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TOWARD PROVIDING CARE FOR ATHLETES WITH
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**ATTITUDES OF CERTIFIED ATHLETIC TRAINERS TOWARD PROVIDING
CARE FOR ATHLETES WITH DISABILITIES**

By

Marissa B. Siebel

A THESIS

**Submitted to
Michigan State University
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ABSTRACT

ATTITUDES OF CERTIFIED ATHLETIC TRAINERS TOWARD PROVIDING CARE FOR ATHLETES WITH DISABILITIES

By

Marissa B. Siebel

Purpose: The purpose of this study was to assess attitudes of certified athletic trainers (ATC) toward providing care for athletes with disabilities. **Methods:** Using a researcher developed-survey, 368 of 2,000 ATCs responded to the online survey. **Results:** The majority of ATCs were found to have moderate to high levels of comfort working with athletes with disabilities. Factors found to have positive impacts on ATCs' levels of comfort and confidence were prior experience with people with disabilities and having taken a course related to disabilities. Although ATCs were found to have moderate to high levels of comfort providing athletic training care for the disability populations surveyed, the majority of ATCs had little to no experience providing athletic training services to athletes with disabilities. The majority of ATCs were found to have moderate to high levels of confidence providing general care to athletes with disabilities, yet they did not have high levels of confidence providing disability-specific care. The differences found between ATCs' high level of comfort providing care, low level of confidence providing disability specific care, and little to no experience providing care suggest an increase in education and clinical experience working with athletes with disabilities.

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CHAPTER 1

INTRODUCTION

Currently in the United States 41.3 million Americans have a disability (Bjelland, Erickson & Lee, 2008). With the adoption of the Americans with Disabilities Act (ADA) in 1990, civil rights for Americans with disabilities were mandated. Even though the ADA was passed into law almost 20 years ago equality for people with disabilities has yet to be reached in all aspects of life. Recent studies have assessed attitudes of health care professionals toward providing care for people with disabilities. Results of the studies have shown variability across different health professions including doctors, nurses, rehabilitation counselors, and other health care providers (Yuker, 1994). One branch of healthcare that has yet to fully evaluate attitudes toward people with disabilities is athletic training.

Overview of the Problem

The National Athletic Trainers' Association (NATA) state in their Policies & Procedures Manual (2008) that the NATA does not discriminate against any legally protected class. NATA membership standards state that by joining the association all members are to abide by the Code of Professional Responsibility and render quality patient care regardless of the patient's race, religion, age, gender, nationality, disability, social/economic status or any other characteristic protected by law (NATA Athletic Training Policies & Procedures Manual, 2008). Although the NATA clearly states that certified athletic trainers (ATCs) are not to discriminate against any legally protected class, ATCs' confidence, level of

comfort, and frequency of providing athletic training services to athletes with disabilities have yet to be investigated.

ATCs are employed in a variety of settings including secondary schools, colleges and universities, professional sports, hospital clinics, physicians' offices, sport medical clinics, military, law enforcement, industrial, commercial, rodeo, auto racing, and the performing arts settings (NATA Athletic Training Work Settings, 2008). The U.S Bureau of Labor Statistics Occupational Outlook Handbook (2008) shows of the ATCs employed in 2006, 34% worked in health care, including jobs in hospitals, physicians' offices, and offices of other health practitioners. Another 34% were found in public and private educational settings such as colleges, universities, and high schools; and 20% of ATCs worked in fitness and recreational sports centers (Bureau of Labor Statistics, 2008). Considering Title III of the Americans with Disabilities Act of 1990 prohibits discrimination on the basis of disability by "private entities" operating places of "public accommodation" including privately-owned sports arenas, schools and colleges, doctors' offices, and health clubs (ADA, 1990), ATCs could be expected to provide treatment and care for an athlete with a disability in any of their employment settings.

