

PHYSICIAN'S KNOWLEDGE AND PERCEPTIONS
OF THE ROLES AND RESPONSIBILITIES
OF ATHLETIC TRAINERS

By

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Bachelor of Science in Athletic Training

Oklahoma State University

Stillwater, OK

2003

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
December, 2006

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ACKNOWLEDGEMENTS

I would like to take this opportunity to thank a few people who have been instrumental in research process and the completion of this study. I would first like to thank Dr. Tona Palmer-Hetzler or more affectionately known as “TP”. Dr. Palmer-Hetzler’s hard work, guidance, and prodding were invaluable and greatly appreciated throughout this entire experience. I would like to thank Dr. Steve Edwards, my Statistics Guru, without his assistance I would still be asking myself, “Ok, so what does all this mean?” and “How do I get SPSS to make that table I want again?” I would also like to thank the rest of my thesis committee, Dr. Aric Warren and Dr. Matthew “Matty” O’Brien. I would also like to acknowledge an unofficial member of my thesis committee, Brandon Hetzler. Brandon is proud to finally be rid of me after nearly seven long years. Thank you Brandon, for fostering my creative talent and serving as my mentor in life.

None of this would have been possible without the constant support of my family. I would like to thank my parents for always being in my corner and supporting me in my endeavors. I would like to give a special thanks to my grandmother, Linda Link, for her constant support and unwavering dedication to helping to further my education.

CHAPTER I

INTRODUCTION

The sports medicine field can attribute its origins to Ancient Greece. The derivation of Ancient Greek athletics dates back to the early Bronze Age, 3200-2000 BC, in which male athletes would compete in events such as boxing, archery, hoplomachia (gladiator games), bull leaping, and acrobatics. As is common today, the ancient athletes trained for their respective competitions (Miller, 2004). Herodicus, a Thriacian physician and gymnastic-master from 5th Century BC, was the first to incorporate the use of therapeutic exercise to treat diseases and maintain the body in a competitive state. Herodicus was also a proponent of balancing a good diet and massage using herbs, oils, and specific techniques during massage of the body. His theories and teachings laid the groundwork for modern sports medicine (Wikipedia, 2006).

The traditional profession of athletic training has roots beginning in 1881, at which time James Robinson was the first recorded athletic trainer hired specifically to render services to athletes at Harvard University. The pioneers of this new profession sought to make professionalism a priority among members and worked to progress towards a unification of individuals already practicing as athletic trainers. During this time trainers, currently referred to as athletic trainers, laid the groundwork for the organization currently known as the National Athletic Trainers' Association (NATA), founded in 1950. The purpose of

the NATA was to “build and strengthen the profession of athletic training through the exchange of ideas, knowledge and methods of athletic training” (O’Shea, 1980). The members of the NATA recognized the need to standardize the education of future athletic trainers seeking entry into the profession. Thus in 1959, the Committee on Gaining Recognition developed an athletic training curriculum model designed to equip athletic training students with the skills necessary to obtain employment as a high school educator as well as an athletic trainer. In 1969, the Committee on Gaining Recognition evolved into the Professional Advancement Committee; during this era, the committee recognized the first undergraduate athletic training education programs and developed a certification examination to be administered to individuals seeking entry into the profession (Delforge & Behnke, 1999; Grace, 1999). At this time, students were not required to matriculate through an approved undergraduate athletic training education program in order to obtain certification as an athletic trainer. Two separate educational routes were available to those seeking educational preparation in the field of athletic training. The first route was completion of a formal athletic training educational program approved by the NATA Professional Education Committee; the second route was by completion of an internship in which the prospective athletic training student learned through “hands on” experience. The internship route of certification was available from the 1970’s to January 2004; students were required to complete 1800 clinical hours as an athletic training apprentice and 1500 hours as an internship student (Weidner & Henning, 2002). As of January 1, 2004, the apprentice/internship route was no longer a viable

option for certification, the NATA Task Force on Educational Standards determined the education of athletic training students should focus on clinical competency rather than meeting an hour requirement. Task Force members sought to increase the credibility of the profession and to better prepare athletic training professionals. The elimination of the internship route to certification helped to standardize the education that athletic training students received (Weidner & Henning, 2002).

In 1991, the Joint Review Committee on Educational Programs in Athletic Training (JRC-AT) was incorporated and served as a committee under the Commission on Accreditation of Allied Health Educational Programs (CAAHEP). The JRC-AT, operating as a branch of CAAHEP, was responsible for establishing the standards and guidelines for entry-level athletic training education programs. The standards and guidelines provided “a basis of entry-level education for the athletic training profession through instruction of educational competencies and clinical proficiencies” (Starkey, 2001, pg 46). On June 30, 2006 the JRC-AT established its independence from CAAHEP and was renamed the Commission on Accreditation of Athletic Training Education (CAATE) (<http://caate.net/documents/OverviewDocument-CAATE.pdf>, 2006, pg 2). CAATE and the NATA functioned cooperatively to develop the *Standards for Entry-Level Athletic Training Educational Programs*. “These *Standards* of education, which include objective criteria and academic requirements for accredited programs in Athletic Training, require not only specific and defined processes, but also programmatic

outcomes for the evaluation” (<http://caate.net/documents/OverviewDocument-CAATE.pdf>, 2006, pg 2).

As of June 30, 2006, certified athletic trainers are required to hold either a bachelor’s or master’s degree in athletic training from an institution accredited by the Commission on Accreditation of Athletic Training Education (CAATE). Athletic training students must complete a minimum of two years of clinical education in order to be eligible for the Board of Certification examination. “Entry-level athletic training education uses a competency-base approach both in the classroom and clinical settings. Using medical-based education model, athletic training students are educated to serve in the role of physician extenders with an emphasis on clinical reasoning skills” (NATA, 2005). Athletic training students are educated in the core areas injury/illness prevention, first aid and emergency care, assessment of injury/illness, human anatomy and physiology, therapeutic modalities, and nutrition.. They must successfully graduate from a CAATE accredited curriculum program that includes, but is not limited to the following content area: assessment and evaluation, acute care, therapeutic exercise, therapeutic modalities, general medical conditions and disabilities, pathology of injury and illness, pharmacological aspects of injury and illness, nutrition, health care administration and psychosocial intervention and referral. Upon graduating, the athletic training student is eligible to sit for the Board of Certification Inc. Athletic Trainer credentialing examination.

The certified athletic trainer is a vital member of the sports medicine team working in cooperation with other healthcare professionals, school administrators, coaches and parents to provide the highest standard of care to an active population. The most traditional venues for employment within the athletic training profession are in colleges or universities, secondary and intermediate schools. However, the profession has expanded to include careers serving in professional sports, sports medicine clinics, fitness centers, occupational settings, physicians' offices, and hospital emergency rooms.

Certified athletic trainers, in accordance with Standard 1 of the Standards of Professional Practice established by the Board of Certification Inc., must render service or treatment under the direction of a physician (BOC, 2006). The relationship between an athletic trainer and their supervising physician can play a critical role in the treatment of an injured individual. "Sports medicine" physicians typically supervise certified athletic trainers; this could include physicians that have an advanced educational background regarding musculoskeletal injuries such as orthopedic physicians or general practitioners that have undergone a sports medicine fellowship. The supervising physician should have a working knowledge regarding the capabilities of an athletic trainer.

Statement of the Problem

The scope of practice of an athletic trainer is often incorrectly narrowed due to the lack of understanding and education regarding the roles and responsibilities of a certified athletic trainer. Active individuals do not always have the luxury of visiting a physician

who specializes in sports injuries. For instance, a high school athlete generally is examined and treated by their primary care physician and if deemed necessary is referred to a specialist for further examination. If referral for further medical attention is not needed, the athlete is released with directions to care for injury or the patient is referred to physical therapy. This situation bypasses the athlete's high school athletic trainer completely and removes the athlete's ability to choose the course of their medical care.

Purpose of the Study

Certified athletic trainers in the State of Oklahoma are required by the Athletic Trainers Act to practice in accordance with a written protocol established and agreed upon by the athletic trainer and the supervising physician. It is vital for physicians to have a thorough understanding of the capabilities of individuals within the profession. It is hypothesized that a lack of physician education regarding the various roles and responsibilities of an athletic trainer exists. This gap in the knowledge of physicians can severely limit the scope of practice in which an athletic trainer works and can hinder the services provided to an athletic population. On a larger scale, this lack of education can limit the expansion of the profession; have negative impacts on reimbursement for services rendered; or lead to the elimination of employment opportunities currently in place or future opportunities.

