	15.2	45.3	32.4	7.1
Difficulties adjusting to a new environment	13.2	38.9	34.8	13.2
Disordered eating or body image	6.7	43.4	40.7	9.1
Death in the family	6.4	39.4	41.1	13.1
Depression	5.4	33.4	49.3	11.8
Alcohol Abuse	3.0	19.9	40.2	36.8
Violence/aggression/anger problems	2.4	15.2	47.8	34.7
Sexual orientation	2.0	9.2	28.6	60.2
Exercise addiction	1.3	29.3	47.1	22.2
Sexual, emotional, or physical abuse	1.0	6.7	35.4	56.9
Illegal recreational drug abuse	0.7	13.1	46.8	39.4
Their own past or present steroid use	0.0	4.7	30.4	64.9

consequences of the injury would disappoint others. There were 238 athletic trainers who "often" (n=76, 25.8%) or "sometimes" (n=162, 54.9%) felt that they he or she were the only individuals the athlete confided in regarding injury related issues. This would indicate that over 75% of ATs surveyed believed that they were the only person who would be aware of psychological issues after injury with athletes. Also in regard to injury related psychological issues in athletes, ATs reported feeling slightly more comfortable (mean, 4.21; SD=.804, on a 5-point scale) than competent (mean, 3.95; SD=.869) discussing psychological problems related to injury with their student-athletes. Lastly, almost all of the surveyed ATs "agreed completely" (n=143, 48.1%) or "agreed somewhat" (n=142, 47.8%) that it was their role and responsibility to discuss emotional, behavioral, and psychological issues with athletes that are related to injury.

Of the 311 participants, 29.4% (n=86) reported being "extremely interested," 38.2% (n=112) reported being "interested," and 24.2% (n=71) reported being "somewhat interested" in receiving additional training in injury related psychological techniques or skills.

Non-Injury Related Psychological Issues

Table 2 depicts the frequency with which the ATs discussed 15 non-injury related emotional, psychological, or behavioral issues with athletes. The psychological issues not related to injury that were most commonly discussed by ATs were: stress or pressure, anxiety, burn-out, family or relationship problems, and difficulties adjusting to a new environment. The least discussed issues were: steroid use, violence, aggression, anger problems, sexual, emotional, and physical abuse, and sexual orientation. When asked about their competence and comfort level with non-injury related psychological issues, ATs felt slightly less competent (mean, 3.65; SD=.964 on a 5-point scale) and much less comfortable (mean, 3.84; SD=.968) than when discussing injury related psychological issues. Only 15.2% of ATs (n=45) "agreed completely" and 55.4% (n=164) "agreed somewhat" that it was their role, place and responsibility to discuss emotional, psychological, or behavioral issues not-related to injury with athletes. The responses to this question indicated more ATs felt that it was within their scope to address injury related psychological issues with athletes as compared to non-injury related issues.

Of the ATs surveyed, 112 (38.4%) were interested, 73 (35%) were "somewhat interested" and 36 (12.3 %) were "not very interested" in receiving additional training in psychological techniques or skills for issues not related to injury and rehabilitation. There was a significant positive correlation ($r=0.48$, $P<0.01$) found between ATs belief that it was their role to discuss psychological issues not related to injury with athletes and their interest in receiving more training with non-injury related issues. In addition, a significant positive correlation was found between women and higher levels of interest in receiving additional training regarding both injury and non-injury related psychological issues and techniques for use with athletes ($r=.282$, $P<0.01$, $r=.271$, $P<0.01$ respectively).

Referral Patterns

There were 90 participants (31%) who did not know if there were enough sport psychologists or other mental health professionals in their geographic area to meet the needs of athletes and 133 ATs (45.9%) who did not think there were enough professionals to meet the needs of athletes. This may explain why more than half (n=154, 52.9%) of ATs stated they never referred athletes to a sport psychologist specifically for issues related to injury. Furthermore, over 75% of ATs reported "rarely" (n=74, 25.4%), or "never" (n=163, 56.0%) referring athletes to a sport psychologist specifically for non-injury related (e.g., depression, drug abuse, over-eating etc.) psychological issues. In addition, only 3.8% (n=11) and 27.5% (n=80) reported "often" or "sometimes" referring athletes to a mental health professional other than a sports psychologist.

ATs who had referred an athlete to a sport psychologist (n=161) for non-injury related psychological intervention, reported that sport psychologists were somewhat effective in the treatment of athletes (mean, 3.8 on a 5-point scale). In addition, 49.0% (n=143) of respondents did not think that ATs were as effective as sport psychologists in dealing with non-injury related psychological issues, and 41.4% (n=121) did not think that ATs were as effective as sport psychologists with injury related psychological issues. A significant positive correlation was found between the frequency of referring athletes to sport psychologists and ATs' perceived comfort ($r=0.351$, $P<0.01$) and competence ($r=0.391$, $P<0.01$) to discuss injury related psychological issues. There was also a significant positive correlation between the frequency of referring athletes to sport psychologists and ATs who have more perceived comfort ($r=0.333$, $P<0.01$) and competence ($r=0.393$, $P<0.01$) to discuss non-injury related psychological issues with athletes. This could indicate that ATs who are more likely to begin the discussion about a psychological issue are more likely to properly refer an athlete to meet with a sport psychologist.

Demographic variables such as gender, age, years of experience, highest degree achieved, additional certifications, or amount of psychological preparation were not significant predictors for perceived comfort level ($R=.502$, $R^2= .252$, $F_{5/303} = 20.419$, $P<.001$) or competence ($R=.506$, $R^2= .256$, $F_{5/303} = 20.834$, $P<.001$) of ATs for injury related psychological issues. The aforementioned demographic variables were not significant for predicting comfort level ($R=.447$, $R^2= .200$, $F_{5/303} = 15.120$, $P<.001$) or competence ($R=.450$, $R^2= .202$, $F_{5/303} = 15.349$, $P<.001$) for non-injury related psychological issues. In addition, an ANOVA did not reveal a significant difference between the ATs practice setting and their comfort ($F=.326$, $p>.05$) or perceived competence ($F=.522$, $P>.05$) with injury related or comfort ($F=.900$, $p>.05$) or perceived competence ($F=.658$, $p>.05$) with the non-injury related psychological issues presented.

DISCUSSION

The intent of the present descriptive study was to determine the types of psychological issues most frequently encountered by ATs, both related and unrelated to injury in their student-athletes, the ATs' perceived competence and comfort levels with discussions regarding psychological issues, and the referral pattern of athletes to other mental health professionals.

Injury related psychological issues are well documented in the literature.[1,3,5,16-18] Research has indicated that ATs overall believe the psychological consequences of injury must be addressed before the athlete is returned to participation in their sport or activity.[4,9-10,13-15] Returning an athlete to competition before he or she is psychologically ready can lead to fear, anxiety, re-injury, injury to different body parts, depression, and a decrease in performance.[3,5] Results from the present survey confirm that ATs feel psychological issues relating to injury occur frequently with athletes, and that it is their role, place, and responsibility as an AT to discuss emotional, psychological, and behavioral issues related to injury and rehabilitation with their athletes. This is an important finding as injured athletes have indicated that they actually prefer to discuss emotional reactions to injury with coaches and ATs rather than sport psychologists.[9]

From the current study, ATs reported discussing fears about surgery and re-injury, the avoidance of rehabilitation by the athlete, self-doubt about performing at the same level after injury, emotions about the long-term effects of injury, and concerns that the consequences of the injury would disappoint others as some of the most frequently encountered psychological issues related to injury. These 5 issues were also the psychological issues most frequently encountered by sports medicine physicians when given the same survey. This finding indicates the importance of the understanding and awareness of these specific aspects of the injury process.[2]

Due to the nature of the job as an AT, including the amount of time spent with athletes and social support ATs are expected to provide, it is not surprising that ATs feel more competent and comfortable addressing injury-related psychological issues than psychological issues unrelated to injury. This may also be because injury related psychological concerns are more prevalent and many ATs may address some psychological issues, especially those related to rehabilitation with every injury. A survey of college and university ATs indicated that participants were most comfortable counseling in the areas of injury prevention, injury rehabilitation, and nutrition.[10] These consistent findings may be attributed to the focus on the pathology and treatment of orthopedic injury leaving little time spent on general medical conditions (including psychological issues) within clinical education in athletic training education programs (ATEP).

Psychological issues that are not a result of injury were not discussed as frequently, or encountered as frequently by ATs. Only one study to date has evaluated the types of non-injury related psychological issues that ATs face.[21] More research is necessary, as some

literature has indicated that life stress and other psychological variables may actually predispose an individual to injury.[16-18] Psychological issues unrelated to injury are important for ATs to consider when evaluating the potential causes of injury and overall mental health of the athlete. The current study established that the non-injury related psychological issues most commonly encountered by ATs were: stress or pressure, anxiety, burn-out, family or relationship problems, and difficulties adjusting to a new environment. These issues were different than the most commonly discussed issues by physicians which included stress, anxiety, and burnout, but also disordered eating or body image, and depression.[2] This finding may speak to the difference in the perceived role a team physician and an AT play in the athlete's personal life. The issues most commonly discussed by team physicians all have direct implications on the physical health of the athlete, whereas the issues commonly discussed with ATs are indicative of the social support ATs are expected to provide.[6]

The least likely non-injury related psychological issues to be discussed with athletes included steroid use, violence, aggression, anger problems, sexual, emotional, and physical abuse, and sexual orientation. This finding is interesting because of the increase in media attention surrounding steroid use in athletics and also because violent behavior is somewhat accepted in the sporting culture of contact sports. The violent behavior that is expected in contact sports may increase abusive and violent or aggressive behavior outside of the playing arena, however these results do not support this theory.

It is possible that ATs are less likely to discuss psychological issues unrelated to injury because they are not as comfortable and do not feel as competent to do so. Therefore, they may be less likely to initiate a discussion regarding psychological issues with the athlete. In addition, some athletes may be more reluctant to admit personal psychological issues to an AT out of fear, embarrassment, or shame as compared to concerns directly related to injury and their recovery. However, research has indicated that athletes do deal with non-injury related psychological issues frequent enough to warrant study.[7,9] Due to the comfort level between athletes and athletic trainers, it could be concluded that ATs must be educated and prepared to deal with non-injury psychological issues with their athletes or those issues that affect the athletes participation in sport may go unnoticed.[7-9]

In regard to both injury related and non-injury related specific psychological issues, there was a broad range of perceived comfort and competence with the ATs surveyed. Demographic variables such as age, gender, years certified, advanced degrees, and psychological education were not predictors of higher levels of comfort and competence with the ATs surveyed. In addition, the practice setting (i.e., secondary school, college, university, professional sport etc.) was not related to higher levels of perceived comfort or competence. For these reasons, it remains unknown what makes certain ATs more comfortable and have more

perceived competence than other ATs regarding injury and non-injury related psychological issues with athletes. Although education was not a predictive variable in higher levels of perceived comfort and competence in this study, research has suggested that ATs do not feel prepared to handle psychological counseling of athletes.[9,13,20] While the accreditation standards for ATEPs require formal instruction in psychology, the introductory psychology course typically used to satisfy this requirement does not contain appropriate training in the counseling, recognition, intervention, or treatment of psychological issues in an individual.[20] This course, or its equivalent, is of almost no use to ATs as the education cannot be transferred to practice. In addition, sport psychology is not a current requirement and, therefore, training to address mental health issues that accompany athletic injury is also lacking in athletic training education.[20] Perhaps by increasing psychological education in ATEPs, or changing the competencies to include injury and non-injury related psychological issues, comfort and competence of all ATs may improve.