The NATA has identified specific "Athletic Training Educational Competencies" and "Clinical Proficiencies" that athletic training students are expected to master to perform as an entry-level ATC (Prentice, 2009). Competencies related to providing care for athletes with disabilities include describing common congenital and acquired abnormalities, disabilities, and

diseases, and knowing when to refer athletes with disabilities to physicians for more advanced care. Athletic training students are required to understand common techniques used in evaluating medical conditions and disabilities including physical disabilities, subdural and epidural hematoma, epilepsy, convulsion disorder, spina bifida, cerebral palsy, chronic regional pain syndrome, cerebral aneurysm, ruptured tympanic membrane, corneal injury, common cancers, spinal cord and peripheral nerve injuries, postural deformities, chronic injury, exercise-induced asthma, diabetes, seizure disorders, unilateral organs, and physical and/or mental disability (NATA, Matrix, n.d). Although there are competencies related to understanding disabilities it is unclear how confident and comfortable ATCs are when providing services for athletes with disabilities.

Surveying ATCs on their level of confidence, comfort, and frequency of interaction in providing athletic training services for athletes with disabilities would provide information to determine if additional education related to athletes with disabilities is needed in the athletic training curriculum. Providing additional education related to disability sports could provide certified athletic trainers with the knowledge to provide quality patient care regardless of disability.

Significance of the Problem

As is in any sport, injuries can decrease athletic performance, shorten an athlete's competitive season, or result in long-term health problems. Athletic training services include injury prevention, treatment and care, and rehabilitation of injuries. Athletic training services are used to keep athletes safe and can be critical in facilitating the optimizing healing time of an injury (Prentice, 2009). The

Athletes with Disabilities Injury Registry (ADIR) (Ferrara & Peterson, 2000) found the injury rate among athletes with physical disabilities to be similar to able-bodied athletes. The ADIR found the injury rate among athletes with physical disabilities to be 9.3 injuries per 1,000 athletic exposures, greater than able-bodied athletes competing in basketball (7.0 injuries per 1,000 exposures) and less than the injury rate of able-bodied athletes competing in American football (10.1 to 15.0 injuries per 1,000 exposures) (Ferrara & Peterson, 2000).

Ferrara and Peterson (2000) found nearly half of the injuries sustained by athletes with disabilities were minor and half were either moderate or a major injury resulting in 8 or more days lost from practice or competition. Ferrara and Peterson's (2000) study does not indicate if athletic training services were provided to the injured athletes. As stated by Stopka (1996), "many athletes with disabilities still do not have opportunities to train under a NATA ATC," and often times return to sport and activity before they have properly recovered from their injury, thus leading to a longer healing time or possible chronic injury.

Injury pattern studies show athletes with physical disabilities are at similar risk of injury as able-bodied athletes, but the effect the injury has on the athlete with a disability can be much greater. A minor upper extremity injury to an able-bodied athlete may reduce performance and require care from the certified athletic trainer or physical therapist. The same upper extremity injury sustained by an athlete who uses a wheelchair for mobility can have a much more dramatic effect. The injury not only has an impact on his or her sport performance but also can decrease the athlete's mobility and ability to perform activities of everyday

life such as maintain personal hygiene, prepare and eat food, shopping, and perform household chores (National Cancer Institute, n.d).

The attitudes of able-bodied people toward people with physical disabilities have been found to affect behavior, social relationships, education, employment, and health of people with disabilities (Yuker, 1994). Contact relationships between able-bodied and people with disabilities including care-taking, helping, teaching, and treating have been found to have different effects on attitudes (Yuker, 1994). Attitudes' of ATCs toward providing care for athletes with disabilities has just begun to be studied. If ATCs are found have low levels of comfort and low levels of confidence related to providing care for athletes with disabilities, the quality of the care they provide could be negatively affected.

Statement of the Problem

The purpose of this study was to evaluate the level of comfort, level of confidence, and the frequency with which ATCs are providing athletic training services to athletes with disabilities. ATCs were asked to complete a questionnaire regarding amount of experience they have had working with athletes with disabilities, amount of course work completed related to people with disabilities, relationships with people with disabilities, level of confidence providing care for athletes with disabilities, and frequency of care provided for athletes with disabilities.

Research Questions

1. How confident are certified athletic trainers in providing athletic training services to athletes with disabilities?
2. How comfortable are certified athletic trainers in providing athletic training services to athletes with disabilities?
3. How much experience do certified athletic trainers have providing athletic training services for athletes with disabilities?
4. Are demographic characteristics (gender, family member with a disability, educational background about disability, work setting, and experience with a disability) related to the levels of confidence and comfort of certified athletic trainers toward providing treatment and care for athletes with disabilities?