The National Athletic Trainers' Association must work to educate health care professionals about the six performance domains of athletic trainers: prevention of athletic injuries; evaluation and assessment; immediate care; treatment, rehabilitation and

reconditioning; organization and administration; and professional responsibilities (Prentice, 2006).

The results of this study can provide direction in the athletic training professions' effort to educate the physicians, as well as the public regarding the qualifications and education of certified athletic trainers.

Hypotheses

H₀₁: Physicians with a background in sports medicine have understanding and appreciation of the educational background and qualifications of certified athletic trainers as allied health care professionals.

H₀₂: General physicians have a poor understanding regarding the educational background and qualifications of certified athletic trainers as allied health care professionals.

H₀₃: There is no significant difference between a physician's knowledge of the roles and responsibilities of an athletic trainer and the perceptions they have of athletic trainers.

Delimitations

This study will have the following delimitations:

1. Subjects will be randomly selected physicians (MDs) practicing in the State of Oklahoma.

2. Subjects will successfully complete the Athletic Training Roles and Responsibilities Survey.

Limitations

1. The sample size may not be representative of all physicians in the State of Oklahoma and the United States.
2. The responses will be dependant upon the physicians' knowledge of the athletic training profession.

Assumptions

1. Physicians surveyed will complete the survey truthfully.
2. The physicians will understand the directions and questions as intended.
3. Physicians indicating a specialization in orthopedics are "sports medicine" physicians.
4. Physicians not indicating a specialization in orthopedics are not "sports medicine" physicians.

Definition of Terms

1. Certified Athletic Trainer (ATC) - a highly educated and skilled professional specializing in athletic health care for the physically active (Prentice, 2006).
2. Role Delineation Study- the Role Delineation Study (RD) identifies essential knowledge and skills for the athletic training profession, which serves as a

blueprint for examination development. The RD validates importance, criticality, and relevance to practice for both broad content areas and tasks (www.bocac.org, March 6, 2006).

3. Sports Medicine- a branch of the healing arts profession which utilizes holistic, comprehensive approach to the prevention, diagnosis and management of sport and exercise-related injuries, disorders, dysfunctions and disease processes (American Osteopathic Academy of Sports Medicine).
4. Commission on Accreditation of Athletic Training Education (CAATE)- the agency responsible for the accreditation of professional (entry-level) Athletic Training educational programs. (www.caate.net, November 24, 2006).
5. Commission on Accreditation of Allied Health Education Programs (CAAHEP) - accredits programs for the Athletic Trainer upon the recommendations of the JRC-AT (CAAHEP Standards and Guidelines, 2001).
6. Joint Review Committee on Educational Programs in Athletic Training (JRC-AT) - recommends athletic training programs to CAAHEP for accreditation (CAAHEP Standards and Guidelines, 2001).
7. National Athletic Trainers' Association (NATA) - professional association for athletic training whose mission is enhancing the quality of health care provided by certified athletic trainers and advancing the profession of athletic training (Prentice, 2006).

8. Internship program- a route to athletic training certification that has been phased out by the BOC, it required 1500 clinical hours under the supervision of a Certified Athletic Trainer and graduation with a degree in a health related field.
9. Curriculum- a set of courses constituting an area of specialization (Merriam-Webster Online Dictionary, 2006).

CHAPTER II

REVIEW OF LITERATURE

The status of studies aimed at investigating the level of knowledge physicians' possess regarding the knowledge and perceptions of certified athletic trainers is non-existent at the time of this review. The majority of the research regarding perceptions and knowledge about the profession of athletic trainers has focused on those involved in athletics, i.e. coaches, athletes, and parents/guardians of athletes, and is limited at best. Research surrounding this topic has also focused on the level of satisfaction professionals involved in the hiring process of athletic trainers possess, i.e. athletic directors, principals, and school superintendents (Deivert & Gould, 2003). These studies have proven that individuals in and around athletics are aware of the basic roles of an athletic trainer, but do not fully grasp the entire scope of the profession.

Parents

Hoppel, Huck, Stemmans, Ingersoll, and Cordova (2001) conducted a survey of 104 parents/guardians of high school athletes; the survey answers underwent analysis to assess the knowledge of the roles and responsibilities of an athletic trainer. Forty-eight percent of respondents felt comfortable with an athletic trainer initiating care for their student in an emergency. While only 33% felt comfortable with a registered nurse initiating care and only 9% with a physician initiating care in an emergency. When asked what an athletic trainer must do in order to practice athletic training, 31% indicated that

they must pass a certification examination, 30% said they must graduate from a 4-year institution, and 17% were unsure. When surveyed regarding the responsibilities of an athletic trainer, 40% indicated evaluating athletic injuries, 39% answered rendering first aid, and 15% thought certified athletic trainers help people lose weight and get in shape.

The research results indicated that parents /guardians' knowledge regarding the roles and responsibilities of a certified athletic trainer were at best limited. The basic understanding was present, but they did not fully understand the entire scope of the profession. Parents/guardians feel that athletic trainers are more competent than a physician to initiate care for their child in an emergency, but they lack the knowledge regarding the level and type of education an athletic trainer must attain in order to practice. Based on the research results parents are making an uneducated decision regarding the care of their children.

School Administrators

Gould and Deivert (2003) investigated the knowledge and perceptions of the secondary-school administrators responsible for the hiring process of athletic trainers at their respective schools. Administrators referred to superintendents, principals, and athletic directors. In 2003, Gould and Deivert thought that the accurate knowledge or positive perceptions could have an impact on the growth of the job market; where as, an inaccurate knowledge or a negative perception could lead to a lack of growth in the job market.

In this study 10% of secondary schools within the NATA District 4 were randomly selected to participate in the study. The survey used was adapted from a previous study by Hoppel et al., therefore validity and reliability of the survey instrument had been established. Gould and Deivert mailed surveys to 1,095 administrators, 234 of those surveys were returned and deemed useable for analysis.

The researchers found that the administrators with the greatest understanding of the roles and responsibilities of an athletic trainer were athletic directors (74%). Ninety three percent (93%) of the surveyed individuals had actual personal contact with an athletic trainer. Principals and athletic directors proved to have the highest rate of correct answers for questions relevant to the tasks of athletic training. However, 92% of surveyed superintendents perceived athletic trainers as the most qualified individuals to prevent and treat athletic injuries. Of the 234 completed surveys received, only 55% of the surveyed administrators represented schools that actually employed athletic trainers. The data collected and analyzed concluded that the administrators within [National Athletic Trainers' Association] District 4 had a reasonably accurate perception of the job functions of an athletic trainer.

While Gould and Deivert examined the knowledge and perceptions of athletic trainers in District 4, the study conducted by Aya Felling (2003) surveyed high school administrative personnel in California. This study also examined whether the effect of the knowledge possessed by the participants affected the employment status of high

school athletic trainers in that state and whether further education about the profession was required.

The author based the descriptive study used on a similar descriptive study by Hoppel et al., 2003. Demographic and group specific questions underwent modification to correspond with the intended population. The survey consisted of 9 demographic questions and 15 questions regarding the individual's familiarity with and attitude toward athletic training. The instrument used a 5 point Likert scale ranging from "strongly agree" to "strongly disagree" in order to assess the attitudes of those surveyed. Three hundred high schools received the surveys. Each high school selected to participate in the study received two surveys by mail, one completed by the principal and one to be completed by the athletic director.

The survey showed that schools employing an athletic trainer strongly agreed, 72%, that athletic trainers explain the steps of injury rehabilitation to student-athletes, compared to 54% of schools that did not employ an athletic trainer. When asked whether athletic trainers were qualified to organize the administration of an athletic health care facility, 53.4% of the schools employing an athletic trainer agreed with the statement; 37.2% of responders not employing an athletic trainer agreed. Overall, the data showed that those schools that employed an athletic trainer "strongly agreed with statements validating an athletic trainer's qualifications to perform these tasks, when compared to schools without an athletic trainer" (Felling, 2003).