The last purpose of this study was to determine the referral patterns of ATs to sport psychologists or other mental health professionals. Over half of the sports medicine physicians surveyed in Mann and colleague's study[2] did not refer athletes to sport psychologists for injury or non-injury related psychological issues when they became aware of athletes with issues. In the current study, a higher number of ATs also reported "rarely" or "never" referring athletes to sport psychologists. There was a significant positive correlation, however, between those ATs who are more likely to address psychological issues with athletes and a greater probability of those ATs referring athletes to get psychological help from a mental health professional. This finding is intuitive, as those ATs who are more comfortable encountering psychological issues would logically be more likely to encourage the athlete to seek professional help.

More importantly, almost 75% of ATs did not know or did not think that there were enough mental health professionals to meet the needs of athletes in their geographic area. These findings mirror those of the survey of sports medicine physicians[2] and of physical therapists in the United Kingdom who also reported limited access to psychologists for referral situations.[19] Without a referral network in place, ATs may be discouraged from referring athletes to sport psychologists and would explain the low frequency of referral reported in the current study.

A lack of significance in the regression analyses used to predict the perceived comfort level and competence using demographic variables was surprising. It was expected that higher levels of education, experience, or the ATs' practice setting would be related to and/or predict higher levels of comfort and competence. There were no significant predictors of comfort and competence found, however there were items that correlated with how frequently ATs discussed psychological issues. Initially, we were not interested in differences by gender, however after analysis of the correlations, it seems

women are more likely to address psychological issues with athletes. This finding may be due to the expectation of women to take a caring and nurturing role in society. More importantly, women were more likely to be interested in receiving additional training regarding psychological techniques or skills.

The current study was restricted by the limitations of survey research. By using the NATA REF service, only 1,000 ATs were surveyed, and there was a relatively low response rate of 31.1%. A low response rate may limit the ability to generalize the survey findings. Our response rate however, was similar to that of Mann et al[2] of 21.4% in their previously published study of sports medicine physicians regarding the same topic. Another limitation is that some of the surveys were not fully completed, however we chose to include the responses on any question submitted for data analysis. This created variation in the number of responses for each survey item and the number of responses used in general.

Future research should attempt to discover what variables increase an ATs' perceived competence or comfort levels when discussing psychological issues with student-athletes. This could improve the referral frequency of ATs to mental health professionals and determine ways to increase comfort level and competence across certified athletic trainers. There also needs to be research evaluating differences in perceived competence of ATs and their actual competence in the discipline of psychology.

Lastly, a study of athletes regarding non-injury related psychological issues and their expectations of ATs to discuss and counsel them regarding such psychological issues could direct a change in educational competencies in athletic training education programs.

CONCLUSION

The current findings suggest that ATs encounter and discuss psychological issues related to injury frequently, while ATs encounter and discuss non-injury related psychological issues less frequently. ATs are more comfortable and have more perceived competence discussing injury related psychological issues than non-injury related concerns. Lastly, most ATs believe it is their role to address injury and non-injury related psychological issues with athletes.

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Chapter III.

EXTENDED SUPPORT MATERIAL

Introduction

Research has established that psychological issues are oftentimes a result of an athlete's participation in sport, specifically after an athlete sustains an injury (Andersen & Williams, 1988; Glazer, 2009; Heijne, Axelsson, Werner, & Biguet, 2008; Herring et al., 2006; Johnson, Ekengren, & Andersen, 2005; Maddison & Prapavessis, 2005; Tracey, 2003; Udry, 1997; Wiese & Weiss, 1987; Wiese-Bjornstal, Smith, Shaffer, & Morrey, 1998; Williams & Andersen, 1998). Injuries, in general, can create a greater adverse psychological impact for the athlete especially throughout the difficult rehabilitation process because of the stress, frustration, and anger that may result from the inability to participate in his or her sport (Bone & Fry, 2006; Glazer, 2009). Athletes typically understand the likelihood of sustaining an injury while participating in sport, however it is how they respond to the injury experience that differentiates one athlete from another (Tracey, 2003). In addition, psychological issues unrelated to athletic injury may impact the mental health of the athlete and actually predispose the athlete to injury due to physiologic changes in the body as a result of stress (Maddison & Prapavessis, 2005). For this reason, psychological issues unrelated to injury should also be addressed by health care professionals in order to appropriately treat both the physical and mental aspect of injury.

Athletes who experience injuries can have profound psychological reactions to these injuries. While some teams employ sport psychologists, or make counseling readily available to athletes, others do not (Misasi, Davis, Morin, & Stockman, 1996). In the cases where mental health professionals are not readily available to athletes, athletic

trainers (ATs) and other allied health professionals may be called upon to provide emotional support to athletes. For this reason, ATs are now in the position to provide counseling for athletes. ATs must be competent enough to handle the psychological aspects of athletic injuries and rehabilitation in addition to non-injury related psychological issues that may predispose an athlete to injury (Cramer Roh & Perna, 2000).

A certified athletic trainer is an allied health care professional who collaborates with physicians to optimize activity and participation of patients and clients. The field of athletic training encompasses the prevention, diagnosis, and intervention of emergency, acute, and chronic medical conditions involving impairment, functional limitations, and disabilities (NATA, 2009). Based on the Board of Certification's Role Delineation Study, ATs are required to be competent in psychology and counseling and are expected to be able to identify psychological distress, counsel athletes, and make counseling referrals when appropriate (NATA, 2004). Furthermore, according to the National Athletic Trainers'Association (NATA) (2004), there are twelve content areas that have been established to ensure educational competency and clinical proficiency in this discipline. In order to evaluate the effectiveness of undergraduate education regarding psychological issues, research exploring whether ATs perceive themselves as prepared, once certified, to handle psychological issues is important.

Research has suggested that ATs are most comfortable addressing psychological issues with athletes that are associated with an athletic injury. A study by Stiller-Ostrowski and Ostrowski (2009) concluded that athletic training education programs are

"doing an excellent job of preparing athletic trainers in the areas of common communication and interpersonal skills including athlete motivation" (pg. 71) based on participant responses during their interview process. These common communication and interpersonal skills also included the ability to counsel athletes with injury rehabilitation, injury prevention, and nutrition. The same sample of ATs interviewed in Stiller-Ostrowski and Ostrowski's investigation also reported being underprepared to handle many other counseling situations, including: counseling and social support, mental skills training, and psychosocial referral. Certain counseling situations that were noted by the ATs as particularly hard to address included: alcohol problems, drug use/abuse, sexual, relationship, financial or racial issues, family matters and suicide.

While it is known that ATs encounter psychological issues related to injury with athletes, the frequency with which ATs encounter psychological issues that are not related to injury is unknown. There had been research evaluating AT's satisfaction with their psychological education and effectiveness of counseling with athletic injury (Hamson-Utley & Vazquez, 2008; Misasi et al., 1996; Moulton, Molstad, & Turner, 1997; Stiller-Ostrowski & Ostrowski, 2009; Washington-Lofgren, Westerman, Sullivan, & Nashman, 2004; Wiese, Weiss, & Yukelson, 1991), however the frequency of encountering non-injury related psychological issues and the ATs educational preparation has not been assessed. A study evaluating the frequency and perceived preparation and competence with psychological issues that are not related to injury has important implications for the athletic training profession. A study of this kind would ensure ATs

are practicing within the aforementioned competencies covered during athletic training undergraduate preparation.

Recently, Mann et al. (2007), investigated how often sports medicine physicians encounter and discuss psychological issues, both related and unrelated to injury, with the athletes they treat. The sports medicine physicians who participated in the study of Mann et al., reported that the psychological issues related to injury most commonly discussed with athletes were fears about re-injury, fears about surgery, unwillingness to be patient with their recovery, and avoidance of rehabilitation or sport-related activities. Overall, the physicians reported feeling comfortable but only somewhat competent in discussing injury-related psychological issues with athletes. Mann and colleagues' findings provided a strong case for the need for greater understanding and education of physicians regarding psychological issues, including the recognition, management, and education of the athletes in their care. The current study replicated the work of Mann et al. with certified athletic trainers to determine how often athletic trainers address injury and non-injury related psychological issues with their athletes.

Problem Statement

The goal of this research was to determine the types of psychological issues encountered by ATs in the athletes they treat. The purpose of this research was as follows:

1. To determine the frequency with which ATs encountered specific psychological issues related to injury in addition to how often the ATs encountered specific psychological issues unrelated to physical injury with their athletes. This section of

the survey served to identify the specific types of psychological problems addressed by ATs.

2. To identify the perceived competence and comfort levels of ATs in addressing injury and non-injury related psychological issues with their athletes.
3. To assess perceptions of ATs regarding the availability and effectiveness of sport psychologists and other mental health resources in managing an athlete's psychological issues, in addition to the frequency of referral to these professionals.
4. To determine if demographic variables such as: gender, age, years of experience, types of psychological courses completed, and advanced degrees indicating higher levels of education were related to AT's perceptions of competence and comfort in dealing with psychological issues related and unrelated to injury with the athletes they treated. Lastly, practice setting was analyzed to determine if there was a difference in AT's perceived competence and comfort based on employment in different practice settings.

Hypothesis

The current study was exploratory in nature and, therefore, a hypothesis was not constructed for purposes 1-3 (see above). However, it was hypothesized that ATs with more experience would be more comfortable and competent addressing psychological issues with athletes. In addition, ATs working within a collegiate setting, compared to other settings, would also have more perceived comfort and competence in addressing psychological issues with athletes due to the amount of time spent with these athletes.

Limitations

To conduct this research, all data collection was performed electronically. The survey was created online and the hyperlink was sent to the National Athletic Trainers' Association's Research and Education Foundation (NATAREF). This e-mail was then sent to 1,000 randomly selected certified members as this was the maximum number of e-mail addresses released for graduate research. When conducting research in this way, the sample was limited to 1,000 participants, or 3.8% of the total NATA membership (The NATA, 2010). In addition, this study was also limited to certified athletic trainers with current e-mail address listed on the NATA website. Due to this sampling technique, certain individuals with more interest in the topic may have been more likely to respond. In addition, there was no control over the participant's experience, maturity level, or motivation to honestly and accurately respond to the survey questions. There was also no control over the teams and types of athletes that the participants encounter. For example, a football AT may deal with more season ending injuries and adverse psychological issues due to the contact nature of the sport than an AT with a golf team. Finally, the timeline for the survey was a limitation, as four weeks may not have been a sufficient amount of time for some participants to complete the survey.

Delimitations

This study was delimited to certified athletic trainers who were members of the National Athletic Trainers' Association. The choice of the survey instrument, *Certified Athletic Trainers Sport Psychology Survey* (Mann et al., 2007) (see Appendix B), and the questions included were also delimiting.

Assumptions

1. All participants who completed the survey would respond to each survey question in a truthful manner and to the best of their knowledge.
2. The respondents would read and interpret the survey questions in a similar fashion.
3. The validity of the survey instrument was assumed based on the published work of Mann et al. (2007).

