

Evaluating Entry-Level ATS' Comfort Level on Psychosocial  
Interventions and Referral Competencies in District 2

A THESIS

Submitted to the Faculty of the School of Graduate Studies  
and Research  
of  
California University of Pennsylvania in partial  
fulfillment of the requirements for the degree of  
Master of Science

by  
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California, Pennsylvania  
2016

CALIFORNIA UNIVERSITY of PENNSYLVANIA  
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## ACKNOWLEDGEMENTS

The author appreciatively acknowledges Dr. Mike Meyer, Dr. Joni Roh, and Dr. Shelly DiCesaro for their continued support, guidance, editorial assistance, and patience throughout this entire process. I am truly grateful for the opportunity to work with you all during my time at Cal U of PA.

The author also would like to thank Dr. Debbie Bradney and Dr. Tom Bowman, professors and friends from Lynchburg College, for their passion and dedication to the development of quality athletic trainers. I do not know how I would have survived writing this thesis without having you as mentors during my undergraduate research manuscript. That said, Deb and Tom, among the rest of the amazing Lynchburg College faculty and staff, have prepared me for the challenges I face daily and I would not be the person I am today without them.

Lastly, I would like to thank my friends and family, old and new, for being an incredible support system and providing a laugh when needed. I wish you all the very best in your future endeavors and look forward to see where life takes us.

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## INTRODUCTION

In recent years, an estimated 43.8 million adults in the United States indicated they had a mental illness, with some of the highest incidences of mental illness occurring in collegiate student-athletes.<sup>1-3</sup> However, these estimations are likely modest due to underreported, and under-recognition, of such psychological issues.<sup>2,3</sup> Despite the rising concern of mental illness in student-athletes, and the broader community, the affiliation between identification of mental illness and referral to counseling services remains imprecise. Although psychosocial intervention and referral (PIR) competencies have been identified and required to be taught in the AT education programs; currently, there is no specific or standardized guidelines regarding how the psychosocial competencies should be taught to the sports medicine team.<sup>4</sup> Therefore, developing and researching measures of PIR competencies and comfort level of athletic training students (ATS) is the beginning and a crucial way to better understand, identify, manage, and intervene during psychological distress, especially following injury.

During participation in sport, there is an associated risk of injury that is likely to happen to an athlete. A serious injury during any point in someone's athletic career can evoke a significant emotional effect and psychological distress.<sup>2,5-9</sup> Each injury experience is unique, and is commonly influenced by a range of personal and situational biopsychosocial factors that interact prior, during, and after injury.<sup>7,10,11</sup> Inter-collegiate athletic programs often combine opportunities to succeed both on the field and in the classroom; however, with the participation rate of 475,000 NCAA student athletes in the 2013-2014 academic year, the probability of encountering a student-athlete with a psychological concern within an athletic program is suspected to occur at some point in their career.<sup>12,13</sup> Yet, sports teams may not always have all of these entities on staff and will likely have to refer to a specialist, or depend on hired staff to extend the appropriate and necessary services.

For example, certified athletic trainers (AT) and ATS often play a unique role due to the frequent interaction with athletes, and are in the position to prevent, recognize, intervene, and manage an athletes' distress and health concerns, including those of psychological origin.<sup>14</sup>

Athletic trainers are formally recognized as allied health care professionals and play an integral role in advancing the physical and mental well-being of athletes. The National Athletic Trainers' Association (NATA) is the national professional organization for ATs in the United States that governs the role of an AT. In order to uphold these standards of care, the Board of Certification (BOC)<sup>15</sup> has also established *The BOC Role Delineation/Practice Analysis (RD/PA)<sup>16</sup>*, which identifies and prioritizes the essential knowledge, competencies, and skill of critical tasks for the athletic training profession. The NATA lists the 18 PIR competencies, in the *5<sup>th</sup> Edition of NATA Athletic Training Education Competencies<sup>17</sup>*, that serve as a minimum requirement for a student's professional education.<sup>17</sup> To ensure that students are learning the identified skills adequately and students are ready to take and pass the BOC exam, Athletic Training Education Programs (ATPs) are evaluated by an outside agency, the Commission on Accreditation of Athletic Training Education (CAATE).<sup>18</sup>

Although many ATs recognize the importance of psychological responses to injury, there is still a learning gap in ATPs, likely due to the fact that students have limited or no access to a clinical rotation with

respect to sport and exercise psychology or psychological interventions. Current research<sup>19</sup> reports that 84.3% (n=501) of injured athletes reported receiving social support from ATs during their recovery and 79.3% (n=471) athletes reported that their AT was the most dependable support system they had during their recovery. Therefore, it is suggested that supporting the patient in psychological recovery is pertinent to achieving the goals of rehabilitation.<sup>19</sup> Yet, research<sup>20</sup> on ATPs have stated that more than half (58.5%) of the accredited academic programs did not require undergraduate ATS to complete a course in sports psychology or psychosocial aspects of injury. Therefore, it is not unforeseen that ATS do not feel capable or prepared to counsel athletes or integrate potentially beneficial psychological skills into the rehabilitation process.<sup>21-23</sup> It has been speculated that education in sport psychology, implementation of sport psychology skills and strategies, and the referral of athletes to psychology professionals and/or campus support services is rarely addressed in clinical experiences and the ATP curriculum.

The incidence of mental illness in collegiate student-athletes is steadily rising, thus increasing the concern of

professional readiness and comfort level in PIR competencies, providing motivation and need for specific research on ATS about to enter into the field of sports medicine as a certified professional. Developing competent and confident entry-level professionals through a competency-based education program is the motive in any professional health care education program.<sup>2,24,25</sup> Therefore, the ability to directly quantify psychosocial preparedness in the other domains of athletic training, in conjunction with rehabilitation, is pertinent to establishing a link between athletic training students and competency comfort level.

The researcher theorizes that students who received psychosocial instruction will have a higher perceived comfort level of the psychosocial interventions and referral competencies, than those who have not received psychosocial instruction. The researcher also proposes that females will be more comfortable with psychosocial interventional and referral competencies than male athletic training students. Descriptive data describing comfort levels is limited for athletic training competencies, especially in the District 2 location. Subsequently, the purpose of this study is to evaluate the comfort level of

ATS in District 2 using PIR competencies, as outlined by the NATA.

## METHODS

The purpose of this study is to evaluate the comfort level of athletic training students (ATS) with Psychosocial Interventional and Referral (PIR) competencies in District 2. The participants must be eligible to sit for the Board of Certification (BOC) exam. The aim of this research study is to take into account psychosocial preparedness in the other domains and skills of athletic training, in conjunction with rehabilitation. This section will include the following subsections: research design, subjects, preliminary research, instruments, procedures, hypotheses, data analysis, and results.

### Research Design

This thesis is a descriptive research design. The independent variables in this study include sex, race, academic standing, state residence of the subjects' athletic training program, division of college/university,

and whether or not the individual received psychosocial instruction. In this study, psychosocial instruction is defined as an academic course that is directly related to sport and/or exercise psychology; excluding general and developmental psychology, scientist study of individuals and their behaviors in sport and exercise activities, and the practical application of that knowledge. The dependent variable of this study is the subjects' perceived comfort level of PIR competencies, based on the 5<sup>th</sup> edition NATA, shown in Appendix C1.

### Subjects

One thousand (1000) volunteer participants, from District 2 of the NATA, were randomly selected through the NATA Research Foundation. Participants must be an athletic training student of a CAATE accredited undergraduate or entry-level graduate athletic training program, and enrolled in the last academic semester of the accredited program. Participants must also be at least 18 years of age. Student participants were selected from District 2, as outlined by the NATA, consisting of Pennsylvania, Delaware, New York, and New Jersey. The participants must also be

eligible to sit for the BOC examination. The participants received and completed the electronic survey via e-mail, containing a link to the survey (Appendix C2). The first page of the study provides the participant with information pertaining to their rights (Appendix C3). Informed consent to use the data collected was assumed upon to the return of the survey. The study was approved by the Institutional Review Board (IRB) (Appendix C4) at California University of Pennsylvania. The identity of the participants is confidential and excluded from the study.

#### Preliminary Research

A panel of experts consisting of (e.g. three athletic trainers with terminal degrees, one of which is in sports psychology) were chosen to review the instrument based on their knowledge with the athletic training educational competencies particularly in the area of Psychosocial Interventional and Referral competencies.

A previous research study was completed prior to completing this research project.<sup>26</sup> Palermo<sup>26</sup> followed a similar research design in order to evaluate entry-level athletic training students and their comfort level of the



41 Psychosocial Interventional and Referral Competencies, based on the 3rd edition set forth by the NATA.<sup>17</sup> The previous researcher also examined all 10 NATA districts.<sup>26</sup> This allowed for the researcher of this study to carry out the procedure for a modern and condensed study. The preliminary research also allowed the researcher to determine content validity.

### Instruments

The instrument used in this study is a self-constructed survey devised by the researcher and team of advisors. The survey consisted of 52 questions based on the 18 competencies obtained in the psychosocial intervention and referral content area, as provided by the NATA (Appendix C2). Demographic and background information questions will also be asked (Appendix C2).

The survey is comprised of three parts:

Part I of the survey consists of general demographic questions, which consists of sex, race, and academic year (undergraduate or entry-level graduate). Background questions entail one's academic level, state of school

residence, division of school, and required psychosocial class.

Part II of the survey: participants are asked to rate the ATS's comfort level of eight psychosocial competency skills, as identified by the NATA competency manual, which will follow a 5-point Likert scale format, 1= I'm not sure, 2= Uncomfortable, 3= Somewhat Comfortable, 4= Comfortable, 5= Extremely Comfortable.

Part III of the survey consisted of questions regarding education competencies, which is specific to the 18 competencies outlined by the NATA; including, theoretical knowledge, psychosocial strategies, and mental health and referral. These questions used a Likert scale, multiple choice, and "Yes/No" format and was designed to assess the degree of comfort the student has with psychosocial interventions and referral competencies; the multiple choice Likert scale choices are: 1= I'm not sure, 2= Uncomfortable, 3= Somewhat Comfortable, 4= Comfortable, 5= Extremely Comfortable. The higher the number, the more comfortable the ATS were with that particular competency. The participant was also asked if they felt the stated

competency was adequately taught. A Yes/No response was selected.

#### Procedure

The researcher applied for and received approval by the California University of Pennsylvania Institutional Review Board (IRB) (Appendix C4) before conducting any research. The survey was distributed via Google Drive through the NATA Research Foundation. The survey remained open for 2 weeks with a reminder e-mail being sent out on day 10. The survey was accompanied by an informed consent cover letter (Appendix C3) explaining the purpose of the study asking for the assistance of the recipients in completing the survey. Results were returned to the researcher in an anonymous manner for the statistical data to be analyzed.

## Hypotheses

The following hypotheses were based on previous research and the researcher's intuition based on a review of the literature.

1. Females will be more comfortable with psychosocial interventional and referral competencies than male athletic training students.
2. Entry-level graduate athletic training students will be more comfortable with psychosocial interventional and referral competencies than undergraduate athletic training students.
3. Students who received psychosocial instruction will have a positive correlation of perceived comfort level of the psychosocial interventions and referral competencies than those who have not received psychosocial instruction.