Felling determined that high school administrators had a favorable opinion regarding the roles and responsibilities of athletic trainers, but that athletic training is a misunderstood profession. The data revealed that high school administrators do not have a complete understanding regarding the knowledge, education, and requirements of athletic trainers. The study confirmed that athletic directors tended to feel stronger about athletic trainers' roles and responsibilities when compared to a high school administrator

The literature supported the employment of athletic trainers to provide prevention, evaluation, treatment and rehabilitation to public high school athletes. While school administrators and parents viewed the athletic training profession in a positive light, it can be concluded that the knowledge of the roles and responsibilities of an athletic trainer are misunderstood. Increasing the educational material provided to both groups would increase the knowledge regarding the educational background and various roles and responsibilities of athletic trainers. With increased understanding of athletic training also comes an increase in the responsibility of athletic trainers to exhibit a higher standard of care and heightened sense of professionalism.

Student Athletes

Student athletes have the closest relationship with the athletic training profession, yet have a poor understanding of exactly what an athletic trainer is and what qualifications they possess. Vangurie, Wilson, Marshall, and Vasu (2001) performed a survey of Division II student-athletes' perceptions of athletic trainers. The researchers sought to determine how student-athletes at NCAA Division II institutions including

Historically Black Colleges and Universities viewed athletic trainers. They also sought to determine if a difference existed in the perception of athletic trainers' roles and responsibilities between NCAA Division II institutions and Historically Black Colleges and Universities.

Eighty-nine student athletes were surveyed during the 2000 NCAA Division II Track and Field Championships, during this time the student athletes provided their knowledge of athletic trainers in the form of a yes/no, Likert Scale, and open-ended questions. Some student-athletes indicated athletic trainers are "primarily responsible for water and ice", yet others stated they have "responsibilities for the health care of all student athletes" (Vanguire et al., 2001). The data collected indicated that the student athletes lacked understanding and appreciation of the roles and responsibilities of athletic trainers. The researchers felt that "this dilemma may be based on the misinterpretation of the roles and responsibilities as well as the inconsistency in the employment of certified athletic trainers at these Division II institutions". They noted that further research was warranted in regards to these findings as well as the promotion of the roles and responsibilities of athletic trainers.

Perhaps the confusion lies with the use of the terms trainer and/or training instead of the correct terms certified athletic trainer (ATC) and athletic training. According to Merriam-Webster dictionary the term trainer means "to make prepared (as by exercise) for a test of skill". Therefore, "trainer" can refer to a person that trains dogs or horses or functions in coaching and/or teaching areas (Prentice, 2003). According to the Board of

Certification website, “certified athletic trainers are medical professionals who are experts in injury prevention, assessment, treatment and rehabilitation, particularly in the orthopedic and musculoskeletal disciplines” (2004). Perhaps the fault lies with athletic trainers or the National Athletic Training Association as a whole, in not properly educating the public in reference to the roles and responsibilities of a certified athletic trainer as a member of the sports medicine team.

No matter the fault, a gap in the knowledge regarding the roles and responsibilities of an athletic trainer exists. The lack of knowledge does not just exist with athletes, parents, coaches and administrators, but also within the medical profession. Medical doctors have a basic understanding of the roles and responsibilities, but they are not aware of the full scope of the profession. To date there is a lack of literature that explores the knowledge and perceptions of physicians about the roles and responsibilities of athletic trainers.

It can be implied, based on the reviewed literature, that physicians possess a basic understanding of the roles and responsibilities of an athletic trainer, but do not fully understand the full scope of the profession. Research concerning physicians’ knowledge and perceptions of the roles and responsibilities of athletic trainers must be executed in order to determine the level of understanding or misunderstanding between the two professions.

Athletic trainers have a strong educational background that focuses primarily on the prevention, recognition, evaluation, treatment and rehabilitation of athletic injuries.

Due to a lack of education regarding the capabilities of an athletic trainer, a physician could unintentionally delay the return of an injured athlete or cost the health care system needless expenditures due to referrals outside of the athletic training room. The athletic training profession is misunderstood and misinterpreted by all parties involved in the health care of the athletic population, as well as the public. A lack of current research and the apparent need to educate physicians and others about the profession of athletic training is evident. Therefore, the purpose of this study is to determine the specific roles of an athletic trainer that are misunderstood and whether a difference in knowledge level exists between physicians that have a background in sports medicine versus physicians that do not have a background in sports medicine. The information gathered will be used to establish specific populations that are in need of education, as well as to increase awareness of specific roles and responsibilities of athletic trainers that have been determined to be misunderstood.

CHAPTER III

METHODOLOGY

Design

This study was a non-experimental design in which randomly selected physicians, specifically Doctors of Medicine (MDs) completed a one-time survey. The purpose of the study was to determine the level of knowledge and perceptions of physician's possess regarding the roles and responsibilities of certified athletic trainers. The information obtained then provided the researcher with concrete areas of role misunderstanding, information that can then be used to determine the areas in which further education about the profession of Athletic Training is required.

Instrument

A 34 item questionnaire was constructed, ten questions were dedicated to obtaining demographic information about the individual completing the survey; survey questions 1 and 2 were general statements used to assess the physicians' general knowledge about certified athletic trainers. While questions 3 through 23 were specific task statements from the Role Delineation Study for the Entry Level Athletic Trainer, 5th Ed. The survey instrument was constructed in such a manner that task statements pertaining to a specific domain were grouped together. The physician's knowledge of the educational background and perception of the certified athletic trainers role and

responsibility to prevent injuries was assessed in questions 3-7; evaluate and diagnose in questions 8-12; provide immediate medical care in questions 13-14; treat, rehabilitate, and recondition an active population in questions 15-20; and the ability to organize and administrate in questions 21-23. Survey question 24 assessed how much knowledge the physician felt that he had about the athletic training profession. The task statements used in the questionnaire were adapted based on the Role Delineation Study for the Entry Level Athletic Trainer, 5th Ed., produced and conducted by the Board of Certification. The purpose of the Role Delineation study was to review the performance domains in order to "...define the duties of a certified athletic trainer..." and to determine the tasks "...required for competent performance in each domain..." (BOC Role Delineation Study, 2004 pg 105). The task statements included in the current study have been tested for validity and reliability and have been determined to be tasks that certified athletic trainers are capable of performing. The survey ascertained the physician's knowledge and perceptions of prevention, clinical evaluation and diagnosis, immediate care, treatment, rehabilitation, and reconditioning, and the role of athletic trainers to organize and administrate. Five-point Likert type scale items are used throughout the questionnaire to assess the physician's knowledge and perception of the roles and responsibilities of the certified athletic trainer. The categories range from "Strongly agree" (1) to "Strongly Disagree" (5) and include a category of "Neutral" (3) (See Appendix D).

The 7 most common specializations, as determined by the researcher based on field experience, available for self selection by the physician included: ear, nose, and

throat, emergency medicine, family medicine, internal medicine, neurology, orthopedics, and physical medicine and rehabilitation. The physician also had the option of selecting “other” if none of the specializations provided were sufficient.

In order to establish content validity, the instrument was distributed to a six-member panel of experts with in the field of athletic training. Each member of the expert panel was involved in athletic training as CAATE Approved Clinical Instructors (ACIs) or Clinical Instructors (CIs) holding at minimum a master’s degree. The instrument was reviewed by the panel a minimum of two times in order to minimize misinterpretation, grammatical mistakes or format inconsistencies. The review panel determined that the survey instrument would assess and answer the research questions and hypothesis, thus determining that it was a valid instrument.

Sample

Physicians that were licensed and currently practicing within the State of Oklahoma were randomly selected based on information returned through a search conducted Oklahoma State Board of Medical Licensure and Supervision’s website, specifically the physician search engine. The following specializations to be included in the search were selected from the list provided by the website: emergency medicine, family practice, general practice, internal medicine/pediatrics, medicine/pediatrics, orthopedic trauma, pediatric emergency medicine, pediatric orthopedics, pediatrics, physical medicine and rehabilitation, sports medicine (emergency), sports medicine (family practice), sports medicine (orthopedics), surgery/orthopedics. The neurology and

internal medicine specializations were inadvertently excluded from the search due to a mistake by the researcher. Pediatrics was included in the search criteria because athletic trainers typically treat individuals under the age of 18 that might still be seen by a pediatrician. Physician contact information was gathered from the search results returned on the Oklahoma State Board of Medical Licensure and Supervision website.