Operational Definitions

Certified athletic trainer. An allied health professional who has graduated with a bachelor's or master's degree from a Commission on Accreditation of Athletic Training Education (CAATE) accredited professional athletic training education program and passed a comprehensive test administered by the Board of Certification. Once certified, they must meet ongoing continuing education requirements in order to remain certified (NATA, 2009).

Counseling. The Board of Certification Role Delineation Study (NATA, 2004), Domain IX, Section G states: "the athletic trainer must provide guidance and/or counseling for the appropriate patient(s) in the treatment, rehabilitation, and reconditioning of injuries, illnesses, and/or conditions through communication to facilitate recovery, function, and/or performance" (p. 21).

Entry-level master's degree athletic training program. A master's degree program with education in athletic training that prepares the student for the Board of Certification exam.

Injury. An event that requires medical attention by a team certified athletic trainer or physician and results in restriction of the student-athlete's participation or performance for one or more days (Hootman, Dick, & Agel, 2007).

National Athletic Trainers' Association. A professional organization serving athletic trainers.

Perceived comfort. An AT is frequently confronted with athletes' personal issues in addition to their athletic injury issues (Moulton et al., 1997). The perceived comfort of the AT includes the ability to identify psychological issues in athletes and the ATs willingness to counsel the athlete with those psychological issues.

Perceived competence. The competencies within the NATA Role Delineation Study (NATA, 2004) state that ATs should be able to counsel and provide social support to injured athletes on an array of psychological issues using specific techniques that include the basic principles of mental preparation, relaxation, stress reduction, and mental imagery (Stiller-Ostrowski & Ostrowski, 2009). The perceived competence of the AT includes an effective use of intervention techniques and/or counseling of patients regarding psychological issues related and unrelated to injury.

Primary practice setting. The setting or settings (college/university, secondary school, clinic, professional, non-traditional, etc.) where a certified athletic trainer is employed.

Psychological issues unrelated to injury. Certain psychological factors may predispose an athlete to injury, distract them from full participation in sport, or prevent them from achieving full mental and physical health. Examples of psychological factors

unrelated to injury that will be addressed in this study are: disordered eating, exercise addiction, depression, stress/pressure, anxiety, burn-out, alcohol or drug abuse, family/relationship problems, difficulty adjusting to a new environment, violence/anger problems, sexual/physical/emotional abuse, or sexual orientation (Mann et al., 2007).

Undergraduate accredited program. An athletic training entry-level bachelor's degree education program that is accredited by the CAATE.

Significance of the Study

Athletic trainers undergo rigorous academic preparation that encompasses many aspects of athletic injury. Due to the specific role that ATs play as the primary health care professional for injured athletes, they should be well versed and comfortable when addressing psychological concerns related to the injuries of their athletes. Recently, an Injury Psychological Readiness to Return to Sport (I-PRRS) scale, developed by Glazer (2009), was validated to assist ATs in their assessment of an athlete's psychological readiness to return to their sport. It is the development of this type of tool that helps ATs be more comfortable with addressing psychological concerns related to injury. A scale of this kind is not available to evaluate psychological issues unrelated to injury because it is unknown how often ATs encounter these issues and whether they properly refer these cases to mental health professionals. The current study was necessary to establish the frequency with which certified athletic trainers encounter non-injury-related psychological issues, a topic that previous research has not considered. In addition, for ATs who have had to address psychological concerns with their athletes, this survey explored their confidence with the psychological intervention. This is significant because

it could provide justification for more psychological and counseling education in athletic training programs, or continuing education units.

In summary, the purpose of this study was to determine the extent to which certified athletic trainers encountered and discussed psychological issues among athletes they treated, their perceived competence and comfort with this discussion, and ATs perceptions of the availability and efficacy of sport psychologists and other mental health resources. This research contributes to the athletic training profession by establishing the regularity with which ATs deal with general psychological issues in their athletes and may indicate a need for greater understanding of these psychological issues either through an increase in education within the content area of "Psychosocial Intervention and Referral" during undergraduate or graduate work or continuing education units.

To conclude, current literature has indicated a need for more education within the discipline of psychology for ATs (Cramer Roh & Perna, 2000; Larson, Starkey, & Zaichkowsky, 1996; Misasi et al., 1996; Stiller-Ostrowski & Ostrowski, 2009). Due to their close interaction with athletes, ATs are in the best position to counsel and address psychological issues with their athletes, especially those related to physical injury. The ATs comfort and confidence addressing these issues and those unrelated to the injury process can be extremely important to the mental and physical health of the athlete. Therefore, a study establishing the frequency of encountering psychological issues and the ATs comfort and competence was essential for providing a case for increasing education in undergraduate programs.

Literature Review

There are many documented benefits of exercise and physical activity. One benefit of chronic vigorous exercise is improved psychological functioning and mental health (Brand et al., 2007). Unfortunately, as a result of many factors athletes will at times experience psychological, emotional, and behavioral problems (Mann et al., 2007). Injuries are one of many reasons that athletes develop psychological, emotional, and behavioral problems. As health care professionals, athletic trainers (ATs) are the most frequent point of contact and oftentimes the first individual to care for an injured athlete (Barefield & McAllister, 1997; Tracey, 2008). For this reason, the AT is in the ideal position to not only assist in the physical healing process, but also the psychological recovery after injury.

An area of research that has not been explored with ATs is the frequency with which they address psychological issues not related to injury with athletes. The frequency, comfort, and competence of ATs dealing with these issues that affect the athlete's psychological health warrants investigation. It was expected that ATs encounter psychological issues not related to injury frequently and, due to lack of educational preparation, feel uncomfortable and incompetent when approached by an athlete for guidance dealing with any of these issues. If this hypothesis is supported by the current research study it could establish the need for greater educational and practical preparation of ATs in all facets of psychological intervention with athletes, even with issues unrelated to injury.

The current study was modeled after Mann et al.'s (2007) research, which sought to determine the types of psychological issues encountered by team physicians. This chapter will provide a review of current literature surrounding the psychological response of an athlete to injury, including: rehabilitation adherence, physiological healing, and emotional response. The chapter will also analyze the roles of various health care professionals in the use of psychological interventions with athletes following injury, with specific attention on ATs. Finally, this chapter will establish the importance of addressing psychological issues unrelated to injury in athletes for the improvement of their mental health, culminating with a summary and conclusions.

Psychology of Athletic Injury

The psychological impact of athletic injuries is well documented in the literature (Andersen & Williams, 1988; Glazer, 2009; Heijne et al., 2008; Herring et al., 2006; Johnson et al., 2005; Maddison & Prapavessis, 2005; Tracey, 2003; Udry, 1997; Wiese & Weiss, 1987; Wiese-Bjornstal et al., 1998; Williams & Andersen, 1998). With injury, there is a physical loss of function and attention is focused on the site of injury by all members of the sports medicine team (Tracey, 2003). This focus by the sports medicine team often remains solely on the physical aspect of the injury, often leaving the resultant psychological consequences for the individual ignored. However, considerable attention must be given to the psychological aspect of athletic injury, as some research has indicated that returning injured athletes to sport before they are psychologically ready can lead to fear, anxiety, re-injury, injury to different body parts, depression, and a decrease in performance (Glazer, 2009; Wiese & Weiss, 1987). Understanding and counseling

athletes regarding the psychological impact of injury is not solely the role of the sport psychologist, but the entire sports medicine team.

Applied sports psychology literature has focused on understanding the complex nature of the experience of athletic injury. This understanding is necessary as it facilitates better guidance using social support for the athlete through the injury and subsequent rehabilitation process. Social support is an important factor in how athletes respond to stress and can impact their response to injury. Andersen and Williams (1988) sought to describe the interconnections of psychosocial factors and stress and their impact on injury outcome. They proposed an interactional theoretical model of stress and athletic injury with variables such as: cognitive, physiological, attentional, behavioral, intrapersonal, social, and stress history which may influence injury occurrence and prevention. The model offers a framework for identification of the injury-prone athlete and reduction of injury risk. For example, when placed in a stressful situation, an athlete with high competitive anxiety, many concurrent life events of stress, and low coping resources may exhibit substantial stress responses, likely to be seen as generalized muscle tension and attentional disruptions that place him/her at a higher risk for injury (Johnson et al., 2005; Williams & Andersen, 1998). An AT can reduce stress by providing social support through counseling, which based on Andersen and Williams' (1988) model, will in turn prevent injury. Therefore it is important to understand the AT's competence at providing social support as it can be an important coping mechanism for the athletes.

Andersen and Williams' paradigm has been used by Johnson et al. (2005) to develop an intervention targeting male and female soccer players who were determined to

be at a high risk for incurring injuries. The risk for injury was determined by The Sport Anxiety Scale (Smith, Smoll, & Schutz, 1990), the Life Event Scale for Collegiate Athletes (Petrie, 1992), and the Athletic Coping Skills Inventory-28 (Smith, Schutz, Smoll, & Ptacek, 1995) which evaluated sport anxiety, sport coping responses, and life events stress. The pool of 132 participants was separated into either a treatment group, in which individuals received training in mental skills like stress management, goal setting, and relaxation over a 19-week competitive season, or a control group, in which no treatment or intervention was imposed. At the conclusion of the season, the intervention group had significantly fewer injuries than the control group. Specifically, the control group reported 21 injuries and the intervention group only 3 (Johnson et al., 2005). A similar methodology was used by Maddison and Prapavessis (2005) to examine 470 rugby players. Athletes included in the study were determined to be at a high risk of injury based on previous injuries, coping skills measured by the Ways of Coping Scale (Grove, Eklund, & Heard, 1997), and amount of social support for the individual based on the Social Support Questionnaire (Smith, Smoll, & Ptacek, 1990). The authors concluded that the athletes in the treatment group, who went through a stress management intervention, lost less time to injuries compared to the control group. This may have been due to the stress response increasing the vulnerability to injury by disrupting one's coordination and flexibility in addition to interfering with the detection of environmental cues (Herring et al., 2006; Maddison & Prapavessis, 2005). Both Maddison and Prapavessis (2005) and the Johnson et al. (2005) research, supported

Williams and Andersen's original stress and injury model and the relationship between stress and injury.

The stress and injury prediction model presented by Andersen and Williams (1988) discussed the physiological effects of stress on injury. Research conducted by Kiecolt-Glaser, Marucha, Malarkey, Mercado, and Glaser (1995) in psychoneurimmunology has provided evidence that stress delays wound repair. To provide evidence for this claim, Kiecolt-Glaser et al. studied 13 caregivers, who were under a significant amount of stress due to their time with Alzheimer's patients in comparison to a control group. All participants underwent a punch biopsy wound and were tracked until deemed fully healed by photography and response to hydrogen peroxide. Wound healing took significantly longer (48.7 days) in the caregiver group than the controls (39.3 days). The clinical implication of this study is important for individuals who are recovering from injury, and specifically those who are post-surgery. By limiting the post-surgery stress levels or the negative emotional response during the injury rehabilitation process, the clinician can facilitate a faster recovery for the athlete (Kiecolt-Glaser et al., 1995; Kiecolt-Glaser, Page, Marucha, MacCallum, & Glaser, 1998).