## Data Analysis

At the completion of data collection, the data was downloaded from Google Drive Forms software (Google, Mountain View, CA) into a Microsoft Excel spreadsheet (Version 2011, Microsoft Corporation, Redmond, WA). All data was filtered to ensure all participants met the inclusion criteria and analyzed by IBM SPSS (Version 22.0, IBM Corporation, Armonk, NY) for Windows at an alpha level

of 0.05. The research hypotheses were analyzed using a Two-way ANOVA to determine if there was a relation between the independent variables and the dependent variable.

## RESULTS

The purpose of this study was to evaluate the comfort level of athletic training students (ATS) in District 2 using Psychosocial Interventional and Referral competencies as outlined by the National Athletic Trainers' Association (NATA). The following section contains the data collected through the study and is divided into three subsections: Demographics, Hypotheses Testing, and Additional Findings.

### Demographics

Three of the states (Pennsylvania, New York, and Delaware) in District 2 were represented in this study. A sample of 1,000 non-certified students in the District 2 area were e-mailed the survey. There were 29 (2.9%) non-certified athletic training students from District 2 who responded and participated in this study. Of the 29 participants, 17 (1.7%) met the inclusion criteria. The age

range was 20-25 years with the mean age of 21.9, demonstrated in Table 1.

**Table 1.** Descriptive Statistics of Age

<b>N</b>	<b>SD</b>	<b>Minimum</b>	<b>Maximum</b>
17	1.25	20	25

Four of the subjects were male (23.5%), and 13 female (76.5%). All subjects (100%) were of Caucasian decent. Table 2 shows the participants state of residence of academic program. A majority of the participants were of undergraduate academic standing, 15 (88.2%), while two (11.8%) participants were of entry-level graduate academic standing.

**Table 2.** Descriptive Statistics of State Residence

<b>State</b>	<b>Frequency</b>	<b>Percent</b>
Pennsylvania	12	70.6
Delaware	1	5.9
New York	4	23.5
New Jersey	0	0

As seen in Table 3, all NCAA Divisions were represented in the study. A (52.9%), followed by Division III (41.2%), and trailing by Division I (5.9%).

**Table 3.** Descriptive Statistics of NCAA Division

<b>State</b>	<b>Frequency</b>	<b>Percent</b>
Division I	1	5.9
Division II	9	52.9
Division III	7	41.2

Lastly, Table 4 shows the participants in this study and the different program requirements in regards to taking a formal psychosocial class.

**Table 4.** Descriptive Statistics of Psychosocial Class Requirement

<b>Required Class</b>	<b>Frequency</b>	<b>Percent</b>
Yes	8	47.1
No	4	23.5
Not Sure	1	5.9
Took a class but it was not required	4	23.5

### Hypotheses Testing

The following hypotheses were tested during this study. All of the hypotheses were tested with a level of significance set at  $\alpha \leq 0.05$ . A univariate, two-way analysis of variance (ANOVA) was calculated to find the effect of sex and academic standing on the comfort level of the 18 PIR competencies, set forth by the NATA.<sup>17</sup>

Hypothesis 1: Females will be more comfortable with psychosocial interventional and referral competencies than male athletic training students.

Conclusion: A two-way ANOVA test was carried out to determine if there was any significance found between sex and level of comfort. The average scores of comfort level for each competency were calculated, as listed in Table 5. There were 10 instances in which males recorded a higher comfort level than females and only 8 instances in which females recorded higher comfort levels. No statistical



significance was found among groups; therefore, this hypothesis was rejected.

Hypothesis 2:Entry-level graduate athletic training students will be more comfortable with psychosocial interventional and referral competencies than undergraduate athletic training students.

Conclusion: A two-way ANOVA test was carried out to determine if there was any significance found between academic standing and level of comfort. The average scores of comfort level for each competency, in regards to

**Table 5.** Estimated Marginal Means: Average (AVG) Comfort Levels (CL) of Male and Female Participants

Competency	AVG Male CL	Std. Error	AVG Female CL	Std. Error
1	2.00	.578	<b>2.62*</b>	2.77
2	2.25	.442	<b>2.38*</b>	.340
3	2.75	.318	<b>2.92*</b>	.244
4	<b>3.00*</b>	.347	2.54	.266
5	<b>2.75*</b>	.456	2.46	.351
6	<b>3.75*</b>	.562	2.95	.432
7	3.00	.332	<b>3.23*</b>	.255
8	<b>3.50*</b>	.344	3.15	.265
9	<b>2.50*</b>	.511	2.31	.393
10	<b>2.50*</b>	.471	2.30	.362
11	2.75	.415	<b>3.10*</b>	.319
12	<b>3.25*</b>	.382	3.00	.293
13	<b>3.25*</b>	.496	2.62	.382
14	<b>3.25*</b>	.297	3.23	.228
15	2.50	.554	<b>2.86*</b>	.426
16	2.50	.464	<b>2.62*</b>	.357
17	2.50	.338	<b>2.85*</b>	.260
18	2.75	.280	<b>3.15*</b>	.215

**\*Higher rated perceived comfort level**

academic standing, were calculated and are shown in Table 6. There was 8 instances in which undergraduates recorded a higher comfort level and 9 instances in which entry-level graduates recorded higher comfort levels, the remaining competency recorded equal comfort levels. No statistical significance was found among groups; therefore, this hypothesis is rejected.

**Table 6.** Estimated Marginal Means: Average (AVG) Comfort Levels (CL) of Undergraduate (UG) and Entry-Level Graduate (ELG) Participants

Competency	AVG UG CL	Std. Error	AVG ELG CL	Std. Error
1	2.40	.338	<b>3.00*</b>	.818
2	2.27	.258	<b>3.00*</b>	.625
3	2.87	.186	<b>3.00*</b>	.450
4	2.60	.202	<b>3.00*</b>	.490
5	2.13	.266	<b>3.00*</b>	.645
6	<b>3.13*</b>	.328	3.00	.794
7	<b>3.20*</b>	.194	3.00	.470
8	<b>3.27*</b>	.201	3.00	.487
9	2.27	.298	<b>3.00*</b>	.723
10	2.20	.275	<b>2.50*</b>	.666
11	3.00	.242	3.00	.587
12	<b>3.13*</b>	.223	2.50	.540
13	<b>2.80*</b>	.290	2.50	.702
14	3.27	.173	<b>3.00*</b>	.420
15	2.67	.323	<b>3.00*</b>	.783
16	<b>2.60*</b>	.271	2.50	.656
17	<b>2.80*</b>	.198	2.50	.478
18	<b>3.07*</b>	.163	3.00	.396

**\*Higher rated perceived comfort level**

Hypothesis 3: Students who received psychosocial instruction will have a positive correlation of perceived comfort level of the psychosocial interventions and referral competencies than those who have not received psychosocial instruction.

Conclusion: A Pearson Product Correlation was carried out to determine if there was a correlation between students who received psychosocial instruction and

perceived comfort level of the psychosocial interventions and referral competencies. Statistical significance was found in regards to Competency 9 (As shown in Appendix C1, Competency 9: Describe the psychosocial factors that affect persistent pain sensation and perception and identify multi-disciplinary approaches for assisting patients with persistent pain).

This analysis showed that there was an inverse, moderate correlation ( $r = -.570$ ,  $p < .05$ ), indicating a linear relationship between the two variables. Students who did not receive formal training had a higher perceived comfort level. Despite this finding, all participants (N=17) would recommend athletic training students take a psychology class related to athletic injury and injury recovery.

#### Additional Findings

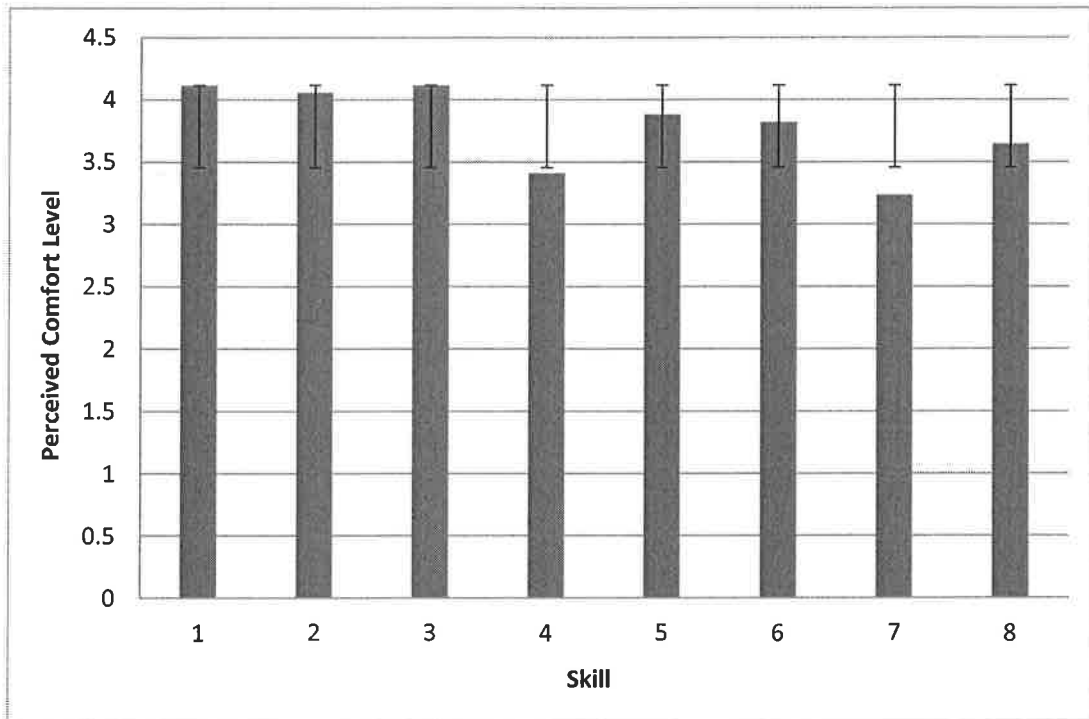
In addition to the hypotheses testing completed, the average perceived comfort level in a variety of athletic training skills (e.g. Risk Management and Injury/Illness Prevention, Pathology of Injury/Illness, Assessment of

Injury/Illness, General Medical Conditions and Disabilities, Therapeutic Exercise, Rehabilitative Techniques, Health Care Administration, and Weight Management and Body Composition) were computed. Table 7 and Figure 1 show the average comfort level for all participants (N=17) in each of the skills. Refer to

**Table 7.** Overall Average Comfort Level Mean Scores of Comfort Level (CL) and Athletic Training Skill

<b>Skillset</b>	<b>Perceived CL</b>
(1) RiskManage	4.12
(2) PathoInjury/Illness	4.06
(3) AssesofInjury/Ill	4.12
(4) GenMedCond	3.41
(5) TherEx	3.88
(6) RehabTech	3.82
(7) HealthCareAdmin	3.24
(8) WeightManage	3.65

Appendix C5 for the classification/Likert Scale.