Field Procedures

One thousand physicians were randomly selected to receive a one time mail of the survey packet that included the following: a letter of introduction, a consent letter (See Appendix B), a consent form (See Appendix C, 1 questionnaire (See Appendix D) and return envelope. Due to time constraints, no reminder was sent out to the physicians. Voluntary consent was determined by the completion and return of the survey and/or the consent form and completed survey. Returned surveys and completed consent forms were kept separately, in an attempt to maintain confidentiality, in a locked file box that remained in the position of the researcher.

Data Analysis

Once an acceptable return rate of 13 percent was reached, the data was entered by the researcher and analyzed using the statistical analysis software package SPSS 14.0 for Windows. SPSS is produced by SPSS Inc., Chicago, Illinois. Descriptive data concerning areas of specialization, practice setting, and number of years practicing, age, patient percentage, and familiarity with educational requirements of athletic trainers were analyzed and averaged for the physicians that completed and returned the survey.

Descriptions concerning these topics were made and reported. The data was then sorted into two groups based on the responses to the demographic question concerning area of specialization. Individuals indicating a specialization in orthopedics were assumed to have a sports medicine background and make up group 1-Orthopedics. All individuals that did not indicate a specialization in orthopedics were assigned to group 2-Non-orthopedics. Inferential data on the average response to question number 24 for group 1 and group 2 was gathered and analyzed. Differences between orthopedics and non-orthopedics responses to the task statements assembled by domain between group 1 and group 2 were analyzed and compared using independent sample t-tests. An alpha level of $p < .05$ was used to assess significance between means. A cross tabulation descriptive analysis was run in order to view the responses of both orthopedic and non-orthopedic physicians to each specific question on the survey.

CHAPTER IV

RESULTS

This study focused on the amount of knowledge physicians that do not typically treat an active population possess about the field of athletic training and if this effects their perceptions regarding the roles and responsibilities of certified athletic trainers. For the purpose of this study, physicians within the following specialties were selected to participate in this study emergency medicine, family practice, general practice, internal medicine/pediatrics, medicine/pediatrics, orthopedic trauma, pediatric emergency medicine, pediatric orthopedics, pediatrics, physical medicine and rehabilitation, sports medicine (emergency), sports medicine (family practice), sports medicine (orthopedics), surgery/orthopedics.

Demographics

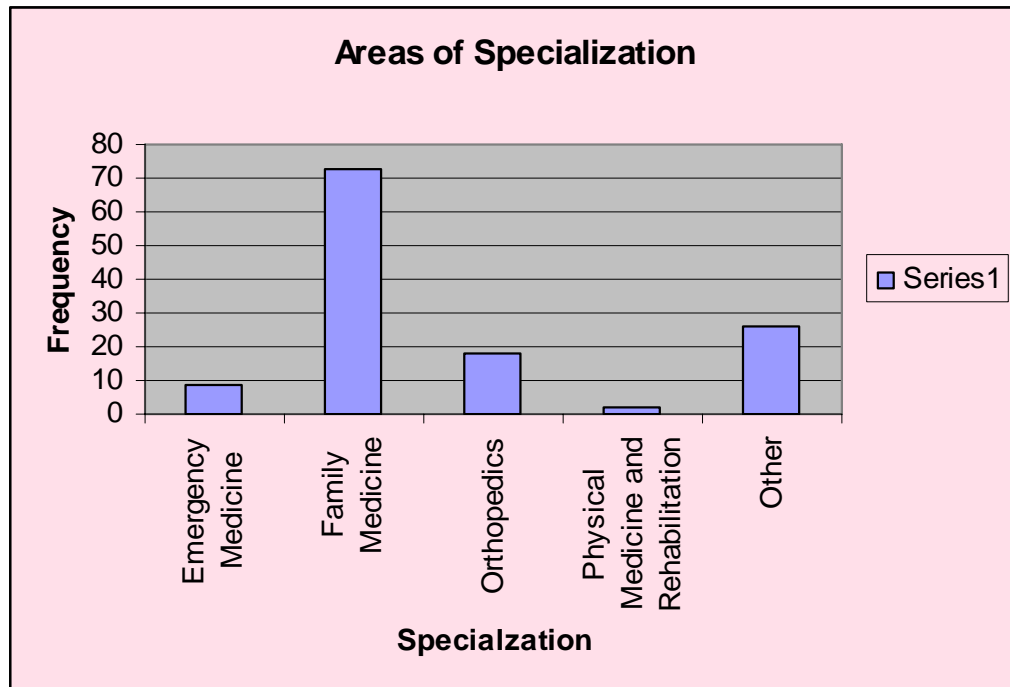
At the time of this study, the total number of Doctors of Medicine (MDs) reported by the Oklahoma State Board of Medical Licensure in the selected specialties was 2810; 364 MDs were excluded from the study because they were not currently practicing within the Oklahoma making a total of 2446 physicians eligible to receive the questionnaire. One thousand (1000), or 40.8% of eligible physicians were randomly selected to receive the questionnaire via mail. Eight surveys were returned undeliverable resulting in 992 possible surveys. One hundred and twenty eight (N=128) completed

surveys were returned for a response rate of 13%. The reported data were analyzed and reported using SPSS (See Appendix E).

Areas of Specialization

Of the reporting 128 physicians, 9 (7%) specialized in emergency medicine; 73 (57%) specialized in family medicine; 18 (14.1%) were orthopedic or sports medicine physicians; two (1.6%) specialized in physical medicine and rehabilitation. Twenty-six (20.3%) respondents selected “other”, i.e. pediatrics, administration, occupational medicine, geriatrics, obstetrics and gynecology, and neurological surgery (See Fig.1, pg 23)

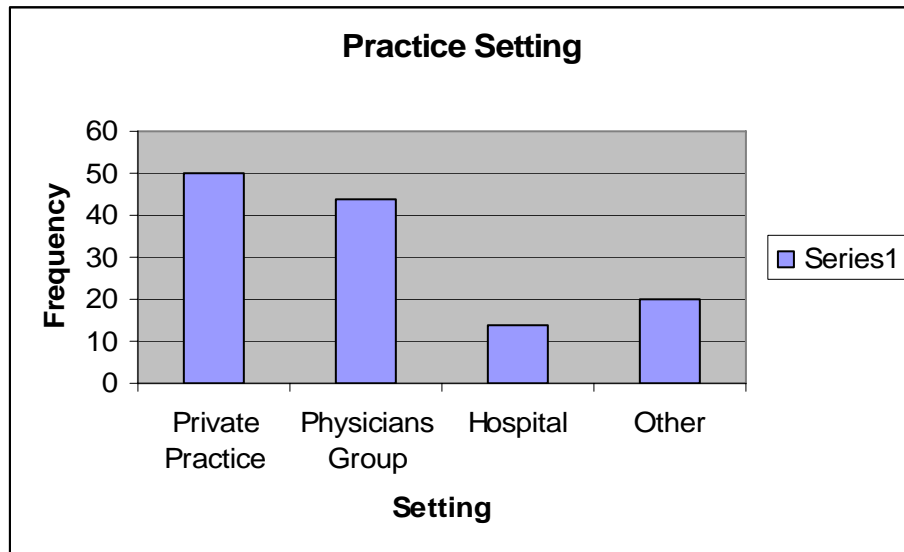
Fig 1: Areas of Specialization



Practice Setting

Thirty nine point one percent (39.1%) of the physicians indicated that they treat patients in a private practice. While 34.4% indicated that they belong to a physicians group and 10.9% have a hospital based practice. Fifteen point six percent (15.6%) of the respondents selected “other” (See Fig. 2, pg, 24)

Fig 2: Practice Setting



Number of Years Practicing and Age

The number of years practicing in each physicians respective field ranged from less than one (1) year to fifty-nine and a half (59.5) years for a mean of 19.58 years \pm 12.23 years. Ninety-six (75%) of the respondents were male and 32 (25%) were female ranging in age from 27 to 78 with the mean age being 48.56 \pm 11.57 years.

Patient Percentage

Of the reporting sample, MDs reported a range of less than 1% - 80% of their patients presenting with a condition resulting from an injury that was athletic in nature. The largest group (20.3%) reported 5% of their patient population presented with athletic injuries; the next largest reported 10% (11.7%) of their patient base were seen due to an athletic injury.

Experience with a Certified Athletic Trainer and Length of Affiliation

In response to the research question of physicians experience working a certified athletic trainer (ATC) the results indicated that 46.1% have had experience working with an ATC while 53.9% have not worked with an ATC. The length of the affiliation with an ATC ranged from less than one year (10.9%) to 49 years (.8%) with an average length of 7.79 ± 9.95 years.