Once injury does occur, it is difficult to predict the psychological response of the athlete, especially when the severity of the injury may influence the athlete's cognitive and emotional reaction (Wiese, Weiss, & Yukelson, 1991). This has led to the development of a model to attempt to describe the psychological experience after injury. The paradigm for psychological response to athletic injuries and rehabilitation was

developed by Wiese-Bjornstal, et al. (1998). Following the footsteps of Andersen and Williams (1988), this model offers a comprehensive way of examining the injury response process that includes the impact of personal and situational factors on the cognitive, emotional, and behavioral response of the athlete (Wiese-Bjornstal et al., 1998). Tracey (2003) employed the Wiese design to qualitatively test NCAA Division III male and female student-athletes and their emotional responses to the injury and rehabilitation process. Athletes recovering from moderate to severe injuries, defined by missing at least 7 days of practice or competition, were interviewed at the onset of injury, 1 week post-injury, and 3 weeks post-injury. During the typical interview time each subject completed a demographic form, an open-ended questionnaire consisting of questions intended to allow the athlete to explain how she/he was feeling with respect to the emotional experience of being injured, and an in-depth semi-structured interview with a researcher. The most common themes that emerged highlighted the fluctuations in emotions and were characterized by feelings of loss, decreased self-esteem, frustration, and anger throughout the injury process. Participants acknowledged that through the injury process they gained an appreciation for the complexity of the different emotions involved in recovery. The greatest benefit of this research is that it provided direction for medical personnel to ensure that the emotional and physical well-being of the athlete is not compromised during the injury process (Tracey, 2003). By discussing the emotional response to injury with the athlete, the practitioner can assist the athlete in recognizing their own personal strength, motivation, and belief in their ability to overcome an injury much sooner than if the athlete was left to discover this emotional stability on his or her

own. This also helps the athlete with the acceptance and coping skills necessary for dealing with the injury, that otherwise, would increase his or her stress during the rehabilitation process (Tracey, 2003).

Rehabilitation of an injury is the most important part of the injury process, as it ultimately determines the functional level of the athlete and a successful return to activity. In examining long-term injured, competitive athletes, Johnson (1997) generalized that very few, if any, athletes prepare themselves psychologically for a possible injury situation. Johnson evaluated a small group of athletes for various psychosocial measures including mood, coping, and personality at the start of rehabilitation, and at 5 months, 15 months, and 19 months after commencing rehabilitation. The author determined that athletes who were younger, female and had no previous experience with injury were less likely to return to their sport following rehabilitation. Problematic and prolonged rehabilitation programs for athletes were also correlated with insufficient mental plans, negative attitudes toward rehabilitation, restricted social contacts with fellow athletes, and low mood levels. Furthermore, these athletes were presumed to lack the mental strategies necessary to cope with a major sporting injury (Johnson, 1997). This can make rehabilitation challenging and frustrating for the athlete. These findings are supported by Peterson and Seligman (1987) who determined that individuals with a pessimistic, or hopeless and negative explanatory style were at a greater risk for illness and injury. By adjusting the coping style of the athlete as seen in Udry's (1997) work, the health care practitioner can limit the negativity, helplessness, and stress associated with an injury.

The coping strategy chosen by the athlete during the rehabilitation is related to a variety of behavioral and health outcomes (Udry, 1997). Udry (1997) examined the role of coping and social support among injured athletes during rehabilitation from knee surgery. The author intended to describe the coping strategies used by the athlete, whether the use of coping and social support changed throughout rehabilitation, and if coping and social support were predictors for rehabilitation adherence. The participants (N=25) completed assessments 5 times following surgery, throughout the duration of the study: pre-surgery, 3 weeks, 6 weeks, 9 weeks, and 12 weeks post-surgery. The assessments included the Coping with Health and Injury Problems (CHIP) scale (Endler, Parker, & Summerfeldt, 1992), Profiles of Mood States (POMS) (Shacham, 1983), Social Support Inventory (SSI) (Brown, Alpert, Lent, Hunt, & Brady, 1988), and adherence to rehabilitation as determined by the sports medicine provider overseeing the participant's rehabilitation program. Using descriptive statistics, Udry found that instrumental coping was the most frequently used strategy and was a significant predictor of adherence at 9 weeks post-surgery. The type of coping used by the athlete changed throughout different stages in the rehabilitation process and social support did not predict adherence in this population. The reason for this finding may be because of the social support scale used, which assessed social support globally and not rehabilitation tasks specifically. The significance of this study is that athletes who may be unable to cope with their injury may experience increased stress and negative emotions associated with their injury as compared to those with greater social support and coping skills (Udry, 1997). This, in turn, can impact rehabilitation adherence.

The cascade of events, both physically and psychologically, following injury has been researched and demonstrated to be a significant factor in recovery (Herring et al., 2006; Tracey, 2008; Udry, 1997). While there is no way to accurately predict the emotional reactions of an athlete when injured, the development of various models have assisted in better understanding of the potential factors influencing psychological response and recovery (Andersen & Williams, 1988; Wiese-Bjornstal et al., 1998). It is the role of the individuals caring for the athlete to address not only the physical injury, but also the psychological injury. The next section will explore if, and to what extent, health care professionals, including physicians, physical therapists and psychologists address these psychological effects of injury with athletes.

Management of the Psychological Result of Injury

Many medical professionals are in contact with the injured athletes during their recovery. This might include, but is not limited to, psychologists, physicians, and physical therapists. During the rehabilitation process, athletes display varying degrees of emotional vulnerability and often turn to health care professionals for guidance beyond physical recovery (Tracey, 2008). For this reason, it can be assumed that health care professionals address the psychological effects of injury with the athlete.

Psychologists utilize a variety of intervention tools when addressing psychological effects of injury with athletes to facilitate the rehabilitation process. An exploratory study by Ievleva and Orlick (1991) examined the use of positive attitude, outlook and self-talk, stress control, social support, goal setting, and mental imagery during ankle or knee rehabilitation. They surveyed 32 former patients from a sports

medicine clinic regarding their psychological characteristics, conditions, or practices related to the healing process using the Sports Injury Survey developed by the researchers. The only contact with these participants occurred within 2 months of full recovery. The results of the survey indicated that athletes with faster-healing rates as determined by self-report and physiotherapist evaluation demonstrated greater use of goal setting, positive talk strategies, and healing imagery than did slower-healing athletes (Ievleva & Orlick, 1991). To support this finding, a randomized control trial by Cupal and Brewer (2001) evaluated the effects of imagery and relaxation with athletes recovering from ACL reconstruction. When compared to the placebo and control groups, the experimental group utilized imagery and relaxation and subsequently experienced significantly less re-injury anxiety, less pain, and greater knee strength after the psychological intervention. The use of psychological skills training during injury rehabilitation was beneficial to both the physical and mental health of the athlete.

While there has been an increase in sport psychology practitioners consulting with athletes, coaches, and teams many athletic programs still do not have access to mental health professionals (Mann et al., 2007). A study by Mann et al. (2007) surveyed sports medicine physicians and reported that only 19% of the total respondents felt there were adequate numbers of sport psychologists and other mental health related professionals in their geographic area. Likewise, a survey of physiotherapists in the United Kingdom suggested that less than 10% of the 97 participants have access to an accredited sport psychologist in their area (Hemmings & Povey, 2002). This research highlights the need for a better referral network to sport psychologists within the field of sports medicine. It

also highlights the need for ATs to be more comfortable and competent in dealing with psychological issues as they will likely have to provide psychological support or counseling to athletes seeking treatment.

Much like ATs, team physicians often work with athletes who experience profound psychological reactions to their injuries. To evaluate the physicians' role in addressing the psychological well-being of their patients and athletes, the Team Physician Consensus Statement (2006) was created, completed by six of the nation's leading sports medicine associations. This document recommends that team physicians consider psychological variables when treating an athletic injury. Furthermore, team physicians should facilitate the assessment of emotional reactions of athletes to injury, coordinate referrals for psychological support as needed, identify licensed mental health professionals for athlete referrals, and integrate these professionals into the overall care of the athlete (Herring et al., 2006). These physicians acknowledge the influence of psychological issues on rehabilitation from injury and return-to-play decisions.

To test the recommendations in the consensus statement, Mann et al. (2007) surveyed sports medicine physicians regarding psychological issues in the patient-athletes that they had treated. Physician members associated with the American Orthopaedic Society for Sports Medicine (AOSSM), American College of Sports Medicine (ACSM), American Medical Society for Sports Medicine (AMSSM), or American Osteopathic Academy of Sports Medicine (AOASM) were invited to participate in this cross-sectional study. Participants were invited to express their

opinions, experiences and techniques in handling the psychological issues of athletes recovering from sports injuries (Mann et al., 2007).

The survey tool used in the investigation of Mann and colleagues was derived from a literature review regarding psychological issues in athletes typically assessed in sports psychology research. The SMSPS was comprised of 30 questions divided into 4 different sections. The first section consisted of demographic and background information, while the second section used a 5-point scale to assess the frequency with which athletes discuss psychological issues related to injury and the respondents' perceptions of their comfort, competence, and responsibility discussing these issues. The third section assessed the frequency, comfort, competence, and responsibility of the respondents to discuss non-injury-related psychological, emotional, and behavioral issues with athletes. The last section of the survey briefly asked about the perceived availability of resources for athletes struggling with psychological issues and referral rate to mental health professionals. Eight-hundred and fifty-seven sports medicine physicians responded to the survey, representing a response rate of 21.4%. The researchers determined that the injury-related psychological issues most commonly discussed with athletes were fears about re-injury, fears about surgery, unwillingness to be patient with their recovery, and avoidance of rehabilitation or sport-related activities. Overall, the physicians reported feeling comfortable but only somewhat competent discussing injury-related psychological issues with athletes. In regard to psychological issues not related to injury, the most commonly discussed issues were stress and pressure, anxiety, burnout, disordered eating, body image, and depression. Orthopaedic surgeons, who are the most

likely to treat and interact with the athletic population, were surprisingly the least likely to talk about any of these issues with their patient-athletes compared to physicians with other specialties. The perceived comfort and competence of addressing psychological issues not related to physical injury was significantly different among physicians with different specialties. Mann and colleague's research indicated that sports medicine physicians frequently encountered psychological issues with their patient-athletes and that there is a need for greater recognition, management, and education regarding these psychological issues. The role of the team physician is to be proactive regarding psychological concerns and to refer athletes to appropriate mental health care providers as needed (Mann et al., 2007).

It was the opinion of the sports medicine physicians that physical therapists and ATs are effective in dealing with injury-related psychological issues of athletes (Mann et al., 2007). When an athletic trainer is not utilized for rehabilitation, a physical therapist may be directly responsible for the athlete's return to participation in his or her sport. For this reason, physical therapists have also been evaluated for their role in addressing emotional issues related to injury and emotional issues non-injury-related with their patients.

During the initial injury examination, a physical therapist uses instruments or tests to exclude any diseases or conditions that would contraindicate or reduce the effectiveness of his or her treatments (Haggman, Maher, & Regshauge, 2004), including psychological issues. A study conducted by Haggman et al. (2004) evaluated physical therapists for their accuracy in screening for depressive symptoms among 242 patients

with non-specific lower back pain. Patients from 40 different physical therapy clinics were asked to complete the Depression Anxiety Stress Scales (DASS) (Brown, Chorpita, Korotitsch, & Barlow, 1997) in an effort to categorize their depression symptoms. The patients' physical therapist (N=68) then rated them on a scale of 1 to 10 to judge whether their patient was depressed and the severity of their depression. The results of Haggman and colleague's research indicated that physical therapists were not accurate in identifying symptoms of depression in their patients. This finding is of importance as Hill, Lewis, Sim, Hay, and Dziedzic (2007) suggest psychological issues such as depression may indicate poor therapeutic outcomes in patients with neck pain. The authors found psychosocial, functional, and demographic indicators including social class, anxiety and depression, and low treatment expectations as predictors for poor therapy outcome. Furthermore, the study concluded that physical therapists were aware of the importance of psychological issues with patients and the impact of such issues on efficacy of treatment. Haggman et al. and Hill et al. provided evidence for the need for more education and practical training to deal with psychological issues with patient-athletes within the physical therapy discipline.