**Figure 1.** Distribution of Perceived Comfort Level within the Athletic Training Skillset

## DISCUSSION

The purpose of this study was to evaluate the perceived comfort level of athletic training students (ATS) with Psychosocial Interventional and Referral (PIR) competencies in District 2. The following section is divided into three subsections: Discussion of Results, Conclusions, and Recommendations.

## Discussion of Results

This study identified and measured the perceived comfort levels of athletic training students, who were eligible to sit for the BOC, with the NATA 5<sup>th</sup> edition PIR competencies in District 2. The researcher hypothesized that both sex and academic standing would differ in perceived comfort levels in the PIR competencies. Within this study, no differences were observed; thus, rejecting both hypotheses.

The researcher hypothesized that females would rate higher perceived comfort levels in the PIR competencies because of the nurturing qualities found in research.<sup>8</sup> Although no significant difference was found between sexes, males reported slightly higher comfort levels in PIR competencies. However, the results may suggest that both male and female ATS have relatively similar comfort levels in the PIR competencies.

The researcher also hypothesized that entry-level graduate students would have a higher perceived comfort level in the PIR competencies due to additional and modern academic coursework in the advanced degree. Undergraduate students were expected to report lower comfort level in the

PIR competencies due to the lack of a required, formal psychosocial class, along with the rigor and abundance of undergraduate coursework. Although no significant difference was found between academic standing, entry-level graduates reported slightly higher comfort levels in PIR competencies. The results may suggest that both undergraduate and entry-level graduate ATS have relatively similar comfort levels in the PIR competencies due to accreditation standards.

A positive correlation between received formal instruction in a sports psychology or psychology of injury course and comfort level in PIR competencies was predicted by the researcher; however, significance and a moderate, inverse correlation was found in competency 9. The results suggest that students who did not receive formal instruction have a higher perceived comfort level in the PIR competency. This is most likely due to a strong, positive clinical experience in conjunction with the fact that pain is something that is formally and informally taught. While these participants did not receive formal training in psychosocial concerns as they relate to injury, these participants did receive formal training in therapeutic modalities in which the pain theories are



discussed. Therefore, it can be deduced that students apply the formal training they receive in their ATPs to all aspects of their clinical care. This validates the need to provide formal training in the psychosocial competencies ATPs and CEUs.

It should also be noted that the sample size (n=17) is not sufficient enough to draw significance. It is theorized that the low-response rate is indicative of BOC test preparations and the conflict of timing in which the survey was sent out. A larger sample size is recommended in order to draw more concrete conclusions. In context, we found that participants were generally reported "Somewhat Comfortable" (3) to "Comfortable" (4) on the skillset Likert scale, full scale shown in Appendix C5. The highest perceived comfort levels were seen in Assessment of Injury and Illness (4.17), Therapeutic Exercise (4.00), and Risk Management (4.08). However, the participants generally reported "Somewhat Uncomfortable" (2) to "Comfortable" (3) in specific regard to the PIR competencies Likert scale (Appendix C5). The highest perceived comfort levels were seen in Competency 6 (3.50), Competencies 7, 8, and 14 (3.25), and Competencies 3 and 12 (3.08), all competencies shown in Appendix C1. Conversely, the lowest perceived

comfort levels were seen in Competency 5 (2.25), Competency 10 (2.33), and Competencies 2 and 9 (2.50) (Appendix C1). These preliminary findings in perceived comfort level in athletic training can be linked to those of earlier research<sup>20,21,23,26,27</sup> to better understand the discrepancy between comfort levels and competencies. This data can be utilized clinically to help modify competency based learning in athletic training programs and clinical education opportunities.

In a similar study, Palermo<sup>26</sup> reported mean values of competency comfort levels of in Therapeutic Exercise ( $2.91 \pm .99$ ) and in PIR ( $2.31 \pm 1.10$ ).<sup>26</sup> Further analyses indicated that ATS were somewhat comfortable with PIR competencies, 36% of subjects felt comfortable in perceived knowledge to handle psychological concerns of athletes.<sup>26</sup> Explanations for ATS infrequent use of psychosocial skills and perceived lack of preparedness have focused on a deficiency of educational emphasis on psychological components of injury and rehabilitation, and namely a scarcity of formal training opportunities available to both students and professionals.<sup>27</sup>

This study provides support to this claim. The participants in this study felt that the lowest ranked

competencies, Competency 5, Competency 10, and Competencies 2 and 9, were 47.05-52.94% adequately taught. In comparison, 82.35% of participants felt that the highest rated competency, Competency 6, was adequately taught. Correspondingly, Stiller-Ostrowski & Ostrowski<sup>27</sup> reported ATs being less proficient at handling communication and interpersonal issues, inspiring under-motivated and noncompliant athletes, and at recognizing and addressing psychosocial issues with athletes in regards to injury. Also in relation to the current study, Seiler<sup>20</sup> found that certified ATs and ATP directors rated the importance ( $p=0.144$ ), criticality ( $p=0.376$ ), and preparedness ( $p=0.378$ ) of the PIR competencies similarly; in fact, both groups ranked the PIR content area in the bottom 50% of all content areas.<sup>20</sup> Certified athletic trainers felt that the PIR competency ranked 8<sup>th</sup> in importance, 9<sup>th</sup> in criticality, and 10<sup>th</sup> in preparedness out of the 12 content areas; while, ATP directors felt the PIR competency ranked 9<sup>th</sup>, 9<sup>th</sup>, and 12<sup>th</sup>, respectively.<sup>20</sup>

Despite the small sample size, this study supports the notion that there is still a discrepancy in ATS perceived comfort levels in regards to the PIR competencies, as outlined by the NATA<sup>17</sup>, when compared to the other skills in

athletic training. Four students, in this study, took it upon themselves to take a course related to sports psychology without it being required. This is important to note due to the fact that these students saw the importance of the information and exposed themselves to critical skills necessary for a competent health care provider. It is imperative that other ATS, and certified ATs alike, view PIR competencies as important to athletic training as any other competency because of the potentially dangerous outcomes and long-term detrimental physical and cognitive effects of the athletes.

### Conclusions

The rising concern of mental illness in student-athletes, and the broader community, continues to be an essential and emergent concern due to the affiliation between identification of mental illness and the referral to counseling services remains imprecise. The learning gap in perceived comfort level in the PIR competencies and ATS is likely due to students having limited or no access to formal instruction, and/or clinical rotation, with respect

to sport and exercise psychology or psychological interventions.

### Recommendations

Future researcher should investigate perception of the PIR competencies comfort level in the NATA Districts and NCAA Divisions exclusively. A larger pool of participants that meet the inclusion criteria is essential for drawing valid results. The research tier level of the institution(s), curriculums, and details of specific sports psychology course(s) taken should be included in future research as well. Further studies should also evaluate a course that is designed to meet the criterion for the PIR competencies mandated by the NATA in order to be implemented into ATP curriculums with a qualified instructor. As a result, a designated class should be designed for the content area to be taught in a standardized and competency-based learning style. With that, research may also benefit from investigating the amount of PIR competencies based courses and EBP credits available for certified ATs in order to stay abreast on current practices and competencies.

## REFERENCES

1. Substance Abuse and Mental Health Services Administration, Results from the 2013 National Survey on Drug Use and Health: Mental Health Findings, NSDUH Series H-49, HHS Publication No. (SMA) 14-4887. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2014.
2. Beauchemin, J. College student-athlete wellness: An integrative outreach model. *Coll Stud J*. 2014;48 (2):268-280.
3. Watson J, Kissinger D. Athletic participation and wellness: Implications for counseling college student-athletes. *J Coll Counsel*. 2007;10(2):153-162.
4. Stiller-Ostrowski JL, Gould DR, Covassin T. An evaluation of an educational intervention in psychology of injury for athletic training students. *J Athl Train*. 2009;44(5):482-489.
5. Clement D, Arvinen-Barrow M, Fetty T. Psychosocial responses during different phases of sport injury rehabilitation: A qualitative study. *J Athl Train*. 2015;50(1):95-104.
6. Concannon M, Pringle B. Psychology in sports injury rehabilitation. *Br J Nurs*. 2012;21(8):484-490.
7. Edwards K, Burns V, Ring C, Carroll D. Individual differences in the interleukin-6 response to maximal and submaximal exercise tasks. *J Sprt Sci*. 2006;24(8):855-862.
8. Granite V, Carroll J. Psychological response to athletic injury: Sex differences. *J Sport Behav*.

2002;25(3):243-259.

9. Johnston LH, Carroll D. The context of emotional responses to athletic injury: A qualitative analysis. *J Sport Rehabil.* 1998;7(3):206-220.
10. Arvinen-Barrow M, Massey WV, Hemmings B. Role of sport medicine professionals in addressing psychosocial aspects of sport-injury rehabilitation: Professional athletes' views. *J Athl Train.* 2014;49(6):764-772.
11. Podlog L, Dionigi R. Coach strategies for addressing psychosocial challenges during the return to sport from injury. *J Sport Sci.* 2010;28(11):1197-1208.
12. Irick E. 1981-1982- 2013-14 NCAA Sports Sponsorship and Participation Rates Report. Indianapolis, IN: National Collegiate Athletic Association; 2014.
13. Neal TL, Diamond AB, Goldman S, Klossner D, Morse ED, Pajak DE, Putukian M, Quandt EF, Sullivan JP, Wallack C. Inter-association recommendations for developing a plan to recognize and refer student-athletes with psychological concerns at the collegiate level: An executive summary of a consensus statement. *J Athl Train.* 2013;48(5):716-720.
14. Moulton MA, Molstad S, Turner A. The role of athletic trainers in counseling collegiate athletes. *J Athl Train.* 1997;32(2):148-150.
15. Board of Certification. (BOC) Standards of Professional Practice. Omaha, NE: Board of Certification, Inc.;2013.
16. Board of Certification. The 2009 Athletic Trainer Role Delineation Study. 6<sup>th</sup> Ed. Omaha, NE: Stephen B. Johnson; 2010.
17. National Athletic Trainers' Association (NATA). *Athletic Training Educational Competencies.* 5th ed. Dallas, TX: National Athletic Trainers' Association;

- 2011.
18. The Commission on Accreditation of Athletic Training Education (CAATE). Standards for the Accreditation of Professional Athletic Training Programs. Austin, TX: CAATE;2012.
  19. Yang J, Schaefer JT, Zhang N, Covassin T, Ding K, Heiden E. Social support from the athletic trainer and symptoms of depression and anxiety at return to play. *J Athl Train*. 2014;49(6):773-779.
  20. Seiler BD. ATEP directors and ATC's perceptions of psychosocial intervention and referral competencies. [Master's thesis] Statesboro, Georgia; Georgia Southern University: 2010.
  21. Roh JL, Perna FM. Psychology/counseling: a universal competency in athletic training. *J Athl Train*. 2000;35(4):458-465.
  22. Dicus J. Athletic Trainers' Perceptions on the Adequacy of their Professional Education [dissertation]. Athens, Ohio; Ohio University:2012.
  23. Hamson-Utley J, Martin S, Walters J. Athletic trainers' and physical therapists' perceptions of the effectiveness of psychological skills within sport injury rehabilitation programs. *J Athl Train*. 2008;43(3):258-264.
  24. Weidner TG, Henning JM. Historical perspective of athletic training clinical education. *J Athl Train*. 2002;37(4 suppl):S222-S228.
  25. Benes SS, Mazerolle SM, Bowman TG. The impact of clinical experiences from athletic training student and preceptor perspectives. *Athl Train Edu J*. 2014;9(4):156-165.
  26. Palermo GR. Evaluating Entry-Level Athletic Training Students' Comfort Level on Psychosocial Interventions



and Referral Competencies [thesis]. California, PA:  
California University of Pennsylvania; 2010.