Operational Definitions

Athletic training services: “(a) preventing injuries including training and conditioning, fitting equipment, using medications, and nutrition; (b) clinical evaluation and diagnosis of injuries including understanding pathology of illness and injury, referrals to other medical professionals; (c) providing immediate treatment and care of injuries including first-aid and injury management, and designing and implementing rehabilitation programs for injuries” (Prentice, 2009).

Attitude: “mental position with regard to a fact or state or a feeling or emotion toward a fact or state”

(<http://www.merriamwebster.com/dictionary/attitude>, 2009).

Certified athletic trainers (ATC): “health care providers who specialize in the prevention, assessment, treatment and rehabilitation of injuries and illness” (Prentice, 2009).

Person with a disability: “a person who has a physical or mental impairment that substantially limits one or more major life activities; a record of such an impairment; or is regarded as having such impairment” (ADA, 1990).

A physical impairment as defined by the ADA: “any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological, musculoskeletal, special sense organs, respiratory (including speech organs), cardiovascular, reproductive, digestive, genitourinary, hemic and lymphatic, skin, and endocrine” (ADA, 1990).

A mental impairment as defined by the ADA: “any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities” (ADA, 1990).

CHAPTER 2

REVIEW OF RELATED LITERATURE

Growth of Disability Sports

Sports for athletes with disabilities can be competitive or recreational and are classified by sports for athletes with physical disabilities, cognitive disabilities, or for athletes who are deaf (DePauw & Gavron, 2005). Athletes with physical disabilities compete in the Paralympic arena, athletes with cognitive disabilities compete in the Special Olympics program, and athletes who are deaf compete in the context of the Deaflympics (DePauw & Gavron, 2005). Competitions are comprised of a single sport, multiple sports, a single disability, or multiple disabilities, and occur at regional, national, and international levels (DePauw & Gavron, 2005). The table below created by DePauw and Gavron (2005) illustrates the sports offered in the Paralympics, Special Olympics, and the Deaflympics.

Table 1
Sports Offered in Paralympic Games, Special Olympics, and Deaflympics

Sport	Paralympics	Special Olympics	Deaflympics
Archery	X		
Athletics	X	X	X
Badminton		X	X
Basketball	X	X	X
Boccie	X	X	
Bowling	X	X	X
Curling	X		
Cycling	X	X	X
Equestrian	X	X	

Table 1, continued

Sport	Paralympics	Special Olympics	Deaflympics
Fencing	X		
Figure skating		X	
Goal ball	X		
Golf		X	
Gymnastics		X	
Hockey	X	X	X
Judo	X		
Orienteering			X
Power lifting	X	X	
Roller skating		X	
Rugby	X		
Sailing	X	X	
Shooting	X		X
Skiing	X	X	X
Snowboarding		X	X
Snowshoeing		X	X
Soccer	X	X	X
Softball		X	
Speed skating		X	
Swimming	X	X	X
Table tennis	X	X	X
Team handball		X	X
Tennis	X	X	X
Volleyball	X	X	X
Water polo			X
Wrestling			X

(DePauw & Gavron, 2005)

Participation in both recreational and competitive sports for people with disabilities continues to grow. As of 1996 an estimated 3 million United States residents with disabilities were competing in over 57 different sports and recreational opportunities (Stopka, 1996). The Beijing 2008 Paralympic Games

involved 3,951 athletes from 146 countries competing in 20 sports (International Paralympic Committee, n.d.). As of 2009 more than 3.1 million athletes compete in 227 Special Olympic Programs in 175 countries in 30 sports (Special Olympics, n.d.). The 2005 Summer Deaflympics included 2,045 deaf athletes from 63 countries who participated in 14 sports. The 2007 Winter Deaflympics included 5 sports and 298 athletes from 23 nations (International Committee of Sports for the Deaf, n.d.).

Overview of Legislation in Disability Sports

Legislation regarding the inclusion and equality for athletes with disabilities can be found within international, national, and state governments. Such legislation protects the rights of athletes with disabilities and can help facilitate opportunities for sports training and competition. On the international level, the United Nations Convention on Rights for Persons with a Disability Preamble 30.5 (Beacom, 2007) declares that people with disabilities have the right to participate on an equal basis with others in recreational, leisure, and sporting activities. It also states that member nations of the United Nations should take appropriate measures to encourage participation to the fullest extent and promote mainstream sports activities at all levels (Beacom, 2007).