Athletes respond to injury in different ways. Current literature suggests that athletes need psychological guidance during the injury process (Herring et al., 2006; Tracey, 2003; Tracey, 2008; Udry, 1997). Specifically, physicians, physical therapists, and athletic trainers should be educated on the importance of their verbal and nonverbal communication with the injured athlete regarding their emotional experience following injury (Tracey, 2003). It is important to note that other members of the health care team

including nurses (Doyle, Foster, & Jordan, 2008), occupational therapists (Kloczko & Ikiugu, 2006), osteopathic doctors (Kadel & Vilensky, 1999), and chiropractors (Middleton & Pollard, 2005) also address psychological issues with their patients. There is no debate that sport psychologists are the most appropriate health care provider to manage the psychological impact following injury, however for several reasons, these professionals may not be utilized. The health care provider, whether it is a sport psychologist, physical therapist, or team physician, must be able to recognize and effectively treat psychological issues with athletes in order to guide them back to optimal physical and mental health.

Educational Preparation of Athletic Trainers

The profession of AT continues to grow at a steady pace (NATA, 2004). ATs specialize in returning athletes to participation in their sport after injury and typically have more contact with athletes throughout the rehabilitation process than other allied health professionals (Cramer Roh & Perna, 2000). Because of this relationship, the AT is in the ideal position to inform, educate, and assist with both the psychological and physical processes of injury and recovery (Arvinen-Barrow et al., 2007).

The educational preparation of ATs to address psychological issues is worthy of investigation. Within each entry-level athletic training education program, a set of 191 competencies, encompassing six different performance domains, must be completed before the student can take the Board of Certification (BOC) national certification examination (Larson, et al., 1996; NATA, 2004). Of these 191 competencies, 12 are related to psychological aspects of athletic injury (NATA, 2004). One of these 12

competencies is “Psychosocial Intervention and Referral” which emphasizes communication skills, motivation, adherence strategies, social support, basic counseling skills, mental skills training, and potential referral situations (Stiller-Ostrowski & Ostrowski, 2009). A great deal of research has been conducted to assess whether or not ATs feel their entry-level education prepared them to address all of these competencies once certified (Cramer Roh & Perna, 2000; Larson et al., 1996; Misasi et al., 1996; Stiller-Ostrowski & Ostrowski, 2009).

A novel study by Stiller-Ostrowski and Ostrowski (2009) attempted to explore the preparation level of recently certified ATs within the content area of “Psychosocial Intervention and Referral.” This qualitative study of 11 certified athletic trainers established that entry-level education programs are “doing an excellent job of preparing ATs in the areas of common communication and interpersonal skills including athlete motivation,” (p. 71) based on participant response during the interview process. However, the same cohort reported that they had learned little and felt unprepared to address areas of counseling, social support, mental skills training, and psychosocial referral. Collectively, the ATs stated that some of these psychological interventions were addressed in their athletic training education programs, however this training was not adequate to prepare them to use the skills and techniques in practical settings (Stiller-Ostrowski & Ostrowski, 2009). The ATs, who had some psychology training, seemed to struggle with the application of these skills during practice.

Specifically within the content area of counseling, research has indicated that many ATs have not achieved the level of competency necessary to translate their

education to practice (Cramer Roh & Perna, 2000). A survey of college and university ATs indicated that ATs were most comfortable counseling in the areas of injury prevention, injury rehabilitation, and nutrition (Misasi et al., 1996). Furthermore, a study by Larson et al. (1996) investigated the perceptions of ATs concerning their attitudes, beliefs, and application of a variety of psychological strategies in the treatment and rehabilitation of athletic injuries. Their results suggested that only half (51.4%) of certified athletic trainers had taken a formal sport psychology course and many felt unprepared to handle the counseling component of psychological issues with athletes (Larson et al., 1996). A similar result was yielded in an investigation by Washington-Lofgren et al. (2004). Washington-Lofgren and colleagues reported that almost half of the 105 ATs (45.7%) who completed the study's questionnaire felt they could assist an athlete's psychological recovery in a limited capacity at best.

The research performed by Washington-Lofgren et al. (2004) calls for a better understanding of psychological principles and interventions aimed at improving athletic trainers' treatment of injury. Recently, Stiller-Ostrowski, Gould, and Covassin (2009), conducted a follow-up study and demonstrated that an intervention program in an undergraduate athletic training education program was effective in increasing the knowledge and skill usage in 26 athletic training students (ATS). The psychology-of-injury knowledge tests and skill usage survey (34-item Likert scale) were administered at baseline, week 3, week 6, and as the retention test at week 7 and 14 to measure the effectiveness of the intervention. The educational intervention used in this study, titled *The Applied Sport Psychology for Athletic Trainers,* provides a model for increasing

psychological education in AT programs by adding a total 7.5 hours of focused education in the competency area of psychosocial intervention and referral (Stiller-Ostrowski et al., 2009). The intervention consisted of weekly classroom lectures and student participation lasting 2 hours and weekly 30 minute seminar sessions of group discussions over the course of 6 weeks. Currently ATs are trained in some psychological intervention techniques, however many feel they are unprepared to address areas such as motivation and mental skill training. Intervention programs provide the opportunity to increase the effectiveness of the psychological techniques used practically by ATs. By increasing the education of ATs in psychology, ATs will be better prepared to effectively address mental aspects of injury.

Athletic Training Psychology Literature

Athletic trainers play a unique role in an athlete's life. Many student-athletes depend on the AT for guidance and support regarding health issues and optimal performance. This is especially true when athletes are injured. In some cases injured athletes actually prefer to discuss emotional reactions to injury with coaches and ATs rather than sport psychologists (Washington-Lofgren et al., 2004). This preference stems from multiple factors, the most significant being the athletes' comfort level with their AT. A study by Maniar, Curry, Sommers-Flanagan, and Walsh (2001) provided evidence that in addition to the athlete being more comfortable with the AT there may be an assumption among athletes that a psychologist does not understand the special concerns, needs, and pressures faced by student-athletes. Maniar and colleagues evaluated 60 NCAA Division I athletes and their preference for sport performance intervention and

sport psychology interventions across three different scenarios. The scenarios included: a performance slump, recovery from a serious injury, and desire to perform optimally. Each was described to the participants, following which they were asked to answer 4 questions regarding the scenario. Using a 9-point Likert-type scale, the results indicated that, for all scenarios, when an AT is not an option, the athlete preferred seeking help from a coach over sport-titled professionals, counselors, or clinical psychologists. It is for these reasons that there has been a great deal of research on the role of ATs as it relates to the psychological well-being of the injured athlete (Barefield and McCallister, 1997; Bone and Fry, 2006; Washington-Lofgren et al., 2004; Wiese et al., 1991).

ATs believe that athletes do experience some degree of negative psychological response to injury (Arvinen-Barrow et al., 2007; Cramer Roh & Perna, 2000; Glazer, 2009; Hamson-Utley & Vazquez, 2008; Larson et al., 1996; Striegel, Hedgpeth, & Sowa, 1996; Washington-Lofgren et al., 2004; Wiese et al., 1991). Once injuries occur some research has indicated that athletes tend to adhere better to their rehabilitation program when they feel the healthcare professional is genuinely interested in their well-being (Crossman, 1997). A study by Bone and Fry (2006) concluded that when severely injured athletes perceived that their AT provided strong social support they were more likely to believe in their rehabilitation programs, therefore making the programs more effective. Additionally these athletes "felt that they were able to stick with the rehabilitation program and were able to complete the exercises when the ATC demonstrated alliance with the athletes and confirmed their progress" (Bone & Fry, 2006, p. 164). These studies suggest a rationale for ATs to use some psychological strategies

during rehabilitation with their athletes, thus further supporting the notion that ATs need to be competent in the areas of psychological counseling and social support.

A study by Wiese, Weiss, and Yukelson (1991) sought to determine which psychological strategies were being used by ATs. A survey was given to 115 ATs which included: open-ended questions regarding characteristics of athletes who were best able to cope with injury rehabilitation; a survey identifying which techniques the AT employed to increase coping; and a 5-point Likert-type scale rating a list of psychological interventions that ATs may use with athletes. The results of this study suggested that ATs felt that interpersonal communication skills including listening, motivation, and their own attitude were the most important strategies in addressing psychological issues with injured athletes. Likewise, Barefield and McCallister (1997) used a questionnaire to investigate 85 NCAA Division 1 athletes and determined the characteristics of social support athletes desire from their ATs and athletic training students (ATS). The results of this study indicated that athletes need ATs to take time to listen to them, appreciate the athlete's hard work, and continue to push them to succeed (Barefield & McCallister, 1997). The most interesting result from Barefield and McCallister's work is that the athletes surveyed did not differentiate between their certified athletic trainer and the ATS. Restated, neither the age nor credentials of the staff affected athlete expectations for social support; ATS can have just as much of an impact on the athlete as the certified athletic trainer (Barefield & McCallister, 1997). This finding has implications for the psychological education in undergraduate athletic training education curriculums, such

that these competencies may need to be taught earlier to better prepare students for their clinical education and experience.

In summary, the literature regarding psychological interventions used by ATs after injury has established that ATs do attempt to address psychological issues with their athletes, however many do not feel comfortable or competent with many common intervention techniques. Due to the special relationship of the athlete and the AT and their consistent and frequent contact, the rapport established can have far-reaching effects for the athlete (Barefield & McCallister, 1997). The AT is in an ideal position to have a significant affect on athletes' psychological recovery post-injury. The importance of ATs' competence and comfort levels addressing psychological issues following injury is evident in the literature (Barefield and McCallister, 1997; Bone and Fry, 2006; Washington-Lofgren et al., 2004; Wiese et al., 1991).

Psychological Issues Unrelated to Injury

Psychological issues, unrelated to athletic injury may impact the mental health of the athlete and actually predispose the athlete to injury (Maddison & Prapavessis, 2005). Research specifically examining athletes and their mental health outside of the athletic arena has indicated that athletes do deal with psychological issues that are not related to injury (Armstrong & Oomen-Early, 2009; Bonci et al., 2008; Cresswell & Eklund, 2007). Examples of psychological issues that affect athletes as defined by Mann et al. (2007) were: disordered eating, exercise addiction, depression, stress/pressure, anxiety, burn-out, alcohol or drug abuse, family/relationship problems, difficulty adjusting to a new environment, violence/anger problems, sexual/physical/emotional abuse, or sexual

orientation. These are all documented in the literature to be prevalent in athletes of various levels of participation (Doumas & Hausteveit, 2008; Ford, 2008; Herring et al., 2006; Rosendahl, Borman, Aschenbrenner, Aschenbrenner, & Strauss, 2009; Vaughan, King, & Cottrell, 2008). These issues belong to an increasingly important area of research, as athletes are subjected to unique pressures from performance demands imposed by coaches, fans, peers, family, and even themselves (Mann et al., 2007). The transition from high school to college, increased academic rigor, intense training and travel, and genetic predisposition to psychological or behavior difficulties can create additional stress for the athlete.