Familiarity with Educational Requirements

Sixty-five point six percent (65.6%) of the population indicated that they are not familiar with the educational requirements necessary to become a certified athletic trainer, while 34.4% indicated that they were familiar with the educational requirements.

Hypotheses

The study failed to reject the first hypothesis, which stated that physicians with a background in sports medicine have an understanding and appreciation of the educational background and qualifications of certified athletic trainers as allied health care professionals. Descriptive analysis of the orthopedic groups' answers to survey question

number 24, “I do not completely understand what a Certified Athletic Trainer is or what tasks they are capable of performing”, had a mean of 4.39 (See Table 1, pg 25).

The second hypothesis for this study stated that general physicians have a poor understanding regarding the educational background and qualifications of certified athletic trainers as allied health care professionals failed to be rejected. Physicians in the non-orthopedic group responded with a mean of 3.27 (See Table 1, pg 25) A mean of 3.27 is too high to retain the hypothesis that non-orthopedic physicians have a “poor understanding”.

Table 1: Descriptive Statistics Orthopedics vs. Non-orthopedics

	Area of Specialization	N	Mean	Std. Deviation	Std. Error Mean
Do NOT completely understand what an ATC is or the tasks they can perform.	Orthopedic	18	4.39	1.29	0.30
	Non-orthopedic	105	3.27	1.38	0.13

The third hypothesis for this study was rejected. This hypothesis stated that there would be no significant difference ($p < .05$) between a physician’s knowledge of the roles and responsibilities of an athletic trainer and the perceptions they have of athletic trainers. Survey questions 3 through 23 were grouped in to the following task categories in order to represent the five domains of athletic training included in the study: 3-7 prevention, 8-12 evaluation and diagnosis, 13-14 immediate medical care, treatment, rehabilitation and reconditioning, and 21-23 organization and administration. An independent samples t-

test was used with the variables grouped by specialization (1- Orthopedics, 2-Non-orthopedics) and the 5 task categories assigned as test variables. The results of the independent samples t-test determined that three of the five categories; evaluation and diagnosis .032, immediate medical care .014, and organization and administration .045 were statistically significant (See Table 3, pg 26). Therefore, the third hypothesis stating that no significance existed between the physicians must be rejected.

Table 2. Independent Samples t-Test Physicians and 5 task categories

Area of Specialization		N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
prevent	Orthopedic	18	1.21	0.38	-1.66253	122	0.099
	Non-orthopedic	106	1.41	0.49			
Eval & diag.	Orthopedic	18	1.42	0.45	-2.48759	123	.014**
	Non-orthopedic	107	1.85	0.71			
immediate Med. care	Orthopedic	18	1.42	0.49	-2.1731	121	.032**
	Non-orthopedic	105	1.79	0.70			
rehab	Orthopedic	17	1.46	0.52	-1.83439	121	0.069
	Non-orthopedic	106	1.83	0.81			
Org/ad	Orthopedic	18	1.50	0.56	-2.02942	122	.045**
	Non-orthopedic	106	1.85	0.68			

CHAPTER V

DISCUSSION

The purpose of this study was to compare and describe inferential and descriptive data reported by physicians in the state of Oklahoma regarding their knowledge and perception of the roles and responsibilities of certified athletic trainers. It was also the purpose of the study to determine if a significant difference existed between physicians with sports medicine background versus a physician without a sports medicine background.

The focus of this study was to determine if physicians fully understood the roles and responsibilities of certified athletic trainers. This study attempted to look at the differences in responses to the questionnaire between “sports medicine physicians” or orthopedics and the “non-sports medicine physicians” or non-orthopedic. It also analyzes the difference in responses of those individuals familiar with the educational requirements of athletic trainers, as well as the responses of those that reported an affiliation with a certified athletic trainer.

The study assumed that those individuals self-indicating a specialization in orthopedics did indeed have a background in sports medicine. While individuals that self-reported a specialization other than orthopedics did not have a background in sports medicine. This assumption was supported by analyzing the two groups’ responses to the demographic questions. Demographic question number seven asked respondents what

percentage of the patients were seen for an athletic injury in the past year. The orthopedic group had a mean of $34.17\% \pm 22.59\%$ and the non-orthopedic group had a mean of $8.07\% \pm 10.38\%$. Seventeen of 18 (94%) of orthopedic physicians reported an affiliation with an athletic trainer while 42 of 68 (61%) of the non-orthopedic physician group indicated an affiliation. This further supports the assumption that those individuals indicating a specialization in orthopedics have more of a background in sports medicine than those not indicating orthopedic medicine.

Hypothesis One

The first hypothesis of this study stated that physicians with a background in sports medicine have an understanding and appreciation of the educational background and qualifications of certified athletic trainers as allied health care professionals. Based on the results generated through descriptive analysis the first hypothesis failed to be rejected. The orthopedic physician group had a mean response of 4.39 ± 1.29 on survey question 24, "I do not completely understand what a Certified Athletic Trainer is or what tasks they are capable of performing", determining if individuals completely understand the tasks that certified athletic trainers are capable of performing (See Table 1, pg 29). The mean of the group fell into the "Moderately Disagree" category; as a result it can be inferred that orthopedics do have an understanding of what a certified athletic trainer is and what tasks they are capable of performing.

Hypothesis Two

The second hypothesis stated that general or non-sports medicine physicians have a poor understanding regarding the educational background and qualifications of certified athletic trainers as allied health care professionals. This study rejected the second hypothesis as non-orthopedic physicians had a mean response of 3.27 ± 1.38 on question 24 (See Table 1, pg 29). However, when a cross tabulation of question 24 was performed results indicated that 25 of the 105 respondents answered “Neutral”; 23 answered “Moderately agree”; 12 answered “Strongly agree”; 15 answered “Moderately disagree”; and 30 answered “Strongly Disagree”. There is no way of knowing how those individuals might have answered had the “Neutral” category not been available. The wording of the question to exclude the word “completely” might have also resulted in a different outcome. The difference in the question wording would have forced respondents to answer, in varying strength, whether or not they disagree or agree with the question.

Hypothesis Three

The third hypothesis stated that no significant difference between a physician’s knowledge of the roles and responsibilities of an athletic trainer and the perceptions they have of athletic trainers would exist. This hypothesis was rejected due to the results of an independent samples t-test using specialization (1-orthopedics, 2-non-orthopedics) and the 5 task categories (prevention, evaluation and diagnosis, immediate medical care, treatment, rehabilitation and reconditioning, and organization and administration)

showing that three of the 5 categories did indeed have a significant statistical difference (See Table 3, pg 24) .

In the evaluation and diagnosis category orthopedics had a mean of $1.4222 \pm .454462$ and the mean of non-orthopedics was $1.8523 \pm .708086$ for a statistical significance of 0.014. This shows orthopedics are in more agreement with the task statements in questions eight through twelve. While the means are statistically significant in reality, the difference is not that great when viewing just the numbers, in fact there is only a difference of -.43011. However, the orthopedic physicians are closer to “Strongly” agreeing with the statements, while the non-orthopedic physicians are closer to “Moderately” agreeing.

The immediate care category was statistically significant due to the differences between the means of orthopedics, $1.4167 \pm .49259$, and non-orthopedics, $1.7905 \pm .69952$ for a significance of 0.032. This shows that the orthopedic physicians are in more agreement with task statements in questions thirteen and fourteen on the ability to provide immediate medical care. While the pure numbers show that a statistical significance exists in reality, the two means do not differ greatly. There is only a slight difference in the agreement of non-orthopedic physicians and orthopedic physicians. However, there is a difference in the fact that orthopedics physicians more “strongly” agree with the statements that non-orthopedic physicians who are closer to “moderately agreeing with the statements.

The organization and administration category was statistically significant between the means of orthopedics $1.5000 \pm .56302$ and non-orthopedic physicians $1.8459 \pm .68417$. There is only a slight difference in the agreement of non-orthopedic physicians and orthopedic physicians on questions twenty-one through twenty-three. However, there is a difference in the fact that orthopedics physicians more “strongly” agree with the statements that non-orthopedic physicians who are closer to “moderately agreeing with the statements.