27. Stiller-Ostrowski JL, Ostrowski JA. Recently certified athletic trainers' undergraduate educational preparation in psychosocial intervention and referral. *J Athl Train*. 2008;44(1):67-75.

APPENDICES

APPENDIX A

Review of Literature

## REVIEW OF LITERATURE

### Introduction

Across the country a sports medicine team consists of allied health professionals; such as, specialty physicians, athletic trainers, physical therapists, as well as other specialists, comprised of strength and conditioning coaches, nutritionists, and sports psychologists. However, sports teams do not have all of these entities on staff and may have to refer to a specialist, or depend on hired staff to extend the necessary services. For example, certified athletic trainers (AT) often play a unique role due to their frequent interactions with athletes, and are in the position to prevent, recognize, intervene, and manage an athletes' distress and health concerns, including those of psychological origin.<sup>1</sup> In the 1980's, the NATA adopted the first edition of the role delineation study that outlines knowledge and skills that ATs should acquire in an academic setting. As times changed and needs occurred, the role delineation study was changed. The competencies set in 1983 were then revised in the 1990's to include more specific skills and referral knowledge of the psychological interventions and referral (PIR) competencies.<sup>2</sup> The Role

Delineation study suggests that athletic trainers should be able to understand and recognize psychological distress, as well as act as referring agents to mental health specialists, such as a sports psychologist, when unable to meet an athlete's psychological needs.<sup>3</sup> However, it is not required to have a formal class designed to address PIR competencies, nor to be taught these skills by a licensed psychologist, or counselor, who has specific training in the area.

Despite the recent emphasis on managing the psychological needs of athletes, many ATs report feeling under-prepared to integrate psychological skills into athlete rehabilitation and refer athletes to mental health professionals, when deemed necessary.<sup>27,28</sup> Further, athletic training programs (ATP) place little emphasis on the psychological aspects of injury, in comparison to the other skills of injury prevention, injury management, and emergency response. While there is widespread literature about academic preparation, there is still insufficient literature with regard to professional readiness. The Review of Literature will be divided into eight sections: (1) Introduction (2) Role of an Athletic Trainer (3) Education of an Athletic Trainer (4) Athletic Training

Educational Psychological Intervention and Referral  
Competencies (5) Psychological Distress/Consequences in  
Rehabilitation (6) Identification and Management of  
Psychosocial Distress, (7) Education and Clinical  
Suggestions, and (8) Summary.

### Role of a Certified Athletic Trainer

The National Athletic Trainers' Association (NATA) is the national professional organization for ATs in the United States that governs the role of an AT. The NATA primarily facilitates national certification, establishes athletic training curriculum standards, and helps define the roles and responsibilities of ATs.<sup>6,29</sup> As set by the NATA, the role of an AT is defined as encompassing "the prevention, diagnosis, and intervention of emergency, acute and chronic medical conditions involving impairment, functional limitations, and disabilities."<sup>(p.1)</sup><sup>6</sup> In order to uphold these standards of care, the Board of Certification (BOC) has also established *The BOC Role Delineation and Practice Analysis (RD/PA)*<sup>8</sup>, which identifies and prioritizes the essential knowledge, competencies, and skill of critical tasks for the athletic training profession.<sup>8</sup> As

aforementioned, ATs often play a distinctive role in the sports medicine teams due to the vast amount of direct contact with athletes.<sup>1</sup> In a clinical setting, ATs regularly attend team practices and competitions, travel with teams and coaches, manage preventive treatment, treat injuries and illnesses, and oversee rehabilitation processes. Due to the presence of ATs at practices and competitions, ATs often serve as the primary, or most immediate, health care provider when an athlete is injured because the NATA and American Medical Association formally recognize ATs as allied health professional.<sup>6,29</sup> In many instances, ATs "also serve as liaisons, working to communicate medical information between players, coaches, and other affiliated medical personnel" (p.41).<sup>29</sup> According to the current literature, psychological distress has been shown to be a precursor to injury and even delay wound healing by 40%.<sup>30</sup>

#### Education of an Athletic Trainer

The NATA lists the necessary psychosocial competencies, in the *5<sup>th</sup> Edition of NATA Athletic Training Education Competencies*, under "Mental Health and Referral", PS-11-18, and "Psychosocial Strategies and Referral", CIP-7

-8.99.<sup>6</sup> The PIR competencies are considered a minimum requirement for a student's professional education.<sup>8</sup> Therefore, athletic training programs are encouraged to exceed the minimum, in order to provide their students with the highest quality of education and professional readiness.<sup>6</sup> Such competencies encompass entry-level education and clinical skills required of ATs and outlines eight critical content areas: (a) evidenced-based, (b) prevention and health promotion, (c) clinical examination and diagnosis, (d) acute care of injury and illness, (e) therapeutic interventions, (f) psychosocial strategies and referrals, (g) healthcare administration, and (h) professional development and responsibility.<sup>6,10</sup> Although the NATA encourages ATs to extend educational and clinical experiences beyond an entry-level position, the athletic training *5<sup>th</sup> Edition Competency Manual*<sup>8</sup> serves as the basis for the Commission on Accreditation of Athletic Training Education (CAATE) to accredit undergraduate and graduate entry-level athletic training programs (ATP). In conjunction with the CAATE standards, the NATA Education Council's Professional Education Committee (PEC) also assists programs to conform to these standards. Prior to graduation, an athletic training student (ATS) must have



completed all degree and clinical requirements of Bachelor of Science degree in Athletic Training, obtained through an accredited ATP, before sitting for the Board of Certification (BOC) exam.<sup>10</sup> Upon graduation, athletic training certification credentials are granted by the BOC, pending a passing score on the BOC exam. Providing content validity to the certification examination, the BOC utilizes the eight critical content areas to impart its *Role Delineation Study/Practice Analysis (RD/PA)*, which serves to align the roles and responsibilities of ATs.<sup>6,8</sup>

Included in the eight critical domains mentioned above is the psychosocial strategies and referral, also known as the Psychosocial Intervention and Referral (PIR) competency. In the RD/PA, the PIR domain is comprised of theoretical background, psychosocial strategies, and mental health and referral.<sup>6,8,31</sup> The PIR competency is delineated into specific skills and knowledge; such as, demonstrate (a) the ability to recognize patients/athletes who exhibit abnormal social, emotional or mental behaviors, (b) the ability to intervene with said patients and make appropriate referrals to mental health professionals, (c) the ability to describe and utilize psychological techniques (e.g., goal setting, relaxation, imagery) to

motivate clients during injury rehabilitation (d) facilitate clients' physical and psychological needs as well as return to activity, and (e) appreciate, and utilize, interventions that recognize the connections between mental health, injury and return to participation.<sup>6,8,29</sup> In order to best assist patients/athletes, ATs must be knowledgeable of the potential benefits of psychological skills, as well as be able to differentiate the roles of various mental health professionals. Concurrently, ATs are required to make appropriate patient referrals within an established referral network of mental health professionals, most often consisting of psychologists/sports psychologists, psychiatrists, and/or counselors.<sup>6,10,8</sup>

As stated in the CAATE program standards, an ATS should be provided with clinical education experiences that will support the future success of the student in various clinical settings.<sup>12,13</sup> Athletic training students are molded and integrated into roles of young professional through every clinical education experience.<sup>13</sup> Although time is spent in the classroom, clinical settings serve as a critical component in the students professional and educational development.<sup>13</sup> The multitude of clinical

experiences provides authenticity and visualization of the curriculum, as well as allow the students to perceive the role of an AT. During the clinical education experience, preceptors, authorized clinical instructors, serve as a role model for the ATS' by demonstrating and exhibiting appropriate professional behaviors, expectations, and competencies. The hands-on experience offers the student a positive, supportive, and realistic learning environment.<sup>13</sup> However, there is a learning gap in the ATPs likely due to the fact that students have limited or no access to a rotation with respect to sport and exercise psychology or psychological interventions and preceptors who were certified prior to the 5<sup>th</sup> Edition were not required to be competent with the PIR competencies. Furthermore, it has been speculated that education in sport psychology, implementation of sport psychology skills and strategies, and the referral of athletes to psychology professionals and/or campus support services is rarely addressed in clinical experiences and ATP curriculum. In 2010, more than half (58.5%) of the ATPs reported that accredited academic program did not require undergraduate ATS to complete a course in sports psychology or psychosocial aspects of

injury.<sup>14</sup> Thus, resulting in minimal training and education at the entry-level graduate and undergraduate levels.

#### Athletic Training Educational Psychological Intervention and Referrals Competencies

The job and responsibility of an AT, by its very nature, is emphasized by the diagnosis and treatment of the physical phases of injury.<sup>6</sup> The BOC's certification examination and accredited ATPs primarily focus on educating and testing students' knowledge in identified areas.<sup>6,8</sup> However, in recent years the athletic training field has acknowledged the importance of considering both physical and mental aspects of injury to fully rehabilitate the patient from injury.<sup>31,15-17</sup> For example, Wiese-Bjornstal et al.<sup>32</sup> proposed an integrated model of injury that theorizes that psychological skills were a strong influencing factor in facilitating an athlete's ability to cope with injury rehabilitation. This model included cognitive appraisals (how the athlete views the situation) and emotional response (how the athlete feels about the injury) as a determinant of behavioral responses to injury

(how the athlete acts and/or reacts to the injury situation).<sup>32</sup> Athlete responses are typically influenced by a range of situational and personal factors; such as, injury characteristics, individual differences, sport, and social/environmental influences. Subsequently, Wiese-Bjornstal et al.<sup>32</sup> hypothesized these behavioral appraisals and emotional responses as having a direct influence to the athlete's recovery outcomes, and ultimate return to participation.<sup>32</sup> The importance of this model has been validated by numerous modern studies<sup>19-33</sup> which support the components of the model. The extensive evidence that has been collected regarding this model highlights the importance of ATs using a holistic, multi-disciplinary approach to sport injury and rehabilitation.

However, Stiller-Ostrowski et al.<sup>24</sup> reported that although the content was taught and required by ATPs there is no specific or standardized guidelines regarding how the competencies should be taught. Therefore, it is speculated that, as a result of inconsistent training, ATS and ATs may lack confidence and readiness to address the various psychosocial aspects of athletic injuries.<sup>24</sup> Additional research by Stiller-Ostrowski and Ostrowski<sup>28</sup> confirmed the former findings and disclosed that recently certified ATs

reported feeling less proficient in the realms of counseling/social support, mental skills training, and psychosocial referral, with regards to not feeling adequately prepared by their ATPs. In a similar study, Stiller-Ostrowski and Hamson-Utley<sup>27</sup> reported that ATPs are providing education in most PIR competencies; however, ATs lacked confidence in their ability to make use of the techniques taught within the psychosocial content area due to the infrequent implementation of techniques in clinical practice. Donahue<sup>34</sup> also noted that ATs, in various work settings, did not feel well prepared in the ability to deal with psychological responses and PIR competency.