As discussed in the previous section, athletes are more comfortable discussing psychological issues with athletic trainers (Bone & Fry, 2006; Maniar et al., 2001). Furthermore, athletes have suggested that they have high expectations of their athletic trainer's (ATs) ability to deliver psychological interventions during rehabilitation (Washington-Lofgren et al., 2004). This could be attributed to the unique relationship between the athlete and their AT (Barefield &McCallister, 1997). It could be possible that athletes when dealing with non-injury related psychological issues will also turn to ATs for guidance.

In summary, athletes do deal with psychological issues unrelated to injury and may be more comfortable turning to ATs for guidance and support with these issues. It is for this reason that ATs need to be evaluated for their comfort level and perceived confidence with psychological issues that are not related to injury.

Summary

Psychological concerns in athletes are common topics of discussion as research has established that both the physical and mental aspects of injury must be addressed before the athlete can be safely returned to their sport. In many athletic settings, there may not be a sports psychologist available for referral of athletes with specific needs, or the athlete may refuse the services of available specialists. For these reasons, other members of the sports medicine team must evaluate their roles concerning the psychological counseling of athletes. This is especially important for ATs, as they are not only trusted medical professionals, but often the first individual to become aware of a psychological problem with an athlete.

Once certified, the AT is expected to be confident and competent in addressing psychological issues with athletes. Current research has contradicted this notion, as ATs report that they do not feel prepared to handle psychological counseling of athletes (Cramer Roh & Perna, 2000; Larson et al., 1996; Washington-Lofgren et al., 2004). While the accreditation standards for athletic training education programs require formal instruction in psychology, the introductory psychology course typically used to satisfy this requirement, does not contain appropriate training in the counseling, recognition, intervention, or treatment of psychological issues in an individual (Cramer Roh & Perna, 2000). This course, or its equivalent, is of almost no use to ATs as the education cannot be transferred to practice. In addition, sport psychology is not a current requirement and, therefore, training to address mental health issues that accompany athletic injury is also lacking in athletic training education (Cramer Roh & Perna, 2000).

In conclusion, current literature has indicated a need for more education within the discipline of psychology for ATs (Cramer Roh & Perna, 2000; Larson et al., 1996; Misasi et al., 1996; Stiller-Ostrowski & Ostrowski, 2009). Due to their close interaction with athletes, ATs are in the best position to counsel and address psychological issues with their athletes, especially those related to physical injury. In addition, it is unknown how often non-injury related psychological issues are encountered by ATs. This conclusion holds significant weight because those ATs who do not feel prepared enough to care for the psychological effects of injury and rehabilitation processes certainly will not be prepared to deal with non-injury related psychological issues. One may argue that this is out of the scope of practice for an AT, however the literature has established that athletes regularly approach their ATs with personal issues and, therefore may feel more comfortable seeking an ATs help as opposed to a professional trained in psychology (Washington-Lofgren et al., 2004; Maniar et al., 2001; Mouton et al., 1997). For this reason, ATs must be educated and prepared to deal with non-injury psychological issues in their athletes. The current study explored the frequency with which ATs were approached regarding psychological issues that were both related to injury and unrelated to injury in athletes. This study also identified the perceived competence and comfort levels of ATs in addressing injury and non-injury related psychological issues with the overarching goal of justifying the need for increased educational competencies within psychology during an AT's undergraduate athletic training education program or entry-level graduate athletic training education program.

Methods

Athletic trainers (ATs) are important members of the sports medicine team and as such must be well educated and prepared to discuss psychological concerns with their athletes. The purpose of the current study was to replicate Mann and colleague's (2007) investigation of team physicians with ATs. Mann et al.'s study identified the frequency, comfort level, and competence of team physicians in addressing psychological issues with their patient-athletes. The survey used in this study was adapted from Mann et al. and explored psychological issues that were both related to injury and unrelated to injury in athletes as addressed by ATs. A secondary purpose of this study was to identify the perceived comfort and competence levels of ATs in addressing non-injury related psychological issues with their athletes. Finally, a tertiary purpose of this study was to assess perceptions of ATs regarding the availability and effectiveness of other mental health professionals in managing psychological issues with athletes and the frequency of referral to these professionals.

Participants

One thousand participants, certified athletic trainers who had maintained active membership with the association in 2009, were randomly selected by the National Athletic Trainers' Association (NATA) Research and Education Foundation (REF). The certified athletic trainers' e-mail addresses were obtained from the NATA's public database with the approval of the NATA District Eight Secretary. This was the maximum number of participants released for web-based graduate research (NATA, 2009). The participants must be certified by the Board of Certification and NATA

members. There were no restrictions on gender, years of experience, or other certifications, however all participants were over the age of 18. This study was reviewed and approved by the Institutional Review Board at San José State University for the Protection of Human Subjects. Informed consent was obtained from each participant prior to the start of the survey.

Instrumentation

The survey, *Certified Athletic Trainers Sport Psychology Survey* (see Appendix B), administered through www.surveymonkey.com® was used to evaluate certified athletic trainers' comfort, competence, and frequency in addressing psychological issues related and unrelated to injury with the athletes they treated. This instrument was an adaptation of the *Sports Medicine Sport Psychology Survey* (Mann et al., 2007).

Mann and colleague's (2007) *Sports Medicine Sport Psychology Survey* was derived from a literature review of psychological issues of athletes typically assessed in sport psychology research and then sent to five sports medicine physicians for their input. Mann's survey was the model for the *Certified Athletic Trainers Sport Psychology Survey* that was used in the current study. This survey consisted of demographic items and questions to test the frequency with which participants encountered and discussed psychological concerns with their athletes. In addition, the survey contained questions analyzing the referral pattern of ATs to other medical health professionals and determined the perceived competency and comfort levels of ATs in addressing psychological issues.

Like Mann's survey, the instrument used in the current investigation was organized into four sections with most of the same questions that were used to address the team physicians. The differences between the original and adapted survey include: ATs are addressed instead of physicians, the general psychological questions were expanded to gain further insight into specific issues that ATs have encountered, and different demographic questions were asked specific to the profession of athletic training.

Demographics. The first section of the survey instrument contained basic demographic and background information unique to ATs. These questions differed from Mann's survey because the practice setting, fellowship training, national organizations, and categorization of health care profession are not applicable to the AT profession. The demographic and background information collected included the respondents' gender, age, primary practice setting, years of experience in that setting, years certified, advanced degrees to indicate amount of education, and additional certifications such as Certified Strength and Conditioning Specialist (CSCS), Emergency Medical Technician (EMT), or Physician Assistant (PA).

Injury-Related Psychological Issues. The second section assessed the frequency (using a 4-point scale with choices of *often*, *sometimes, rarely,* and *never*) with which respondents have discussed a list of specific issues related to sports psychology including fears about surgery, re-injury, feelings of hopelessness, self-doubt, depression and frustration, stress, isolation, anxiety, and rehabilitation adherence. This was followed by a set of questions that evaluated the respondents' general perceptions of their comfort, competence, and responsibility in discussing psychological issues with athletes. For

example, participants were asked: "How comfortable do you feel discussing emotional or psychological issues related to injury or rehabilitation with an athlete?" These items were scored on a 5-point scale, with 1 indicating *not at all comfortable* and 5 indicating *completely comfortable* (Mann et al., 2007).

Non-Injury Related Psychological Issues. The third section of the survey tested the respondents' frequency, perceptions, comfort, competence, and responsibility with non-injury related psychological issues. There were questions to assess the frequency (using a 4-point scale with choices of *often, sometimes, rarely,* and *never*) with which respondents have discussed a list of specific psychological issues not related to injury, including: disordered eating, exercise addiction, depression, stress/pressure, anxiety, burn-out, and alcohol or drug abuse. Following this question, there was a set of questions to evaluate the respondents' perceptions of their comfort, competence, and responsibility in discussing the specific non-injury related psychological issues. For example, a question asked "How competent do you feel to discuss non-injury related emotional, psychological, or behavioral issues with an athlete?" The last question was of significance as it asked, "To what extent do you agree it is your role, place, or responsibility to discuss emotional, psychological, or behavioral issues not related to injury and rehabilitation with the athlete?" Responses to this item could range *from agree completely* (1) to *disagree completely* (5).

Related Resources. The last section asked the participant about their interest in having the opportunity to receive additional training in psychological techniques to help better treat athletes. Additionally, participants were surveyed regarding their referral

pattern to mental health professionals in their geographic area. This section also queried the ATs about their perceptions of the ability and effectiveness of mental health professionals in treating athletes struggling with psychological issues. Specifically these items asked "In your experience, how effective do you feel sport psychologists are in working with athletes on emotional, psychological, or behavioral issues not related to injury and rehabilitation nor performance enhancement" and responses were rated on a 5-point scale of (*more than enough*, *just enough*, *not quite enough*, *not nearly enough*, and *don't know*). Also as a follow-up question, the ATs was asked "How have athletes in general responded to being referred to a sport psychologist or other mental health professional" with responses ranging from *very positively* (1) to *very negatively* (2).

Procedures

Before beginning the study, a human subjects review was submitted to San José State University. A pilot study was then conducted with a small number of volunteer certified athletic trainers (N=20). These ATs were recruited from a pool of graduate students in the San José State University Graduate Athletic Training Education Program or affiliated with San José State University's Approved Clinical Instructor (ACI) program. The pilot study allowed participants to critique the survey format, content, expression, and importance of items.

Permission to perform graduate research using NATA members was then obtained through the NATA's national office. The primary investigator was blinded to all contact information of the participants, as the NATA randomly selected the potential participants and sent the invitation e-mail (see Appendix C). The cover e-mail contained

an invitation for volunteer participation in an online survey which assessed "opinions, experiences, and techniques in handling the psychological issues of athletes recovering from injury in addition to general psychological issues that are not related to injury." This e-mail also contained a hyperlink directing the participant to the surveymonkey® website. The first page of the survey was the informed consent form for their participation (see Appendix D). The respondents were informed that their participation was voluntary and they could leave the survey at any time.

The surveymonkey® service saved the responses for the primary investigator, and once the survey was closed, the participant's answers were sent directly to the primary investigator and kept confidential and secure. The surveymonkey® website encrypts data preventing the researcher from viewing the respondents' identities.

The survey was open for a total of four weeks. After the first two weeks, a reminder e-mail (see Appendix E) was sent to all participants. In this e-mail, the participants who already completed the survey were thanked and instructed to delete the message, while the participants who had not yet completed the survey were reminded of the deadline. The link to the survey was again included. The results were then obtained from www.surveymonkey.com® and transferred to SPSS 16.0 (SPSS Inc, Chicago, Ill) for data analysis.

Analysis of the Data

Statistical analysis was conducted using SPSS 16.0. Descriptive statistics including means, medians, frequencies, and modes were computed to present the demographic data collected including gender, age, primary practice setting, years

certified, advanced degrees, additional certifications, and psychological education. Descriptive statistics were used throughout the results section to present information on the questions relating to the frequency of encountering psychological issues with athletes, the perceived comfort and competence levels of ATs, and referral patterns to other mental health professionals.