The two remaining categories, prevention and rehabilitation were not statistically significant. Prevention was represented by survey questions three through seven, with a mean for orthopedic physicians of $1.2111 \pm .38484$ and $1.4132 \pm .49011$ for non-orthopedic physicians and a mean difference of $-.20210$. This shows that both orthopedic and non-orthopedic physicians are in strong agreement with athletic trainer’s ability to prevent injuries and are capable to perform the tasks represented in questions three through seven. The rehabilitation category was represented by survey questions fifteen through twenty, with a mean for orthopedic physicians of $1.4608 \pm .52218$ and $1.8318 \pm .80557$ for non-orthopedic physicians and a mean difference of $-.37098$. While the rehabilitation category was not found to be statistically significant, there is a difference in the amount of agreement between the two groups. Orthopedic physicians are in more agreement with the task statements on questions fifteen through twenty than non-orthopedic physicians are.

It can be determined that individuals within the orthopedics category have a better understanding of the tasks that a certified athletic trainer is capable of performing. Perhaps this is a result of the fact that more individuals in the orthopedics category self-reported and affiliation with athletic trainers

At the time of this study, no literature regarding a physicians' knowledge and perceptions of certified athletic trainers was available. There does appear to be enough evidence to determine that the findings of this study were consistent with the limited literature available regarding the different perceptions and knowledge of the athletic training profession. Previous literature found that unless an individual has a working relationship with an athletic trainer they do not often understand, appreciate the educational requirements or the full scope of the tasks that a Certified Athletic Trainer has the ability to perform. The questionnaire used in this study was adapted based on the Role Delineation Study for the Entry Level Athletic Trainer, 5th Ed., produced and conducted by the Board of Certification. The purpose of the Role Delineation study is to review the performance domains in order to "...define the duties of a certified athletic trainer..." and to determine the tasks "...required for competent performance in each domain..." (BOC Role Delineation Study, 2004 pg 105). The task statements included in the current study have been tested for validity and reliability and have been determined to be tasks that certified athletic trainers are capable of performing. The results of this study determined that orthopedic physicians best understand the roles and responsibilities of a Certified Athletic Trainer. This study does indicate that while orthopedic physicians

responded with a mean 4.39 ± 1.290 on question 24 of the survey, indicating that even though the response was high enough to support the research question posed in this study, they still do not “completely” understand what certified athletic trainers do or what task they are capable of performing. When analyzing the different domains represented within the questionnaire the difference between orthopedic physicians and non-orthopedic physicians lies in two categories; 1) evaluation and diagnosis 2) immediate medical care (See Appendix F).

Limitations

There were some limitations present for the current study. The first limitation was that low response rate was achieved, 13%. The low response rate can be attributed to a number of factors. For instance, some physicians might not have wished to participate in the study and instantly discarded the survey. Respondents might have been late in returning completed surveys because no response date was indicated. Another reason might have been that the physicians did not feel as though their responses were completely anonymous.

Recommendations

The first recommendation that this researcher would make, would be to repeat this study increasing the sample size in order to have more of a representative of the population with an attempt being made to contact all physicians licensed and practicing

in Oklahoma. In making changes to the methods, the survey might have a higher response rate if the survey could be conducted via the internet.

The second recommendation would be to conduct more research with a larger variation in areas of specialization. The data collected in this study was too narrow in regards to the area of specialization.

The third recommendation includes modification to the demographic portion of the questionnaire. The survey should include a question to determine how a physician, that did not indicate an affiliation with an athletic trainer, gained their knowledge regarding the roles and responsibilities of a certified athletic trainer. A question specifically asking the physician if they have a background in sports medicine must be included.

The fourth and final recommendation, a second return envelope should be added to the research packet selected participants receive in order to maintain confidentiality.

REFERENCES

- Committee on Accreditation of Athletic Training Education Programs. (2006). Retrieved November 24, 2006 from <http://caate.net/documents/OverviewDocument-CAATE.pdf>
- Board of Certification. (2005). Role Delineation Study for the Entry Level Athletic Trainer, 5th Ed. Omaha, NE.
- Delforge, G.D., Behnke, R.S., (1999). The History and Evolution of Athletic Training Education in the United States. *Journal of Athletic Training* 34(1), 53-61.
- Deivert, R.G., Gould, T.E. (2003). Secondary-school administrators' knowledge and perceptions of Athletic Training. *Athletic Therapy Today* 8(1), 57-62.
- Felling, A. (2003). High School Administrators' Views of Athletic Trainers' Roles and Responsibilities. Unpublished master's thesis, San Jose State University, California.
- Hoppel, K. L., Huck, B.J., Stemmans, C. L., Ingersoll, C.D., Cordova, M. L. (2001). Parents'/Guardians' Awareness of Athletic Trainers' Roles and Responsibilities in the Wabash Valley. *Journal of Athletic Training*, 36(S2), 74.
- Jones, M. L. (2004) High School Principals' satisfaction with clinic and hospital based outreach athletic training services. Unpublished doctoral dissertation, University of Southern Mississippi, Mississippi.
- Miller, S.G. (2004) *Ancient Greek Athletics*. New Haven and London: Yale University Press.
- Prentice, W.E. (2003). The athletic trainer and the sports medicine team. In *Principles of Athletic Training* (10th ed., pp. 2-4, 10-20). Chicago: McGraw-Hill Companies, Inc.

- O'Shea, M.E. (1980) *A History of the National Athletic Training Association*. National Athletic Trainers' Association.
- Starkey, Chad. (2001, June). The Athletic Training Triad: NATA, JRC-AT and NATABOC. *NATA News*, 46
- Unruh, S. (1998). Perceptions of athletic training services by collegiate student-athletes: A Measurement of Athlete Satisfaction. *Journal of Athletic Training*, 33 (4), 347-350.
- Vanguri, P., Wilson, A., Marshall, P., Vasu, E. (2001). A survey of Division II student-athletes' perceptions of athletic trainers. *Journal of Athletic Training*, 36(S2), 80.
- Weidner, T.G., Henning, J.M. (2002). Historical Perspective of Athletic Training Clinical Education. *Journal of Athletic Training* 37(4 Supplement), S222-228.
- Wikipedia. (2006). Herodicus. Retrieved January 4, 2006, from <http://en.wikipedia.org/wiki/Herodicus>

APPENDIX A

Oklahoma State University Institutional Review Board

Date: Tuesday, July 16, 2008
IRB Application No: ED08145
Proposal Title: Physicians' Perceptions of the Roles and Responsibilities of Certified Athletic Trainers
Reviewed and Processed as: Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 7/17/2007

Principal Investigator(s)

Jennifer McKee	Tara Palmer-Fetzler
1001 E. Will Rogers Dr	427 Willard
Stillwater, OK 74075	Stillwater, OK 74075

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The IIRB versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research, and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with the protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTighe in 415 Whitchurst (phone: 405-744-5700; beth.mctighe@okstate.edu).

Sincerely,



Sue C. Jacobs, Chair
Institutional Review Board

APPENDIX B

CONSENT LETTER

CONSENT TO PARTICIPATE IN A RESEARCH STUDY OKLAHOMA STATE UNIVERSITY

Project Title: Physicians' Perceptions of the Roles and Responsibilities of Certified Athletic Trainers

Investigators: Jennifer L. McRae, BS, ATC, Graduate Assistant
Tona Palmer, EdD, ATC, Assistant Professor

Purpose: This study is being conducted through Oklahoma State University. The purpose of this study is to collect, report and publish information regarding physicians' knowledge of the roles and responsibilities of certified athletic trainers. You have been asked to participate in this research because you are a licensed physician within the State of Oklahoma. The information gathered in this study can provide direction in the athletic training professions' effort to educate the medical profession; specifically physicians that do not typically render service to an active population, as well as the general public regarding the qualifications of certified athletic trainers.

Procedures: As an involved participant, you will be asked to complete and return the enclosed survey. An envelope has been enclosed as well to assist you with the return procedures. Your involvement in this research study will take approximately 10 to 15 minutes.

Risks of Participation:

There are no known risks associated with this project, which are greater than those ordinarily encountered in daily life.

Benefits: You may gain an appreciation and deeper understanding of the roles and responsibilities of a Certified Athletic Trainer through your participation in this research study.

Confidentiality:

Returned envelopes and completed surveys will not contain any information that will serve to link you to the completed survey. All completed surveys will be kept in a secure location under the control of the principle investigator. The OSU IRB has the authority to inspect

consent records and data files to assure compliance with approved procedures. The files will be destroyed upon completion of the study.