Despite the overriding theme of ATs lacking confidence and training in the PIR competency, Clement et al.<sup>26</sup> reported that ATs have a desire to increase current knowledge, confidence, and understanding of psychosocial strategies in order to care for injured athletes. In fact, Yang et al.<sup>27</sup> reported that 84.3% (n=501) of injured athletes reported receiving social support from ATs during their recovery and 79.3% (n=471) athletes reported that the AT was the most dependable support system the athlete had during rehabilitation. Therefore, it is suggested that supporting the patient in psychological recovery is

pertinent to achieving the goals of rehabilitation.<sup>27</sup>

#### Identification and Management of Psychosocial Distress

Many student-athletes define themselves by their social identity as an athlete. Poor performance level, a chronic or career-ending injury, interpersonal conflicts, death of a loved-one or teammate, frantic schedules, or burnout all serve as potential threats to that identity.<sup>3,28</sup> These factors may predispose the student-athlete to experience a psychological issue, or trigger a pre-existing mental health concern.<sup>3,35</sup> Multiple studies<sup>12,13,35,36</sup> have revealed that there is a growing prevalence in the severity and percentage of mental illnesses in young adults age 18-25, typically the same age as student-athletes. In fact, in 2013, an estimated 43.8 million adults 18 years or older in the United States indicated they had mental illness.<sup>31</sup> With the participation rate of 475,000 NCAA student athletes in the 2013-2014 academic year, the probability of encountering a student-athlete with a psychological concern within an athletic program is suspected to occur at some point in one's career.<sup>3,29</sup>

*The American Psychiatric Association's Diagnostic and*

*Statistical Manual of Mental Disorders* defines a mental disorder as "a clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is associated with present distress or disability or with a significantly increased risk of suffering death, pain, disability, or an important loss of freedom."<sup>37</sup> The most common mental disorders seen in adults include, but are not limited to, depression, bipolar disorder, ADHD, and anxiety disorders.<sup>1,13,37,38</sup> Having an untreated mental illness, such as the disorders aforementioned, may increase the risk of substance abuse in student athletes.<sup>3</sup> Concern is warranted when the behaviors of the student-athlete are altered from his/her normal lifestyle. Such behaviors that should be monitored most often include changes in eating and sleeping habits, unexplained weight loss, drug and/or alcohol abuse, withdrawing from social contact, loss of emotion or sudden changes of emotion within a short period of time, problems concentrating, focusing or remembering, frequent complaints of fatigue, illness or being injury that prevents participation, and becoming more irritable or problems managing anger.<sup>1,13,35</sup>



It is useful to have a sports medicine team already in place to address the psychological concerns of student-athletes, when/if a psychological concern arises. This team may include the team physician(s), athletic trainer(s), campus counseling service(s), and community based mental health care professionals, such as clinical sports psychologists and/or psychiatrists.<sup>13,38,39</sup> Most often times an athlete will be referred to the team physician(s) in order to meet with and evaluate a student-athlete for a reported psychological concern. Some team physicians may prescribe medications to student-athletes for the mental concern, as well as encourage the athlete to partake in counseling with a mental health care professional.<sup>3</sup> If there is ever a situation in which a student-athlete violates a code of conduct, in terms of a mental health incident, within an athletic department or institution, a point persons for code of conduct violations should be a part of the emergency plan.<sup>13,38,39</sup> The most common code of conduct violations that occur in collegiate student-athletes include a threat of, or acts of, harm towards oneself, others, or property, substance abuse and eating disorders.<sup>3</sup> Therefore, it is important to check with institutional guidelines, state laws, and university code of conduct

regulations in order to appropriately manage a mental incident.

#### Psychological Distress/Consequences in Rehabilitation

During participation in sport, there is an associated risk of injury that is likely to happen to an athlete. A serious injury during any point in someone's athletic career can evoke a significant emotional effect. Granted, the emotional response to injury varies greatly among athletes. Each injury experience is unique, and is commonly influenced by a range of personal and situational biopsychosocial factors that interact prior, during, and after injury.<sup>34,40</sup> Handling the physical and emotional response to pain and disability from the injury is a factor in which the athletic trainer should take into account and help the student-athlete navigate.<sup>3</sup> It is during this time of psychological and physical stress of injury that the student-athlete must be observed for behaviors to monitor. Detecting any symptoms of psychological concern is part of the comprehensive care for student-athletes. In a recent study, Kamphoff et al.<sup>35</sup> recommended "a variation of the phase-like approach to rehabilitation by integrating

psychosocial components with physical characteristics of the healing process: reaction to injury, reaction to rehabilitation, and reaction to return to sport." (p.145)<sup>35</sup> Typical responses in the initial phases of rehabilitation include common responses to injury of disbelief, fear, rage, anxiety, depression, frustration, and fatigue.<sup>26</sup>,  
27,36,41

Furthermore, Johnston and Carroll<sup>36</sup> studied differences between injured and uninjured athletes, which reported that injured athletes experience greater negative affect, higher levels of depression and anxiety, and lower self-esteem. Athletes may also feel a certain degree of isolation and/or estrangement from the sport and teammates.<sup>26</sup> Additionally, the reaction to social status of being an athlete and acceptance of being injured differs between male and females. For instance, Granite<sup>40</sup> studied the differences between male and female injured athletes. The study resulted in differences following injury; for instance, female athletes had a greater negative experience with coaches and were more likely to report concern over how the injury would affect potential future health than males.<sup>40</sup> On the contrary, males were more likely to mention the support from a significant other.<sup>40</sup> Overall, "the sport injury

experience from an athlete's perspective is as diverse as the number of athletes sustaining injuries and types of injuries encountered." (p.xvii)<sup>40</sup>

Additional studies<sup>16,22,41,42</sup> have advocated that the majority of ATs recognize that there are psychological consequences associated with injury. In fact, Arvinen-Barrow et al.<sup>19</sup> reported that 99.7% of the physiotherapists the United Kingdom and 74.4% of the athletic trainers in the United States surveyed expect that athletes will be psychologically affected by injury. The various psychological factors associated with being an athlete may contribute to the risk of athletic injuries, stress in particular. The side effects of stress include, but are not limited to, increased muscle tension and coordination difficulties.<sup>42</sup> Therefore, athletes who experience high levels of stress, both on and off the field, are at greater risk of being injured and/or prolonging the healing process of injury.<sup>42</sup> For many athletes, exercise and physical activity serves as a primary coping mechanism for managing stress and psychological issues; therefore, injury may cause greater emotional distress.<sup>42</sup> Likewise, emotional distress can induce feelings of guilt, depression, and increased mood disturbances; consequently, the athlete is

more likely to have heightened pain reports and slower recovery.<sup>27,26</sup> An injury not only affects the athletes' physical well-being, but also one's self-image, self-esteem, belief systems, values, and commitments.<sup>26</sup> A decline in work and/or academic performance may also be an associated outcome to psychological distress. Without proper intervention during athletic injury, the overriding consequence of stress and psychological distress is a negative spiral physically, emotionally, and psychologically within the athlete, thus creating difficulties within and outside of rehabilitation.

#### Education and Clinical Suggestions

Athletic trainers play an integral role in advancing the physical and mental well-being of athletes. Although many ATs recognize the importance of psychological responses to injury, it is speculated that ATs likely do not feel capable or prepared to counsel athletes or integrate potentially beneficial psychological skills into the rehabilitation process. Explanations for the discrepancy between the recognition of psychological responses and integration of psychological skills is

largely focused on both certified ATs and ATS' lack of educational and clinical experiences. Quality education is important to ensure high standard of care for patients who receive services from an AT. Roh and Perna<sup>15</sup> recommended that ATs increase their knowledge of psychology and counseling. It is also suggested that ATS and ATs receive proper training in psychological skills, such as goal-setting, relaxation, counseling, active listening, and social/emotional support, in order to be used clinically.<sup>15</sup>

As research has indicated, the implementation of standardized competencies and a competency-based curriculum within ATPs may better prepare and educate ATS and ATs.<sup>28</sup> Further research is needed in order to minimize content delivery variability in ATPs. It is suggested that ATPs increase the clinical learning experiences of ATS' by expanding clinical rotations to include sports psychology clinics. Stiller-Ostrowski et al.<sup>24</sup> noted that students who recently completed a course in psychological aspects of injury demonstrated a 170% increase in knowledge 14 weeks following course completion; however, there was only a 25% increase in skill usage. Such findings indicate that educational courses can increase ATS' knowledge of psychological skills, yet large scale changes need to be

made in the integration and implementation of such skills. For instance, the further development of Kamphoff et.al.'s<sup>35</sup> psychological phases of injury, guided by the physical healing process, has the potential to increase ATs' ability to provide holistic care to injured athletes. According to Kamphoff et al.,<sup>35</sup> this phased approach could help ATS and ATs develop and use psychosocial strategies to address some of the psychosocial challenges athletes may encounter during the recovery process. Lastly, for certification maintenance, the BOC mandates that all ATs must complete a minimum of 50 total continuing education units (CEU), in a span on 2 years.<sup>8,44</sup> Continuing education units help ATs maintain and acquire new knowledge through workshops, seminars, course work, conferences or conventions.<sup>43,44</sup> It is suggested that more CEU requirements be committed to the PIR aspect of athletic training.

## Summary

Athletic training education programs are accredited by the Commission on Accreditation of Athletic Training Education (CAATE) in conjunction with the Education Council's Professional Education Committee. The motive in any professional health care education program is to develop competent and confident entry-level professionals through a competency-based education program.<sup>2,13</sup> Through this education program, students can learn the proper competencies and proficiencies of becoming an AT. After completion of an educational program and mastery of the competency and proficiencies, an ATS is able to sit for the BOC exam. The notion of developing confidence for professional practice is well illustrated in the health care fields of medicine, physical therapy, athletic training, sport and exercise psychology, and others.<sup>3</sup>

This study plans to evaluate the comfort level of Psychosocial Interventional and Referral (PIR) competencies among athletic training students (ATS) in NATA District 2, with emphasis in their perceptions of proficiency and confidence. The results of this study are suspected to support the notion that an accredited sports



psychology/psychology of injury course should be implemented within ATPs. Such courses also need to encompass all of the psychological and counseling competencies in a clinical setting, in order for the students to gain real-life experience and comfort with psychosocial intervention and referral. Psychological effects have been found to occur and greatly influence all stages of the injury process, especially the rehabilitation phase.<sup>18-39,22,38</sup> While there has been research<sup>27,28,33</sup> supporting the fact that athletic trainers are not comfortable with handling psychosocial components, from the rehabilitation perspective, the aim of this research study is going to take into account psychosocial preparedness in the other domains and skills of athletic training, in conjunction with rehabilitation. Further, the focus of this study will support and evaluate all 18 competencies<sup>6</sup>, as established by the NATA. Athletes may go through varying degrees of psychological distress, which may be due to the feeling of being held responsible for the injury, anxiety, frustration, other emotional distress.<sup>22,26</sup> In order to assist the athlete with the best overall care, it is important that an entry-level ATS enters the profession of athletic training comfortable in recognizing the possible

signs of psychological distress associated with an athletic injury in all domains of the profession, and providing psychological intervention skills during rehabilitation.