To identify relationships between variables including the demographic information and answers to certain questions of interest, a correlational analysis was conducted. To answer the last research question of whether demographic variables predicted the AT's perceptions of comfort and competence in dealing with psychological issues related and unrelated to injury with the athletes they treat, two multiple logistic regression analyses were performed. In the first regression analysis, the criterion variable was the AT's perceived comfort and the predictor or independent variables were gender, years of experience, years certified, advanced degrees, and psychological education. The AT's perceived competence was the criterion variable in the second regression analysis, with the same predictor or independent variable listed above. The rationale for using this statistical measure was to determine if the comfort level or competence of an AT could be predicted based on information such as the individual's gender, experience as an ATC, years certified, advanced degrees, and psychological education. Lastly, practice setting was analyzed using an Analysis of Variance (ANOVA) to determine if there was a difference in AT's perceived comfort and competence based on employment in different practice settings.

Summary

This study was adapted from Mann et al.'s (2007) research with sports medicine physicians which assessed their frequency and perceived effectiveness in addressing psychological issues with their patient-athletes. The population for this study reflected a random sampling of certified athletic trainers who are affiliated with the NATA. The survey instrument and procedures were very similar to Mann and colleague's study, but rather than assessing physicians the current study sought to survey ATs. This study identified the frequency with which ATs encountered general psychological issues unrelated to injury when working with their athletes. The investigation attempted to determine the specific types of psychological issues ATs encountered that are both related and unrelated to injury in their student-athletes. In addition, by using a regression analysis it was determined if variables such as gender, age, years certified, advanced degrees, additional certifications, or psychological education predicted the AT's perceived comfort and competence addressing these unique issues. Once the statistical analysis was completed, a possible conclusion is that no matter the years of experience or amount of time since certification, the participants report feeling uncomfortable and not competent in addressing psychological issues with athletes. This could provide a case to increase the amount of psychological training in undergraduate and/or graduate athletic training education programs and in continuing education units for certified athletic trainers.

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APPENDIX A

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11. Units of measurement shall be recorded as SI units, as specified in the *AMA Manual of Style*, except for angular displacement, which should be measured in degrees rather than radians. Examples include mass in kilograms (kg), height in centimeters (cm), velocity in meters per second ($m \cdot s^{-1}$ or m/s), angular velocity in degrees per second ($^\circ \cdot s^{-1}$), force in Newtons (N), and complex rates (mL/kg per minute).
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    Qualitative Original Research articles: Context, Objective, Design, Setting, Patients or Other Participants, Data Collection and Analysis, Results, Conclusions, and Key Words.

Meta-Analysis and **Systematic Review** articles: Objective, Data Sources, Study Selection, Data Extraction, Data Synthesis, Conclusions, and Key Words.

Case Reports: Objective, Background, Differential Diagnosis, Treatment, Uniqueness, Conclusions, and Key Words.

Clinical Techniques: Objective, Background, Description, Clinical Advantages, and Key Words.

Evidence-Based Practice: Reference/Citation, Clinical Question, Data Sources, Study Selection, Data Extraction, Main Results, Conclusions, Key Words, and Commentary.

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15. Begin the text of the manuscript with an introductory paragraph or two in which the purpose or hypothesis of the article is clearly stated and developed. Tell why the study needed to be done or the article written, and end with a statement of the problem (or controversy). Highlights of the most prominent works of others as related to your subject are often appropriate for the introduction, but a detailed review of the literature should be reserved for the Discussion section. In a 1- to 2-paragraph review of the literature, identify and develop the magnitude and significance of the controversy, pointing out differences among others' results, conclusions, and/or opinions. The Introduction is not the place for great detail; state the facts in *brief*, specific statements and reference them. The detail belongs in the Discussion. Also, an overview of the manuscript is part of the abstract, not the introduction. Writing should be in the active voice (for example, instead of "Subjects were selected," use "We selected subjects") and in the first person (for example, instead of "The results of this study showed," use "Our results showed").
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    a. The body of an **Original Research** or a **Meta-Analysis** or **Systematic Review** article consists of a Methods section, a presentation of the Results, and a Discussion of the results. The Methods section should contain sufficient detail concerning the methods, procedures, and apparatus employed so that others can reproduce the results. The Results should be summarized using descriptive and inferential statistics and a few well-planned and carefully constructed illustrations. For more information on preparing research manuscripts, authors are advised to consult the MOOSE and QUORUM statements, which are available through the *JAT* Web site.
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17. Percentages should be accompanied by the numbers used to calculate them. When reporting no difference among groups on a key outcome measure, include a power analysis to demonstrate that the study was adequate powered. The power analysis should quantify the smallest statistically significant difference that would have been detectable with the given sample size. (Additional information on power is available at http://www.stat.uiowa.edu/~rlenth/Power/ and http://www.sportsci.org/resource/stats/index.html.) Never report a single *P* value as an inequality (eg, $P > .05$) but instead report the exact value (eg, $P = .06$). If, however, the value would be reported as $P = .00$ because of the number of significant digits allowed, then it is acceptable to state $P < .001$. When reporting groups of *P* values, it is permissible to provide an inequality (eg, "groups were similar on all demographic characteristics [$P > .05$]").
18. **Communications** articles, including official Position Statements and Policy Statements from the NATA Pronouncements Committee; Technical Notes on such topics as research design and statistics; and articles on other professional issues of interest to the readership are solicited by the *Journal*. An author who has a suggestion for such a paper is advised to contact the Editorial Office for instructions.
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    Journals:

    1. Boling MC, Padua DA, Creighton RA. Concentric and eccentric torque of the hip musculature in individuals with and without patellofemoral pain. *J Athl Train*. 2009;44(1):7–13.
    2. McDonough EB Jr, Wojtys EM. Multiligamentous injuries of the knee and associated vascular injuries. *Am J Sports Med*. 2009;37(1):156–159.

    Books:

    1. Ritter MA, Albohm MJ. *Sports Injuries: Your Common Sense Guide*. Traverse City, MI: Cooper Publishing Group; 2008:1–12.
    2. Massey-Stokes M. Body image and eating disturbances in children and adolescents. In: Robert-McComb JR, Norman R, Zumwalt M. *The Active Female: Health Issues Throughout the Lifespan*. Totowa, NJ: Humana Press; 2008: 57–80.

    Presentation:

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22. Personal communications are cited in the text as follows: "... (J.A. Smith, written communication, January 2005)." The written or oral nature of the communication is stated, and the communication does not appear in the reference list. Authors must provide written permission from each personal-communication source. A form is available on the *JAT* Web site and from the Editorial Office.
23. Table Style: 1) Title is bold; body and column headings are roman type; 2) units are set above rules in parentheses; 3) numbers are aligned in columns by decimal; 4) footnotes are indicated by superscript letters; 5) capitalize the first letter of each major word in titles; for each column or row entry, capitalize the first word only. See a current issue of *JAT* for examples.
24. Figures: Figures should use Arial (or another sans serif font), a white background, and no box. Minimum recommended resolution is 300 DPI. Multipart figures should be mounted together and use CAPITAL letter labels (A, B, C, etc). Authors wishing color reproduction should request same in a cover letter with the submitted manuscript. Authors must pay for the additional cost of color reproduction ($750/figure) before their accepted article is typeset. For more details, consult the *JAT Figure Guidelines* at www.nata.org/jat.
25. Legends to figures are numbered with arabic numerals in order of appearance in the text. Legends should be printed on separate pages at the end of the manuscript.
26. The *Journal of Athletic Training* follows the redundant publication guidelines of the Council of Science Editors, Inc (*CBE Views*. 1996; 19:76–77; also available on the *JAT* Web site). Authors in violation of redundant publication will have sanctions invoked by the Journal Committee of the National Athletic Trainers' Association, Inc.

PUBLICATION POLICIES

27. Original Research manuscripts will be categorized under the following table of contents subheadings: clinical studies, basic science, educational studies, epidemiologic studies, and observational/informational studies.
28. Only Case Reports and Clinical Techniques that define and establish the optimal standard of care or the practice of athletic training will be considered for publication in *JAT*. Case Reports and Clinical Techniques that do not profoundly affect the standard of care but that contain potentially useful information for athletic trainers will be considered for publication in the *NATA News*.
29. Media Reviews will appear in the *NATA News*.

APPENDIX B

CERTIFIED ATHLETIC TRAINERS SPORT PSYCHOLOGY SURVEY

Background and Demographics

1. What is your gender?
    a. Male
    b. Female
2. What is your age?
    a. Under 25
    b. 25-34
    c. 35-44
    d. 45-54
    e. 55-64
    f. 65+
3. How long have you been certified?
    a. Under 10 years
    b. 10-20 years
    c. 20-30 years
    d. over 30 years
4. What is your primary practice setting (i.e. secondary school, university, clinic, non-traditional)?
    a. Fill in the blank:_____
5. How many years have you been employed at your current institution?
    a. 1-5
    b. 6-10
    c. 10-20
    d. 20-30
    e. 30+
6. Do you hold any other degrees beyond an undergraduate degree?
    a. Masters
    b. Ph.D.
    c. Ed.D.
    d. Other:_____
7. What is your certification? Please check all that apply:
    a. ATC
    b. DPT
    c. PT
    d. CSCS
    e. EMT
    f. PTA
    g. PA
    h. Other:_____

8. How many classes regarding psychology did you take during your undergraduate education?
    a. No formal course completed
    b. 1-2
    c. 2-3
    d. 3-4
    e. Other:_____
9. What type of psychology courses did you take during your undergraduate preparation?
    a. Introduction to Psychology
    b. Sport Psychology
    c. Psychology of Coaching
    d. Abnormal Psychology
    e. Developmental Psychology
    f. Other:_____
    g. No formal course completed

Injury-Related Psychological Issues

10. In general, when treating injuries in athletes, how often do you find yourself discussing emotional and behavioral problems related to their injury?
    a. Often
    b. Sometimes
    c. Rarely
    d. Never
11. How often do you discuss the following **specific** issues with athletes you treat?

	Often	Sometimes	Rarely	Never
Fears about surgery (for athletes about to have surgery)				
Fears about re-injury				
Avoidance of rehabilitation or sports-related activities				
Feelings of hopelessness about recovering or getting better				
Concerns and self-doubt about not being able to perform at same level after injury/surgery				
Emotions (e.g., anger, sadness, loss of identity) about potential of end of athletic career due to injury or not being able to attain athletic aspirations				
Emotions about potential long-term effects of injury, re-injury, continued participation in sports				
Depression/frustration due to weight gain or loss of conditioning following injury				
Feeling isolated or alone after injury				
Dealing with stress related to injury and rehabilitation				

(Cont'd from question 11)

	Often	Sometimes	Rarely	Never
Difficulties emotionally letting go of the injury event(s); intrusive thoughts				
Anxiety related to pain				
Difficulty emotionally dealing with pain				
Addiction to or dependence on painkillers				
Unwillingness to be patient with recovery/rehabilitation				
Denial of serious injury or consequences of injury				
Inability to motivate self to engage in rehabilitation tasks				
Concerns that the consequences of the injury, such as missing games or diminished performance will disappoint others (e.g., parents, coaches, teammates)				

12. If you do discuss emotional and behavioral problems related to sports injury, how often do you feel that you are the **only person** the athlete confides in about these issues?
    a. Often
    b. Sometimes
    c. Rarely
    d. Never
13. How **comfortable** do you feel discussing emotional, psychological, or behavioral issues related to injury or rehabilitation with an athlete?
    a. (5) Completely comfortable
    b. (4)
    c. (3)
    d. (2)
    e. (1) Not at all comfortable

14. How **competent** do you feel discussing emotional, psychological, or behavioral issues related to injury or rehabilitation with an athlete?
    a. (5) Completely competent
    b. (4)
    c. (3)
    d. (2)
    e. (1) Not at all competent
15. To what extent do you agree that it is your role, place, or responsibility to discuss emotional, psychological, or behavioral issues related to injury and rehabilitation with the athlete?
    a. Agree completely
    b. Agree somewhat
    c. Neither agree nor disagree
    d. Disagree somewhat
    e. Disagree completely

Non-Injury Related Psychological Issues

16. In general, when treating injuries in athletes, how often do you find yourself discussing emotional and behavioral problems that are **non-injury related?**
    a. Often
    b. Sometimes
    c. Rarely
    d. Never
17. How often do you **discuss** the following **non-injury related** emotional, psychological, or behavioral issues with athletes?