Compensation:

No compensation for your involvement will be provided.

Contacts:

I understand that I may contact any of the researchers at the following addresses and phone numbers, should I desire to discuss my participation in the study and/or request information about the results of the study:

Jennifer McRae, BS, ATC or Tona Palmer, EdD, ATC
428 Willard Hall
Department of Health and Human Performance
Oklahoma State University
Stillwater, OK 74078
(405)-744-9334
jennifer.mcrae@okstate.edu

For information on subjects' rights, contact Dr. Sue Jacobs, IRB Chair, 415 Whitehurst Hall, 405-744-1676.

Participant Rights: I understand that my participation in this research opportunity is voluntary, and that there is no penalty for refusal to participate. I also understand that I am free to withdraw or revoke my consent and participation in this research in writing at any time, without penalty. I also understand that by returning the survey I have implied my consent to participate in the research project.

APPENDIX C

CONSENT FORM

**CONSENT TO PARTICIPATE IN A RESEARCH STUDY
OKLAHOMA STATE UNIVERSITY**

Project Title: Physicians' Perceptions of the Roles and Responsibilities of Certified Athletic Trainers

Investigators: Jennifer L. McRae, BS, ATC, Graduate Assistant
Tona Palmer, EdD, ATC, Assistant Professor

Purpose: This study is being conducted through Oklahoma State University. The purpose of this study is to collect, report and publish information regarding physicians' knowledge of the roles and responsibilities of certified athletic trainers. You have been asked to participate in this research because you are a licensed physician within the State of Oklahoma. The information gathered in this study can provide direction in the athletic training professions' effort to educate the medical profession; specifically physicians that do not typically render service to an active population, as well as the general public regarding the qualifications of certified athletic trainers.

Procedures: As an involved participant, you will be asked to complete and return the enclosed survey. An envelope has been enclosed as well to assist you with the return procedures. Your involvement in this research study will take approximately 10 to 15 minutes.

Risks of Participation:
There are no known risks associated with this project, which are greater than those ordinarily encountered in daily life.

Benefits: You may gain an appreciation and deeper understanding of the roles and responsibilities of a Certified Athletic Trainer through your participation in this research study.

Confidentiality:
Returned envelopes and completed surveys will not contain any information that will serve to link you to the completed survey. All completed surveys will be kept in a secure location under the control of

the principle investigator. The OSU IRB has the authority to inspect consent records and data files to assure compliance with approved procedures. The files will be destroyed upon completion of the study.

Compensation:

No compensation for your involvement will be provided.

Contacts:

I understand that I may contact any of the researchers at the following addresses and phone numbers, should I desire to discuss my participation in the study and/or request information about the results of the study:

Jennifer McRae, BS, ATC or Tona Palmer, EdD, ATC
428 Willard Hall
Department of Health and Human Performance
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Stillwater, OK 74078
(405)-744-9334
jennifer.mcrae@okstate.edu

For information on subjects' rights, contact Dr. Sue Jacobs, IRB Chair, 415 Whitehurst Hall, 405-744-1676.

Participant Rights:

I understand that my participation in this research opportunity is voluntary, and that there is no penalty for refusal to participate. I also understand that I am free to withdraw or revoke my consent and participation in this research in writing at any time, without penalty.

Signatures:

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy of this form has been given to me.

Signature of Participant Date _____

I certify that I have personally explained this document before requesting that the participant sign it.

Signature of Researcher Date _____

APPENDIX D

“Physicians’ Knowledge and Perceptions of the Roles and Responsibilities of Athletic Trainers”

Demographic Information

Please select the appropriate answer for the following questions.

Medical Degree Earned?

- Medical Doctor (M.D.)
- Doctor of Osteopathy (D.O.)

Area of specialization?

- Ear, Nose and Throat
- Emergency Medicine
- Family Medicine
- Internal Medicine
- Neurology
- Orthopedics
- Physical Medicine and Rehabilitation
- Other: _____

Practice Setting?

- Private practice
- Physicians group
- Hospital
- Other: _____

How long have you been practicing medicine? ____ years.

Gender

- Male
- Female

Age ____

What percentage of patients have you treated in the past year for an athletic related injury? __%

Have you had previous experience working with a Certified Athletic Trainer?

- Yes
- No

If Yes, how long was the affiliation? _____

Are you familiar with the educational requirements and process of becoming a Certified Athletic Trainer?

- Yes
- No

Roles of a Certified Athletic Trainer

Please answer each question by checking the box that is the best representative of your view.	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
1. I think a Certified Athletic Trainer(s) can offer advice for prevention of injury during participation in sports.					
2. A Certified Athletic Trainer does NOT have to meet any additional requirements other than those required by the institution for graduation.					
I feel that a Certified Athletic Trainer has the educational back ground and is competent to:	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
3. Educate the appropriate individual(s) about risks associated with participation and specific activities using effective communication techniques to minimize the risk of injury and illness.					
4. Apply appropriate prophylactic and protective measures using commercial product or custom-made devices to minimize the risk of injury and illness.					
5. Monitor participants and environmental conditions by following accepted guidelines to promote safe participation.					
6. Facilitate physical conditioning by designing and implementing appropriate programs to minimize the risk of injury and illness.					
7. Facilitate healthy lifestyle behaviors using effective education, communication, and interventions to reduce the risk of injury and illness and promote wellness.					

I feel that a Certified Athletic Trainer has the educational back ground and is competent to:	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
8. Obtain a history through observation, interview, and/or review of relevant records to assess current or potential injury, illness, or condition					
9. Inspect the involved area(s) visually to assess the injury, illness or condition					
10. Palpate the involved area(s) using standard techniques to assess the injury, illness or condition					
11. Perform specific tests in accordance with accepted procedures to assess the injury, illness, or condition.					
12. Formulate a clinical impression by interpreting the signs, symptoms, and predisposing factors of the injury, illness, or condition to determine the appropriate course of action.					
13. Employ life-saving techniques through the use of standard emergency procedures in order to reduce morbidity and the incidence of mortality					
14. Direct the appropriate individual(s) in standard immediate care procedures using formal and informal methods to facilitate immediate care.					
15. Administer therapeutic and conditioning exercise(s) using standard techniques and procedures in order to facilitate recovery, function, and/or performance.					
16. Administer therapeutic modalities using standardized techniques and procedures in order to facilitate recovery, function, and/or performance.					

I feel that a Certified Athletic Trainer has the educational back ground and is competent to:	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
17. Apply braces, splints, or assistive devices in accordance with appropriate standards and practices in order to facilitate recovery, function, and/or performance.					
18. Reassess the status of injuries, illnesses and/or conditions using standard techniques and documentation strategies in order to determine appropriate treatment, rehabilitation, and/or reconditioning and to evaluate readiness to return to a desired level of activity					
19. Educate the appropriate individual(s) treatment, rehabilitation, and reconditioning of injuries, illnesses, and/or conditions using applicable methods and materials to facilitate recovery, function, and/or performance					
20. Provide guidance and/or counseling for the appropriate individual(s) in the treatment, rehabilitation and reconditioning of injuries, illnesses, and/or conditions through communication to facilitate recovery, function, and/or performance.					
21. Establish action plans for response to injury or illness using available resources to provide the required range of health care services for individuals, athletic activities, and events					
22. Establish policies and procedures for the delivery of health care services following accepted guidelines to promote safe participation, timely care and legal compliance.					
23. Interpret pre-participation and other relevant screening information in accordance with accepted guidelines to minimize the risk of injury and illness.					
24. I do not completely understand what a Certified Athletic Trainer is or what tasks they are capable of performing.					

APPENDIX E

“Physicians’ Knowledge and Perceptions of the Roles and Responsibilities of Athletic Trainers”

Demographic Information

Please select the appropriate answer for the following questions.

Medical Degree Earned?

100% Medical Doctor (M.D.)
0% Doctor of Osteopathy (D.O.)

Area of specialization?

0% Ear, Nose and Throat
7% Emergency Medicine
57% Family Medicine
0% Internal Medicine
0% Neurology
14.1% Orthopedics
1.6% Physical Medicine and Rehabilitation
20.3% Other

Practice Setting?

39.1% Private practice
34.4% Physicians group
10.9% Hospital
15.6% Other

How long have you been practicing medicine? N=126 Mean= 19.58 ± 12.225 years.