APPENDIX B

The Problem

## STATEMENT OF THE PROBLEM

The purpose of this study is to evaluate the comfort level of athletic training students (ATS) in District 2 using Psychosocial Interventional and Referral competencies, as outlined by the National Athletic Trainers' Association (NATA). Psychological stress can be a precursor to injury, as well as occur post-injury, and eventually delay the healing process. The role and responsibility of the certified athletic trainer (AT) is to be able to prevent, assess and treat an injury. If psychological stress is involved, the AT is equally responsible. Athletic trainers are expected to counsel athletes should the athlete need to manage the distress. However, if the situation is outside of the AT's scope of practice, then referral to a mental health professional is required.

Athletic training students are expected to graduate from an accredited program with the knowledge to identify, intervene, and manage psychological distress with possible referral if necessary. Further, ATS may overlook the psychosocial component(s) if they lack the confidence in the psychosocial competencies during patient rehabilitation

causing delay in the healing process and further predispose the athlete to a new injury or extend the athlete's psychological distress.

#### Definition of Terms

The following definitions of terms will be defined for this study:

- 1) Undergraduate athletic training student(s): Student prepared to sit for Board of Certification exam; pursuing Bachelor's degree in athletic training.
- 2) Entry-Level Graduate Student(s): Student prepared to sit for Board of Certification exam; pursuing Master's degree in athletic training who does not currently hold a BOC certification.
- 3) Instruction received: formal education; academic course that pertains to sport and exercise psychology or related field (e.g., Sports Psychology, Psychology of Sports Injury, etc.); scientist study of individuals and their behaviors in sport and exercise activities and the practical application of that knowledge; excludes general psychology and developmental psychology.

### Basic Assumptions

The following are basic assumptions of this study:

- 1) Subjects will be honest when they complete their demographic portion of the survey.
- 2) Subjects will perform to the best of their ability during testing sessions.
- 3) Subjects will answer all questions in the survey.

### Limitations of the Study

The following are possible limitations of the study:

- 1) The objectives and academic level of the participants' instruction received has not been established.
- 2) Subjects can be inconsistent in responses.
- 3) Only subjects who have access to a computer can take the survey.
- 4) Limited to NATA District 2 students in the ATP.
- 5) Limited to students enrolled in final semester.

### Significance of the Study

Psychological distress can occur among athletes of any age group; therefore, understanding the relationship between athletes' emotional and behavioral responses is important. Most specifically, psychological distress can

cause attentional changes that are not limited to "narrowing of attention, general distraction, and increased self-consciousness" (p.2030) that interfere with an athlete's performance.<sup>1</sup> Stress has also been shown to cause "increased muscle tension and coordination difficulties" (p.2030) which can consequently increase the athlete's predisposition to injury.<sup>1</sup> Though the injury may be physical, the psychological and emotional responses can affect both the physical and psychological recovery of the athlete. Athletic trainers and ATS need to understand the possible range of emotions and learn how to work effectively with athletes to enhance both the physical and psychological aspects of injury rehabilitation.<sup>2</sup> To guarantee that this need is met, a formal course of instruction should be implemented.

Traditionally, rehabilitation programs are designed by an athletic trainer, or other sports medicine professional, to "ensure an athlete's full return to pre-injury levels of physical fitness" (p.512); however, this research study opts to focus on the importance of addressing an athlete's psychological responses to injury as well.<sup>3</sup> The role and responsibility of the athletic trainer is to counsel the athlete(s). Athletic training students are expected to

graduate from an accredited program, as well as pass the Board of Certification (BOC) examination, with the knowledge to identify, intervene, and manage psychological disturbances with possible referral if necessary. Therefore, a clinical instructor, preceptor, or instructor are required to provide this instruction even when they have not had formal instruction or knowledge in this field. A certified athletic trainer (AT) is often the medical professional who an athlete can turn to for assistance, should he or she become injured or suffer from psychological distress. Therefore, the argument is that ATs' are not given sufficient education and/or training in order to express professional readiness and comfort with identifying psychological components outlined by NATA. Further, ATs may overlook the psychosocial component(s) if they lack the confidence in their competencies during patient rehabilitation, causing delay in the healing process, predisposing the athlete to further or new injury, or extending one's psychological distress.

Often, ATs lack confidence due to the absence of formal training and/or they do not learn how to use such competencies effectively or regularly include them throughout the athletic injury rehabilitation process.<sup>4</sup>



Therefore, it is important for an entry-level ATS to have the ability to distinguish the likely signs of psychological distress, associated with an athletic injury. The athletic trainer should also be able to know how and when to refer the athlete for proper medical care. The results of this study may suggest that an accredited sport and exercise psychology course needs to be implemented, specifically within athletic training programs. Such courses also need to encompass all of the psychological and counseling competencies in order for ATS to be successful clinicians.

APPENDIX C  
Additional Methods

## APPENDIX C1:

5<sup>th</sup> Edition NATA Athletic Training Education Psychosocial  
Strategies and Referral Competencies

<b>Competency</b>	<b>Competency Description</b>
Category:	<b>Theoretical Background</b>
PS-1	Describe the basic principles of personality traits, trait anxiety, locus of control, intrinsic and extrinsic motivation, and patient and social environment interactions as they affect patient interactions.
PS-2	Explain the theoretical background of psychological and emotional responses to injury and forced inactivity (e.g., cognitive appraisal model, stress response model).
PS-3	Describe how psychosocial considerations affect clinical decision-making related to return to activity or participation (e.g., motivation, confidence).
PS-4	Summarize and demonstrate the basic processes of effective interpersonal and cross-cultural communication as it relates to interactions with patients and others involved in the healthcare of the patient.
PS-5	Summarize contemporary theory regarding educating patients of all ages and cultural backgrounds to effect behavioral change.
Category:	<b>Psychosocial Strategies</b>
PS-6	Explain the importance of educating patients, parents/guardians, and others regarding the condition in order to enhance the psychological and emotional well-being of the patient.
PS-7	Describe the psychological techniques (e.g., goal setting, imagery, positive self-talk, and relaxation/anxiety reduction) that the athletic trainer can use to motivate the patient during injury rehabilitation and return to activity processes.
PS-8	Describe psychological interventions (e.g., goal setting, motivational techniques) that are used to facilitate a patient's physical, psychological, and return to activity needs.
PS-9	Describe the psychosocial factors that affect persistent pain sensation and perception (e.g., emotional state, locus of control, psychodynamic issues, sociocultural factors,

	personal values and beliefs) and identify multidisciplinary approaches for assisting patients with persistent pain.
PS-10	Explain the impact of sociocultural issues that influence the nature and quality of healthcare received (e.g., cultural competence, access to appropriate healthcare providers, uninsured/underinsured patients, insurance) and formulate and implement strategies to maximize client/patient outcomes.
Category:	<b>Mental Health and Referral</b>
PS-11	Describe the role of various mental healthcare providers (e.g., psychiatrists, psychologists, counselors, social workers) that may comprise a mental health referral network.
PS-12	Identify and refer clients/patients in need of mental healthcare.
PS-13	Identify and describe the basic signs and symptoms of mental health disorders (e.g., psychosis, neurosis; sub-clinical mood disturbances (e.g., depression, anxiety); and personal/social conflict (e.g., adjustment to injury, family problems, academic or emotional stress, personal assault or abuse, sexual assault or harassment) that may indicate the need for referral to a mental healthcare professional.
PS-14	Describe the psychological and sociocultural factors associated with common eating disorders.
PS-15	Identify the symptoms and clinical signs of substance misuse/abuse, the psychological and sociocultural factors associated with such misuse/abuse, its impact on an individual's health and physical performance, and the need for proper referral to a healthcare professional.
PS-16	Formulate a referral for an individual with a suspected mental health or substance abuse problem.

PS-17	Describe the psychological and emotional responses to a catastrophic event, the potential need for a psychological intervention and a referral plan for all parties affected by the event.
PS-18	Provide appropriate education regarding the condition and plan of care to the patient and appropriately discuss with others as needed and as appropriate to protect patient privacy.

Appendix C2

Individual Data Collection Sheet: Survey

Psychosocial Intervention and Referral Competencies Survey  
for Entry-Level Athletic Training Students

Survey by: Elizabeth M. Koehling, LAT, ATC  
Graduate Athletic Training Student at California University  
of Pennsylvania

**Part I: Background Information**

Please answer the following demographic questions.

1. With which sex do you identify?  
Mark only one oval.
  - Male
  - Female
  
2. With which race do you identify?  
Mark only one oval.
  - White; Caucasian
  - Black; African American
  - Hispanic; Latino; of Spanish origin
  - Asian
  - American Indian or Alaska native
  - Other:.....(Please specify)
  
3. What is your academic standing?  
Mark only one oval.
  - Undergraduate
  - Entry-Level graduate
  
4. Are you eligible to sit for the BOC exam? (To be eligible, you must be enrolled in a CAATE accredited Athletic Training Program and be in your final semester.)  
Mark only one oval.
  - Yes
  - No
  
5. Your institution resides in which state?  
Mark only one oval.
  - Pennsylvania



- o Delaware
- o New York
- o New Jersey

6. What NCAA Division is your school?

Mark only one oval.

- o Division I
- o Division II
- o Division III
- o Other:..... (Please specify)

7. Did your program require you to take a psychosocial class? (i.e. Psych. of Sport Injury or Sport and Exercise Psychology, etc.)

Mark only one oval.

- o Yes
- o No
- o I'm not sure
- o I took a class but it was not required

8. Would you recommend athletic training students take a psychology class related to athletic injury and injury recovery?

Please mark only one oval.

- o Yes
- o No

**Part II: Comfort Level for 12 Athletic Training Competency Skill**

The scale is rated as follows: 1= I'm not sure, 2= Uncomfortable, 3= Somewhat Comfortable, 4= Comfortable, 5= Extremely Comfortable.

Not Comfortable at all

Extremely Comfortable

1  
○

2  
○

3  
○

4  
○

5  
○

9. Risk Management and Injury/Illness Prevention

Mark only one oval.

**10. Pathology of injury/Illness**

Not Comfortable at all

1                      2                      3

Extremely Comfortable

4                      5

Mark only one oval.

**11. Assessment of Injury/Illness**

Not Comfortable at all

1                      2                      3

Extremely Comfortable

4                      5

Mark only one oval.

**12. General Medical Conditions and Disabilities**

Not Comfortable at all

1                      2                      3

Extremely Comfortable

4                      5

Mark only one oval.

**13. Therapeutic Exercise**

Not Comfortable at all

1                      2                      3

Extremely Comfortable

4                      5

Mark only one oval.

**14. Rehabilitative Techniques**

Not Comfortable at all

1                      2                      3

Extremely Comfortable

4                      5

Mark only one oval.

**15. Health Care Administration**

Not Comfortable at all

Extremely Comfortable

1                      2                      3                      4                      5

Mark only one oval.