	Often	Sometimes	Rarely	Never
Disordered eating or body image				
Exercise addiction				
Depression				
Stress/pressure				
Anxiety				
Burn-out				
Alcohol abuse				
Illegal recreational drug abuse				
Their own past or present steroid use				
Family/relationship problems				
Difficulties adjusting to new environment				

	Often	Sometimes	Rarely	Never
Violence/aggression/anger problems				
Sexual, emotional, or physical abuse				
Sexual orientation				

18. How often do you **suspect** that the athletes that you treat are **actually dealing with** each of the **non-injury related** issues below?

	Often	Sometimes	Rarely	Never
Disordered eating or body image				
Exercise addiction				
Depression				
Stress/pressure				
Anxiety				
Burn-out				
Alcohol abuse				
Illegal recreational drug abuse				
Their own past or present steroid use				
Family/relationship problems				
Difficulties adjusting to new environment				
Violence/aggression/anger problems				
Sexual, emotional, or physical abuse				
Sexual orientation				

19. How **competent** do you feel to discuss **non-injury related** emotional, psychological, or behavioral issues with an athlete?
    a. (5) Completely competent
    b. (4)
    c. (3)
    d. (2)
    e. (1) Not at all competent

20. How **comfortable** do you feel to discuss **non-injury related** emotional, psychological, or behavioral issues with an athlete?
    a. (5) Completely comfortable
    b. (4)
    c. (3)
    d. (2)
    e. (1) Not at all comfortable

21. To what extent do you agree it is your role, place, or responsibility to discuss emotional, psychological, or behavioral issues **not related to injury and rehabilitation** with the athlete?
    a. Agree completely
    b. Agree somewhat
    c. Neither agree nor disagree
    d. Disagree somewhat
    e. Disagree completely

Related Resources

22. Rate your level of interest in receiving additional training in psychological techniques or skills to help athletes deal with **injury and rehabilitation**:
    a. Extremely interested
    b. Interested
    c. Somewhat interested
    d. Not very interested
    e. Not at all interested
23. Rate your level of interest in receiving additional training in psychological techniques or skills to help athletes deal with emotional, psychological, or behavioral issues that are **not related to injury and rehabilitation**:
    a. Extremely interested
    b. Interested
    c. Somewhat interested
    d. Not very interested
    e. Not at all interested
24. What is your impression of the number of sport psychologists or other mental health professionals in your immediate geographic area who are experts in treating emotional, psychological, and behavioral issues related to injury and rehabilitation in athletes?
    a. More than enough to meet the needs of athletes in this area
    b. Just enough to meet the needs of athletes in this area
    c. Not quite enough to meet the needs of athletes in this area
    d. Not nearly enough to meet the needs of athletes in this area
    e. Don't know

25. Among the athletes you treat, how often do you refer an athlete to a sport psychologist for issues related to injury and rehabilitation only (i.e. not for performance enhancement)?
    a. Often
    b. Sometimes
    c. Rarely
    d. Never

26. If you have referred an athlete to a sport psychologist for issues related to **injury and rehabilitation only** (i.e. not for performance enhancement), how have athletes responded to this?
    a. Very positively
    b. Positively
    c. Neither positively or negatively
    d. Negatively
    e. Very negatively
27. In your experience, do you feel that most athletic trainers are as effective as most sport psychologists in dealing with **injury-related psychological or behavioral issues**?
    a. Yes
    b. No
    c. I don't know
28. Among the athletes that you treat, how often do you refer an athlete to a sport psychologist for emotional, psychological, or behavioral issues **not related to injury and rehabilitation nor performance enhancement** (as listed earlier, e.g., depression, drug abuse, over-eating, etc.)?
    a. Often
    b. Sometimes
    c. Rarely
    d. Never
29. In your experience, how effective do you feel sport psychologists are in working with athletes on emotional, psychological, or behavioral issues **not related to injury and rehabilitation nor performance enhancement**?
    a. (5) Completely effective
    b. (4)
    c. (3)
    d. (2)
    e. (1) Not at all effective
30. How often do you refer an athlete to a mental health professional **other than a sports psychologist**?
    a. Often
    b. Sometimes
    c. Rarely
    d. Never

31. If you have made referrals to sport psychologists or other mental health professionals for **non-injury** related issues, how have the athletes in general responded to this?
    a. Very positively
    b. Positively
    c. Neither positively nor negatively
    d. Negatively
    e. Very negatively
32. In your experience, do you feel that most athletic trainers are as effective as most sport psychologists in dealing with **non-injury related psychological or behavioral issues**?
    a. Yes
    b. No
    c. I don't know

APPENDIX C

INVITATION E-MAIL

Dear Fellow Certified Athletic Trainer,

My name is Gina Biviano, ATC, and I am a master's degree candidate at San José State University, requesting your help to complete part of my degree requirements. Please follow the link at the end of this e-mail to an online survey titled: *Certified Athletic Trainers Sport Psychology Survey.*

This student survey is not approved or endorsed by the NATA. It is being sent to you because of NATA's commitment to athletic training education and research.

The questionnaire consists of 9 demographic questions and 23 questions exploring your opinions, experiences, and techniques in handling the psychological issues of athletes recovering from injury in addition to general psychological issues that are not related to injury.

The questionnaire should take between 8-10 minutes to complete.

This is a completely anonymous questionnaire and upon submission, neither your name nor e-mail address with be attached to your answers. Your personal information and responses will be blinded to the researcher.

As a fellow certified athletic trainer, your knowledge and opinions regarding this topic makes your input invaluable. Please take a few minutes to fill out this anonymous survey that you will find by clicking on the link below. Please submit the survey by January 30, 2010.

www.surveymonkey.com

Thank you for your time and consideration,

Gina Biviano, ATC
San José State University
gbiviano@gmail.com
(408) 250-2596

Participants for this survey were selected at random from the NATA membership database according to the selection criteria provided by the student conducting the survey. This student survey is not approved or endorsed by the NATA. It is being sent to you because of NATA's commitment to athletic training education and research.

APPENDIX D

CONSENT FORM

Agreement to Participate in Research

Responsible Investigator: Gina M. Biviano, San José State University Graduate Student, Department of Kinesiology

ATHLETIC TRAINERS' COMFORT AND COMPETENCE IN ADDRESSING PSYCHOLOGICAL ISSUES OF ATHLETES

1. You have been asked to participate in a research study investigating your opinions, experiences, and techniques in handling the psychological issues of athletes recovering from injury in addition to psychological issues that are not related to injury.
2. You will be asked to complete an online survey in which your responses will be anonymously sent back to the responsible investigator.
3. There are no foreseeable risks or discomfort associated with your participation.
4. The results of this survey are to be used to inform and educate the athletic training profession on the frequency, comfort, and competency level of athletic trainers in dealing with psychological issues not related to athletic injury. There is no direct benefit for each individual participant.
5. Although the results of this survey may be published, no information that could potentially identify you will be included.
6. There is no compensation for your participation in this study.

7. Questions about this research may be addressed to Gina M. Biviano, gbiviano@gmail.com or (408) 250-2596.
8. Your consent is being given voluntarily. You may refuse to participate in the entire study or in any part of the study. You have the right to not answer questions you do not wish to answer. If you decide to participate in this study, you are free to withdraw at any time without any negative effect on your relations with San José State University.
9. Due to the nature of this electronic anonymous survey, if you choose to continue to the next page, your consent will be implied. You may print a copy of this page for your records.

By following this link to the survey, you are indicating your willingness to participate. Do not write any information that could identify you on the survey. You are also acknowledging that you have been fully informed of your rights.

APPENDIX E

REMINDER E-MAIL

Dear Fellow Certified Athletic Trainer,

My name is Gina Biviano, ATC, and I am a master's degree candidate at San José State University, requesting your help to complete part of my degree requirements. This is a reminder e-mail for your participation in an online survey titled: *Certified Athletic Trainers' Sport Psychology Survey.* Thank you to those individuals who have taken the time to complete this survey, please kindly disregard this e-mail.

This student survey is not approved or endorsed by the NATA. It is being sent to you because of NATA's commitment to athletic training education and research.

The questionnaire consists of 9 demographic questions and 23 questions exploring your opinions, experiences, and techniques in handling the psychological issues of athletes recovering from injury in addition to general psychological issues that are not related to injury.

The questionnaire should take between 8-10 minutes to complete.

This is a completely anonymous questionnaire and upon submission, neither your name nor e-mail address with be attached to your answers. Your personal information and responses will be blinded to the researcher.

As a fellow athletic trainer, your knowledge and opinions regarding this topic makes your input invaluable. Please take a few minutes to fill out this anonymous survey that you will find by clicking on the link below. Please submit the survey by the end of this week, February 20, 2010.

http://www.surveymonkey.com/s/atcpsychsurvey

Thank you for your time and consideration,

Gina Biviano, ATC
San José State University
gbiviano@gmail.com
(408) 250-2596

Participants for this survey were selected at random from the NATA membership database according to the selection criteria provided by the student conducting the survey. This student survey is not approved or endorsed by the NATA. It is being sent to you because of NATA's commitment to athletic training education and research.

APPENDIX F

IRB APPROVAL

SAN JOSÉ STATE
UNIVERSITY

Division of Academic Affairs
Associate Vice President
Graduate Studies & Research
www.sjsu.edu/gradstudies

One Washington Square
San José, California 95192-0025
Voice: 408-924-2427
Fax: 408-924-2612

www.sjsu.edu

To: Gina M. Biviano

From: Pamela Stacks, Ph.D.
Associate Vice President
Graduate Studies and Research

Pamela C Stacks

Date: December 16, 2009

The Human Subjects-Institutional Review Board has registered your study entitled:

"Athletic Trainers' Comfort and Competence in Addressing Psychological Issues of Athletes"

This registration, which provides exempt status under Exemption Category 2, of SJSU Policy S08-7, is contingent upon the subjects included in your research project being appropriately protected from risk. This includes the protection of the confidentiality of the subjects when they participate in your research project, and with regard to all data that may be collected from the subjects. The 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 Dr. Pamela Stacks, Ph.D. immediately. Injury includes but is not limited to bodily harm, psychological trauma, and release of potentially damaging personal information. This approval for the human subject's portion of your project is in effect for one year, and data collection beyond December 16, 2010 requires an extension request.

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 that 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) 924-2427.

Protocol #S0904183

cc. Tamar Semerjian 0054