Within national legislation, the United States Title III of the Americans with Disabilities Act (ADA) (1990) requires all public and commercial facilities including fitness, health and physical activity or sports programs to be accessible for people with disabilities (ADA, 1990). This allows for greater access to sports and fitness training for athletes with disabilities at all levels of competition. The

Olympic and Amateur Sports Act of 1998 (OASA) is powerful legislation that mandates equal rights for athletes with disabilities, supports opportunities for amateur sport competition, and promotes the inclusion of athletes with disabilities within sport competition. (Hums, Moorman, & Wolff, 2003).

Recent changes in state legislation have created opportunities for student athletes with disabilities in interscholastic sport programs. With the passing of state legislation in Maryland, student athletes with disabilities are included in mainstream interscholastic sport programs. The Fitness and Athletic Equity Law for Students with Disabilities Annotated Code of Maryland, Education Article, Title 7, Subtitle 4B requires the State Board of Maryland and each county board to provide students with disabilities an equal opportunity to participate in mainstream physical education programs, try out for and participate in mainstream athletic programs, and have reasonable accommodations to participate in to the fullest extent possible. (Fitness and Athletic Equity Law for Students with Disabilities Annotated Code of Maryland, Education Article, Title 7, Subtitle 4B, 2008). The adoption of the Fitness and Athletic Equity Law for Students with Disabilities and the inclusion of interscholastic sport programs is a step forward in providing equal sports opportunities for athletes with disabilities.

Overview of Injuries Among Athletes with Disabilities

As participation of athletes with disabilities in sports continues to increase, so does the incidence of sport related injuries. Recent studies show injury rates to athletes with disabilities can be specific to their sport, their sport organization, or the equipment used in their sport. Sports injury data collected during the 2002

Winter Paralympics showed 62% of the total injuries occurred during alpine skiing, 31% occurred during sledge hockey, and 8% occurred during Nordic skiing (Webborn, Willick, & Reeser, 2006). The study reported sledge hockey had the highest rate of injury, with 14% of athletes suffering injuries (Webborn, Willick, & Reeser, 2006). During the 1996 Summer Paralympics, American athletes suffered a total of 254 soft tissue injuries, and 67% of those injuries were acute injuries (Nyland, Snouse, Anderson, Kelly & Sterling, 2000).

Nyland and colleagues (2000) found that athletes participating in Wheelchair Sports USA had more injuries to the wrist and elbow; whereas, athletes in United States Association for Blind Athletes events were found to have more injuries to the cervicothoracic and lower extremity regions. When Nyland et al. (2000) reviewed the total number of injuries sustained to all of the athletes, shoulder injuries were most prominent at 26%, followed by hip-thigh injuries at 14%, and ankle at 12% of all injuries. Nyland and associates concluded the type of injury was not only related to the sport organization but after observing the method of injury to many of the athletes in the study. Nyland and associates found that the assistive devices use by the athletes during competition also influenced the type of injury sustained by the athlete.

Bernardi, et al. (2003) investigated sports related muscle pain among athletes with locomotor disability and found pain to be to be prevalent in about half of athletes who participated in national sporting events. Bernardi et al. (2003) found almost half (47.0%) of all swimmers and 58.8% of basketball players with locomotor disability surveyed were found to have sport related muscle pain.

Bernardi et al. (2003) found the majority of the reported cases of sport related muscle pain (71.1%) resolved within one week, but 8.7% of the reported cases lasted one month or longer.

In a similar study, Ramirez et al. (2009) collected injury data from 512 high school students with cognitive disabilities involved in an adapted sports program and found the injury rate to be 2.0 injuries per 1,000 athlete exposures. Of the sports offered by the adapted sports program, (basketball, hockey, soccer, and softball) soccer was found to have the highest rate of injury at 3.7 injuries per 1,000 exposures. Ramirez and associates (2009) found students with autism were found to have the highest rate (5.9 out of 1,000 exposures) of injury when compared to injury rates of the other disability groups evaluated.