**16. Weight Management and Body Composition**

Not Comfortable at all

Extremely Comfortable

1                      2                      3                      4                      5

Mark only one oval.

**Part III: Comfort Level in Knowledge and Skill(s) of Psychosocial Strategies and Referral Competencies****Theoretical Background: Answer based on your comfort level of a certain competency.**

1. Able to describe the basic principles of personality traits, trait anxiety, locus of control, intrinsic and extrinsic motivation, and patient and social environment interactions as they affect patient interactions.

Competency 1: (PS-1)

17. What is your comfort level with competency 1?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable
  - Comfortable
  - Extremely Comfortable
18. Do you feel that competency 1 was adequately taught?
- Yes
  - No

2. Able to explain the theoretical background of psychological and emotional responses to injury and forced inactivity (e.g., cognitive appraisal model, stress response model).

## Competency 2: (PS-2)

19. What is your comfort level with competency 2?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable
  - Comfortable
  - Extremely Comfortable
20. Do you feel that competency 2 was adequately taught?
- Yes
  - No

3. Able to describe how psychosocial considerations affect clinical decision-making related to return to activity or participation (e.g., motivation, confidence).

## Competency 3: (PS-3)

21. What is your comfort level with competency 3?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable
  - Comfortable
  - Extremely Comfortable
22. Do you feel that competency 3 was adequately taught?
- Yes
  - No

4. Able to summarize and demonstrate the basic processes of effective interpersonal and cross-cultural communication as it relates to interactions with patients and others involved in the healthcare of the patient.

## Competency 4: (PS-4)

23. What is your comfort level with competency 4?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable
  - Comfortable
  - Extremely Comfortable
24. Do you feel that competency 4 was adequately taught?
- Yes

- o No

5. Able to summarize contemporary theory regarding educating patients of all ages and cultural backgrounds to effect behavioral change.

Competency 5: (PS-5)

25. What is your comfort level with competency 5?
- o I'm not sure
  - o Uncomfortable
  - o Somewhat Comfortable
  - o Comfortable
  - o Extremely Comfortable
26. Do you feel that competency 5 was adequately taught?
- o Yes
  - o No

**Psychosocial Strategies: Answer based on your comfort level of a certain competency.**

6. Able to explain the importance of educating patients, parents/guardians, and others regarding the condition in order to enhance the psychological and emotional well-being of the patient.

Competency 6: (PS-6)

27. What is your comfort level with competency 6?
- o I'm not sure
  - o Uncomfortable
  - o Somewhat Comfortable
  - o Comfortable
  - o Extremely Comfortable
28. Do you feel that competency 6 was adequately taught?
- o Yes
  - o No

7. Able to describe the psychological techniques (e.g., goal setting, imagery, positive self-talk, relaxation/anxiety reduction) that the athletic trainer can use to motivate the patient during injury rehabilitation and return to activity processes.

## Competency 7: (PS-7)

29. What is your comfort level with competency 7?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable
  - Comfortable
  - Extremely Comfortable
30. Do you feel that competency 7 was adequately taught?
- Yes
  - No

8. Able to describe psychological interventions (e.g., goal setting, motivational techniques) that are used to facilitate a patient's physical, psychological, and return to activity needs.

## Competency 8: (PS-8)

31. What is your comfort level with competency 8?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable
  - Comfortable
  - Extremely Comfortable
32. Do you feel that competency 8 was adequately taught?
- Yes
  - No

9. Able to describe the psychosocial factors that affect persistent pain sensation and perception (e.g., emotional state, locus of control, psychodynamic issues, sociocultural factors, personal values and beliefs) and identify multidisciplinary approaches for assisting patients with persistent pain.

## Competency 9: (PS-9)

33. What is your comfort level with competency 9?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable

- o Comfortable
  - o Extremely Comfortable
34. Do you feel that competency 9 was adequately taught?
- o Yes
  - o No

10. Able to explain the impact of sociocultural issues that influence the nature and quality of healthcare received (e.g., cultural competence, access to appropriate healthcare providers, un-insured/under-insured patients, insurance) and formulate and implement strategies to maximize client/patient outcomes.

Competency 10: (PS-10)

35. What is your comfort level with competency 10?
- o I'm not sure
  - o Uncomfortable
  - o Somewhat Comfortable
  - o Comfortable
  - o Extremely Comfortable
36. Do you feel that competency 10 was adequately taught?
- o Yes
  - o No

**Mental Health and Referral: Answer based on your comfort level of a certain competency.**

11. Able to describe the role of various mental healthcare providers (e.g., psychiatrists, psychologists, counselors, social workers) that may comprise a mental health referral network.

Competency 11: (PS-11)

37. What is your comfort level with competency 11
- o I'm not sure
  - o Uncomfortable
  - o Somewhat Comfortable
  - o Comfortable
  - o Extremely Comfortable
38. Do you feel that competency 11 was adequately taught?
- o Yes
  - o No

12. Able to identify and refer clients/patients in need of mental healthcare.

Competency 12: (PS-12)

39. What is your comfort level with competency 12?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable
  - Comfortable
  - Extremely Comfortable
40. Do you feel that competency 12 was adequately taught?
- Yes
  - No

13. Able to identify and describe the basic signs and symptoms of mental health disorders (e.g., psychosis, neurosis; sub-clinical mood disturbances (e.g., depression, anxiety; and personal/social conflict (e.g., adjustment to injury, family problems, academic or emotional stress, personal assault or abuse, sexual assault or harassment) that may indicate the need for referral to a mental healthcare professional.

Competency 13: (PS-13)

41. What is your comfort level with competency 13?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable
  - Comfortable
  - Extremely Comfortable
42. Do you feel that competency 13 was adequately taught?
- Yes
  - No

14. Able to describe the psychological and sociocultural factors associated with common eating disorders.

Competency 14: (PS-14)

43. What is your comfort level with competency 14?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable



- o Comfortable
  - o Extremely Comfortable
44. Do you feel that competency 14 was adequately taught?
- o Yes
  - o No

15. Able to identify the symptoms and clinical signs of substance misuse/abuse, the psychological and sociocultural factors associated with such misuse/abuse, its impact on an individual's health and physical performance, and the need for proper referral to a healthcare professional.

Competency 15: (PS-15)

45. What is your comfort level with competency 15?
- o I'm not sure
  - o Uncomfortable
  - o Somewhat Comfortable
  - o Comfortable
  - o Extremely Comfortable
46. Do you feel that competency 15 was adequately taught?
- o Yes
  - o No

16. Able to formulate a referral for an individual with a suspected mental health or substance abuse problem.

Competency 16: (PS-16)

47. What is your comfort level with competency 16?
- o I'm not sure
  - o Uncomfortable
  - o Somewhat Comfortable
  - o Comfortable
  - o Extremely Comfortable
48. Do you feel that competency 16 was adequately taught?
- o Yes
  - o No

17. Able to describe the psychological and emotional responses to a catastrophic event, the potential need for a psychological intervention and a referral plan for all parties affected by the event.

Competency 17: (PS-17)

49. What is your comfort level with competency 17?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable
  - Comfortable
  - Extremely Comfortable
50. Do you feel that competency 17 was adequately taught?
- Yes
  - No

18. Able to provide appropriate education regarding the condition and plan of care to the patient and appropriately discuss with others as needed and as appropriate to protect patient privacy.

Competency 18: (PS-18)

51. What is your comfort level with competency 18?
- I'm not sure
  - Uncomfortable
  - Somewhat Comfortable
  - Comfortable
  - Extremely Comfortable
52. Do you feel that competency 18 was adequately taught?
- Yes
  - No

**Thank you for your participation in this survey!**

APPENDIX C3

Informed Consent Letter

**(Survey Cover Letter: This will be the first document the participants view)**

Dear Athletic Training Student:

My name is Elizabeth Koehling and I am currently a graduate athletic training student at California University of Pennsylvania conducting research for my thesis project. I am conducting survey research to evaluate entry-level athletic training students' comfort level on psychosocial interventions and referral competencies in District 2, as designated by the NATA. You will be asked to complete a survey before sitting for your BOC certification examination.

You are being asked to participate due to being enrolled in a CAATE accredited athletic training program; however, your participation is voluntary and you do have the right to choose to not complete this survey. You also have the right to discontinue participation at any time during the survey completion process at which time your data will be discarded. Your participation or non-participation will have no effect on your certification eligibility or graduation status. The California University of Pennsylvania Institutional Review Board has reviewed and approved this project. The approval is effective 03/14/2016 and expires 03/13/2017.

All survey responses are anonymous and will be kept confidential, and informed consent to use the data collected will be assumed upon return of the survey. Completed surveys will not have any information that will allow you to be identified or allow for your data to be associated with you. Completed surveys will be kept on a password protected computer on University servers, only to be accessed by myself or faculty research advisor Dr. Michael Meyer, until they are entered into a spreadsheet for data analysis after which they will be destroyed. Minimal risk is posed by participating as a subject in this study.

I ask that you please take this survey at your earliest convenience as it will take approximately 15-30 minutes to complete. If you have any questions regarding this project, please feel free to contact the primary researcher, Elizabeth Koehling, LAT, ATC at [KOE0357@calu.edu](mailto:KOE0357@calu.edu). If you

would prefer to contact the faculty research advisor for this thesis project, please contact Dr. Michael Meyer at Meyer M@calu.edu.

Thank you for taking the time to take part in this research. I greatly appreciate your time, thought and effort you have put into completion of the survey.

Sincerely,  
*Elizabeth M. Koehling*

Elizabeth M. Koehling, LAT, ATC, NASM-PES  
Primary Researcher  
California University of Pennsylvania  
250 University Ave  
California, PA 15419  
KOE0357@calu.edu

and

Michael M. Meyer, PhD, LAT, ATC  
Faculty Supervisor  
Meyer M@calu.edu

**By clicking on the survey link below, you are acknowledging you have received a copy of this informed consent and that you agree to participate in this study.**

<https://docs.google.com/forms/d/1ZBaQtdX6lEgxsy6OLGN1C26Q0s4Vl0c-9kLOqOu-Xek/viewform>

APPENDIX C4

Institutional Review Board -

California University of Pennsylvania

Institutional Review Board  
California University of Pennsylvania  
Morgan Hall, Room 310  
250 University Avenue  
California, PA 15419  
[instreviewboard@calu.edu](mailto:instreviewboard@calu.edu)  
Robert Skwarecki, PhD, CCC-SLP, Chair

Dear Ms. Koehling:

Please consider this email as official notification that your proposal titled "Evaluating Entry-level ATS' Comfort Level on Psychosocial Interventions and Referral Competencies in District 2" (Proposal #15-056) has been approved by the California University of Pennsylvania Institutional Review Board as submitted.

The effective date of the approval is 03/14/2016 and the expiration date is 03/13/2017. These dates must appear on the consent form.

Please note that Federal Policy requires that you notify the IRB promptly regarding any of the following:

- (1) Any additions or changes in procedures you might wish for your study (additions or changes must be approved by the IRB before they are implemented)
- (2) Any events that affect the safety or well-being of subjects
- (3) Any modifications of your study or other responses that are necessitated by any events reported in (2).
- (4) To continue your research beyond the approval expiration date of 03/14/2017 you must file additional information to be considered for continuing review. Please contact [instreviewboard@calu.edu](mailto:instreviewboard@calu.edu)  
Please notify the Board when data collection is complete.