Gender

75% Male
25% Female

Age N=117; Mean= 48.56 years ± 11.574

What percentage of patients have you treated in the past year for a sports related injury? N= 128; Mean= 11.74% ± 15.611

Have you had previous experience working with a Certified Athletic Trainer?

46.1% Yes
53.9% No

If Yes, how long was the affiliation? N= 55; Mean= 7.79 years ± 9.515

Are you familiar with the educational requirements and process of becoming a Certified Athletic Trainer?

34.4% Yes
65.6% No

Roles of a Certified Athletic Trainer

Please answer each question by checking the box that is the best representative of your view.

	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
1. I think a Certified Athletic Trainer(s) can offer advice for prevention of injury during participation in sports.	75.6%	20.3%	3.9%		
2. A Certified Athletic Trainer does NOT have to meet any additional requirements other than those required by the institution for graduation	4%	5.6%	28.8%	35.2%	26.4%
I feel that a Certified Athletic Trainer has the educational back ground and is competent to:	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
3. Educate the appropriate individual(s) about risks associated with participation and specific activities using effective communication techniques to minimize the risk of injury and illness.	66%	28.9%	4%		
4. Apply appropriate prophylactic and protective measures using commercial product or custom-made devices to minimize the risk of injury and illness.	62.4%	33.6%	4%		
5. Monitor participants and environmental conditions by following accepted guidelines to promote safe participation.	68%	28.8%	3.2%		
6. Facilitate physical conditioning by designing and implementing appropriate programs to minimize the risk of injury and illness.	66.1%	31.5%	1.6%	.8%	
7. Facilitate healthy lifestyle behaviors using effective education, communication, and interventions to reduce the risk of injury and illness and promote wellness	63.7%	33.1%	3.2%		

I feel that a Certified Athletic Trainer has the educational background and is competent to:	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
8. Obtain a history through observation, interview, and/or review of relevant records to assess current or potential injury, illness, or condition	37.6%	48%	12%	2.4%	
9. Inspect the involved area(s) visually to assess the injury, illness or condition	48.8%	41.6%	8%	1.6%	
10. Palpate the involved area(s) using standard techniques to assess the injury, illness or condition	45.6%	43.2%	9.6%	1.6%	
11. Perform specific tests in accordance with accepted procedures to assess the injury, illness, or condition.	38.4%	40.8%	15.2%	5.6%	
12. Formulate a clinical impression by interpreting the signs, symptoms, and predisposing factors of the injury, illness, or condition to determine the appropriate course of action.	32.8%	45.6%	13.6%	6.4%	1.6%
13. Employ life-saving techniques through the use of standard emergency procedures in order to reduce morbidity and the incidence of mortality	41.9%	37.9%	17.7%	2.4%	
14. Direct the appropriate individual(s) in standard immediate care procedures using formal and informal methods to facilitate immediate care.	44.7%	44.7%	9.8%	.8%	
15. Administer therapeutic and conditioning exercise(s) using standard techniques and procedures in order to facilitate recovery, function, and/or performance.	56.8%	37.6%	4%	1.6%	
16. Administer therapeutic modalities using standardized techniques and procedures in order to facilitate recovery, function, and/or performance.	53.6%	36%	8%	2.4%	

I feel that a Certified Athletic Trainer has the educational back ground and is competent to:	Strongly Agree	Moderately Agree	Neutral	Moderately Disagree	Strongly Disagree
17. Apply braces, splints, or assistive devices in accordance with appropriate standards and practices in order to facilitate recovery, function, and/or performance.	54%	31.5%	9.7%	4.8%	
18. Reassess the status of injuries, illnesses and/or conditions using standard techniques and documentation strategies in order to determine appropriate treatment, rehabilitation, and/or reconditioning and to evaluate readiness to return to a desired level of activity	33.9%	41.1%	16.9%	6.5%	1.6%
19. Educate the appropriate individual(s) treatment, rehabilitation, and reconditioning of injuries, illnesses, and/or conditions using applicable methods and materials to facilitate recovery, function, and/or performance	48%	39.2%	11.2%	1.6%	
20. Provide guidance and/or counseling for the appropriate individual(s) in the treatment, rehabilitation and reconditioning of injuries, illnesses, and/or conditions through communication to facilitate recovery, function, and/or performance.	48%	42.4%	8%	1.6%	
21. Establish action plans for response to injury or illness using available resources to provide the required range of health care services for individuals, athletic activities, and events	45.2%	45.2%	8.1%	1.6%	
22. Establish policies and procedures for the delivery of health care services following accepted guidelines to promote safe participation, timely care and legal compliance.	33.1%	45.2%	16.9%	4.0%	.8%
23. Interpret pre-participation and other relevant screening information in accordance with accepted guidelines to minimize the risk of injury and illness.	40.3%	43.5%	14.5%	.8%	.8%
24. I do not completely understand what a Certified Athletic Trainer is or what tasks they are capable of performing	10.6%	20.3%	20.3%	13%	35.8%

APPENDIX F

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
prevent	Equal variances assumed	2.921	.090	-1.663	122	.099	-.20210	.12156
	Equal variances not assumed			-1.973	27.318	.059	-.20210	.10244
evaldiag	Equal variances assumed	3.350	.070	-2.488	123	.014	-.43011	.17290
	Equal variances not assumed			-3.383	32.842	.002	-.43011	.12712
immdecare	Equal variances assumed	1.907	.170	-2.173	121	.032	-.37381	.17202
	Equal variances not assumed			-2.775	30.196	.009	-.37381	.13469
rehab	Equal variances assumed	1.966	.163	-1.834	121	.069	-.37098	.20223
	Equal variances not assumed			-2.492	29.882	.018	-.37098	.14887

VITA

Jennifer Lee McRae

Candidate for the Degree of

Master of Science

Thesis: PHYSICIANS' KNOWLEDGE AND PERCEPTIONS OF THE ROLES AND RESPONSIBILITIES OF ATHLETIC TRAINERS

Major Field: HEALTH AND HUMAN PERFORMANCE

Biographical:

Personal Data: Born December 18, 1980, Oklahoma City, Ok. Graduated from Del City High School in 1999 and proceeded to Oklahoma State University; graduating May 2003 with a BS in Athletic Training. After graduation, I became a Certified Athletic Trainer and served at the Head Athletic Trainer for and NAIA Division I university for one year. I accepted a Graduate Assistantship at Oklahoma State University in 2004 and began working and pursuing a Master's Degree.

Education: Masters' of Science, Oklahoma State University, December 2006.
Bachelor of Science: Athletic Training, Oklahoma State University, May 2003.

Experience: Three years undergraduate athletic training experience with Oklahoma State University Athletic Training Education Program. Three and a half years of experience as a certified athletic trainer; one year Head Athletic Trainer NAIA Division I University; two years experience as a graduate assistant at Oklahoma State University; 6 months experience with a 5A Oklahoma High School.

Professional Memberships: National Athletic Trainers' Association, Oklahoma Athletic Trainers Association, Mid-America Athletic Trainers Association.

Name: Jennifer Lee McRae

Date of Degree: December, 2006

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: PHYSICIAN'S KNOWLEDGE AND PERCEPTIONS OF THE ROLES
AND RESPONSIBILITIES OF ATHLETIC TRAINERS

Pages in Study: 53

Candidate for the Degree of Master of Science

Major Field: Health and Human Performance

Scope and Method of Study:

This study sought to determine physicians' knowledge and perceptions of the roles and responsibilities of athletic trainers, within the State of Oklahoma. It was also the purpose to determine if a difference in the level of knowledge existed among physicians with a sports medicine background when compared to physicians without a sports medicine background. To determine whether or not there is a gap in the knowledge of physicians in regards to specific performance domains of the athletic training profession. Data was reported by mailed questionnaire, developed adapted from the Role Delineation Study for the Entry Level Athletic Trainer, 5th Ed. and validated by this researcher specifically for this study.

Findings and Conclusions:

It was found that physicians with a background in sports medicine have an understanding and appreciation for the educational background and qualifications of certified athletic trainers as allied health care professionals. The results of the study could not determine that general physicians, or physicians that do not have background in sports medicine, poor understanding regarding the educational background and qualifications of certified athletic trainers as allied health care professionals. It was found that a significant difference existed in three performance domains within the athletic training profession when comparing the responses of physicians that do and do not have a background in sports medicine

ADVISER'S APPROVAL: Tona Palmer-Hetzler, Ed D