Regards,  
Robert Skwarecki, PhD, CCC-SLP  
Chair, Institutional Review Board

APPENDIX C5  
Data Coding Sheet



## Coding Sheet:

<b>Sex</b>	Male = 0 Female= 1
<b>Academic Standing</b>	Undergraduate = 0 Entry-level Graduate = 1
<b>State</b>	Pennsylvania = 0 Delaware = 1 New York = 2 New Jersey = 3
<b>Division of School</b>	Division I = 1 Division II= 2 Division III= 3
<b>Race</b>	White; Caucasian = 0 Black = 1 Hispanic =2 Asian =3 American Indian = 4 Other = 5
<b>Required Class</b>	Yes = 0 No = 1 Not sure = 2 Took a class but it was not required = 3
<b>Yes/No</b>	Yes = 1 No = 0
<b>Skillset Likert Scale</b>	I'm not sure = 1 Uncomfortable = 2 Somewhat Comfortable = 3 Comfortable= 4 Extremely Comfortable = 5
<b>Competency Likert Scale</b>	I'm not sure = 0 Uncomfortable = 1 Somewhat Comfortable = 2 Comfortable= 3 Extremely Comfortable = 4

## REFERENCES

1. Moulton MA, Molstad S, Turner A. The role of athletic trainers in counseling collegiate athletes. *J Athl Train*. 1997;32(2):148-150.
2. Weidner TG, Henning JM. Historical perspective of athletic training clinical education. *J Athl Train*. 2002;37(4 suppl):S222-S228.
3. Neal TL, Diamond AB, Goldman S, Klossner D, Morse ED, Pajak DE, Putukian M, Quandt EF, Sullivan JP, Wallack C. Inter-association recommendations for developing a plan to recognize and refer student-athletes with psychological concerns at the collegiate level: An executive summary of a consensus statement. *J Athl Train*. 2013;48(5):716-720.
4. Stiller-Ostrowski JL, Hamson-Utley JJ. Athletic trainers' educational satisfaction and technique use within the psychosocial intervention and referral content area. *Athl Train Educ J*. 2010;5(1):4-11.
5. Stiller-Ostrowski JL, Ostrowski JA. Recently certified athletic trainers' undergraduate educational preparation in psychosocial intervention and referral. *J Athl Train*. 2008;44(1):67-75.
6. National Athletic Trainers' Association (NATA). *Athletic Training Educational Competencies*. 5th ed. Dallas, TX: National Athletic Trainers' Association; 2011.
7. Ramaeker JP. Athletic trainers and sports psychology: Knowledge, experience, and attitudes. [Master's thesis]. Denton, Texas; University of North Texas; 2014.
8. Board of Certification. The 2009 Athletic Trainer Role Delineation Study. 6<sup>th</sup> Ed. Omaha, NE: Stephen B. Johnson; 2010.

9. Kiecolt-Glaser J, Page G, Marucha P, MacCallum R, Glaser R. Psychological influences on surgical recovery: Perspectives from psychoneuroimmunology. *Am Psychol*. 1998;53(11):1209-1218.
10. Board of Certification. (BOC) Standards of Professional Practice. Omaha, NE: Board of Certification, Inc.;2013.
11. Hamson-Utley JJ, Stiller-Ostrowski JL. Athletic training educators' instructional methods and confidence in graduating students' abilities regarding psychosocial intervention and referral. *Athl Train Educ J*. 2011; 6(3):154-162.
12. The Commission on Accreditation of Athletic Training Education (CAATE). Standards for the Accreditation of Professional Athletic Training Programs. Austin, TX: CAATE;2012.
13. Benes SS, Mazerolle SM, Bowman TG. The impact of clinical experiences from athletic training student and preceptor perspectives. *Athl Train Edu J*.2014;9(4):156-165.
14. Seiler BD. ATEP directors and ATC's perceptions of psychosocial intervention and referral competencies. [Master's thesis] Statesboro, Georgia; Georgia Southern University: 2010.
15. Roh JL, Perna FM. Psychology/counseling: a universal competency in athletic training. *J Athl Train*. 2000;35(4):458-465.
16. Harris LL, Demb A, Pastore DL. Perceptions and attitudes of athletic training students toward a course addressing psychological issues in rehabilitation *Allied Health*. 2005;34(2):101-109.
17. Dicus J. Athletic Trainers' Perceptions on the Adequacy of their Professional Education [dissertation]. Athens, Ohio; Ohio University:2012.

18. Wiese-Bjornstal DM, Smith AM, Shaffer SM, Morrey MA. An integrated model of response to sport injury: Psychological and sociological dynamics. *Appl Sport Psychol.* 1998;10(1):46-69.
19. Arvinen-Barrow M, Massey WV, Hemmings B. Role of sport medicine professionals in addressing psychosocial aspects of sport-injury rehabilitation: Professional athletes' views. *J Athl Train.* 2014;49(6):764-772.
20. Arvinen-Barrow M, Walker N. *The Psychology of Sport Injury and Rehabilitation.* New York, NY: Routledge; 2013.
21. Concannon M, Pringle B. Psychology in sports injury rehabilitation. *Br J Nurs.* 2012;21(8):484-490.
22. Tracey J. The emotional response to the injury and rehabilitation process. *J Appl Sport Psychol.* 2003;15:279-293.
23. Clement D, Granquist MD, Arvinen-Barrow MM. Psychosocial aspects of athletic injuries as perceived by athletic trainers. *J Athl Train.* 2013;48(4):512-521.
24. Stiller-Ostrowski JL, Gould DR, Covassin T. An evaluation of an educational intervention in psychology of injury for athletic training students. *J Athl Train.* 2009;44(5):482-489.
25. Donahue M. Athletic trainers' perceptions of the importance, preparation and time spent in the athletic training content areas. *Athl Train Ed J.* 2009;4(3):88-97.
26. Clement D, Arvinen-Barrow M, Fetty T. Psychosocial responses during different phases of sport injury rehabilitation: A qualitative study. *J Athl Train.* 2015;50(1):95-104.
27. Yang J, Schaefer JT, Zhang N, Covassin T, Ding K, Heiden E. Social support from the athletic trainer and symptoms of depression and anxiety at return to play.

- J Athl Train.* 2014;49(6):773-779.
28. Parsons JT. 2014-2015 NCAA Sports Medicine Handbook. Indianapolis, IN: National Collegiate Athletic Association; 2014.
29. Irick E. 1981-1982- 2013-14 NCAA Sports Sponsorship and Participation Rates Report. Indianapolis, IN: National Collegiate Athletic Association; 2014.
30. Bagalman E, Napili A. Prevalence of mental illness in the united states: Data sources and estimates. Congressional Research Service; 2014.
31. Substance Abuse and Mental Health Services Administration, *Results from the 2013 National Survey on Drug Use and Health: Mental Health Findings*, NSDUH Series H-49, HHS Publication No. (SMA) 14-4887. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2014.
32. Stein DJ, Phillips KA, Bolton D, Fulford KWM, Sadler JZ, Kendler KS. What is a mental/ psychiatric disorder? From DSM-IV to DSM-V. *Psychol Med.* 2010; 40(11): 1759-1765.
33. Andersen J, Courson RW, Kleiner DM, McLoda TA. National Athletic Trainers' Association position statement: emergency planning in athletics. *J Athl Train.* 2002;37:99 -104.
34. Podlog L, Dionigi R. Coach strategies for addressing psychosocial challenges during the return to sport from injury. *J Sport Sci.* 2010;28(11):1197-1208.
35. Kamphoff C, Thomae J, Hamson-Utley JJ. Integrating the psycho-logical and physiological aspects of sport injury rehabilitation: Rehabilitation profiling and phases of rehabilitation. In: Arvinen-Barrow MM, Walker N, eds. *The Psychology of Sport Injury and Rehabilitation.* New York, NY: Routledge; 2013:134-155.
36. Johnston LH, Carroll D. The context of emotional responses to athletic injury: a qualitative analysis.

- J Sport Rehabil.* 1998;7(3):206-220.
37. *Diagnostic and statistical manual of mental disorders: DSM-5.* Washington, D.C.: American Psychiatric Association; 2013.
38. Klenk CA. Psychological response to injury, recovery, and social support: A survey of athletes at an NCAA Division I University [honors thesis]. Kingstown, Rhode Island; University of Rhode Island: 2006.
39. Palermo GR. Evaluating Entry-Level Athletic Training Students' Comfort Level on Psychosocial Interventions and Referral Competencies [thesis]. California, PA: California University of Pennsylvania; 2010.
40. Granite V, Carroll J. Psychological response to athletic injury: Sex differences. *J Sport Behav.* 2002;25(3):243-259.
41. Mankad A, Gordon S. Psycholinguistic changes in athletes' grief response to injury after written emotional disclosure. *J Sport Rehabil.* 2010;19(3):328-342.
42. Clanton TO, Matheny LM, Jarvis HC, Jeronimus AB. Return to play in athletes following ankle injuries. *Sports Health.* 2012;4(6):471-474.
43. Herring SA, Boyajian-O'Neill LA, Coppel DB, et. al. Psychological issues related to injury in athletes and the team physician: a consensus statement. *Med Sci Sports Exerc.* 2006;38(11):2030-2034.
44. Board of Certification. BOC Certification Maintenance Requirements. Omaha, NE: Board of Certification, Inc.; 2015.

## ABSTRACT

TITLE: Evaluating Entry-Level Athletic Training Students Comfort Level on Psychosocial Intervention and Referral Competencies in District 2

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DATE: May 2016

PURPOSE: The purpose of this study was to determine comfort level of entry level ATS with Psychosocial Intervention and Referral competencies in the District 2 area, as designated by the NATA. The second purpose was to examine whether ATS received the proper academic curriculum-based content in relation to psychosocial interventions and referral competencies.

METHOD: A descriptive research study investigated perceived comfort levels of non-certified athletic training students. One thousand entry-level athletic training students in the District 2 area received an electronic survey via the NATA Research Foundation. Twenty-nine individuals responded, 17 of which met the inclusion criteria. The survey consisted of 9 demographic questions, 8 questions specific to content areas in athletic training, and 25 questions pertaining to Psychosocial Intervention and Referral Competencies, as outlined by the NATA.

FINDINGS: There was no statistical significance found between male and female comfort perceived comfort levels in the PIR competencies. There was also no statistical significance found between undergraduate and entry-level graduate academic standing and perceived comfort level of the PIR competencies. A moderate, inverse correlation was found between received formal education and PIR comfort level, significance was found at Competency 9 ( $r = -.570$ ,  $p < .05$ ).

CONCLUSIONS: Although there was minimal significant findings, entry-level graduate students and males indicated greater comfort levels. Overall, students feel somewhat comfortable with the PIR competencies and would recommend

athletic training students take a psychology class related to athletic injury and injury recovery.

KEY WORDS: Psychological distress, professional preparedness, athletic training, psychosocial competencies, entry-level education.