Attitudes of Health Care Providers Towards Providing Care for People with Disabilities

Athletes with disabilities have been shown to sustain sports injuries like able-bodied athletes and require the same level of treatment and care from healthcare professionals. Differences of attitudes toward people with disabilities have been noted among healthcare professionals and across healthcare professions. In a comprehensive review of attitude research Yuker (1994) found some healthcare professionals had negative attitudes toward people with disabilities. The healthcare professionals that had negative attitudes toward people with disabilities were thought to blame the client, focus on a client's negative behavior, have the feeling they were superior to the client, and that the client is helpless (Yuker, 1994). Yuker (1994) found the differences in attitudes

among healthcare professionals to be related to the person's education, training, and job responsibilities.

A study by Au and Man (2006) found differences in attitudes between professionals and students in nursing, social work, physiotherapy, and occupational therapy. Professional nurses were found to have the least favorable attitudes toward people with disabilities while student and professional occupational therapists, and professional physiotherapists were found to have the most favorable attitudes (Au & Man, 2006). In a similar study White and Olson (1998) used the Attitudes Toward Persons with Disabilities to survey a total of 200 healthcare providers; including 150 rehabilitation nurses, 57 occupational therapists, and 43 physical therapists. The nurses, occupational therapists, and physical therapists completed the ATDP Scale and provided demographic and information regarding their work setting and experience with people with disabilities. Of all the healthcare providers surveyed, 67% were found to have positive attitudes toward people with disabilities. Occupational therapists were found to have the most favorable attitude of the healthcare providers surveyed (White & Olson, 1998).

Athletic Training in Disability Sports

Although certified athletic trainers (ATCs) have not traditionally worked with athletes with disabilities, the increase in participation in disability sports intensifies the need for athletic training services. Athletic training services in disability sports and athletic trainers' attitudes toward providing care for athletes with disabilities have just begun to be studied. Conatser, Naugle, Tillman, and

Stopka (2009) found athletic trainers' behavior beliefs toward working with Special Olympic athletes were favorable yet results of their study showed ATCs to not feel competent to work with Special Olympic athletes. The study reported the favorable beliefs were dependent on how many years they worked with Special Olympic athletes and the number of completed courses in adapted physical activity.

A study by Davis, Woodard, Ferrara, and Campbell (2004) surveyed 51 athletic training students on their perceptions of Special Olympians and their ability to provide care for them. Surveying the athletic training students before, during, and after a Special Olympic event Davis and associates (2004) found 61% of the students had no prior experience providing care for athletes with cognitive disabilities. Results of the surveys distributed prior to the Special Olympic event showed 60% of the athletic training students did not know what to expect and had concerns about their ability to relate to the Special Olympians. Following the Special Olympic event, 90% of the students indicated they were more likely to perceive the Special Olympians' athletic performance over their disability. Similarly, 88% believed the Special Olympians to be more athletic than they had thought prior to the event (Davis, et al., 2004).

Davis and associates (2004) found when providing care for Special Olympians athletic training students were most concerned with their ability to communicate with the Special Olympians. Of the students surveyed, 68% thought a course in disability sport would have helped them be more prepared for the Special Olympic event (Davis, et al., 2004). Results of the surveys showed

73% of the students strongly agreed that they would work another Special Olympic event, and 69% indicated they would strongly recommend working a Special Olympic event to another athletic training student.

Recent studies have also called for an increase in education for healthcare providers working with athletes with disabilities. DePauw and Gavron (2005) recommended continuing education for athletic trainers specific to athletes with disabilities by including an adapted physical education course in the curriculum. DePauw and Gavron (2005) also recommended athletic trainers have "formal training related to the etiologies of the various disabilities." As a response to investigating injuries to athletes with disabilities, Nyland and associates (2000) recommended that health care providers working with athletes with physical disabilities familiarize themselves with each disability sport injury pattern. Similarly, to prevent sports related muscle pain, Bernardi et al. (2003) recommended developing a comprehensive injury-prevention program that should be used by coaches and medical personnel working with athletes with disabilities. Although recent studies have evaluated injuries that occur in disability sports and recommend injury prevention (Bernardi et al., 2003, Ferrara & Peterson, 2000, Nyland, et al., 2000, Webborn, et al., 2006), the attitudes towards and the amount of athletic training service provided in disability sports is currently unknown.

Study of Attitudes Toward Persons with Disabilities

Attitudes toward people with disabilities are thought to be a result of past interactions, observations, and relationships with people with disabilities along

with the observer's previous knowledge and previous experience with disability (Yuker, 1988). Positive attitudes toward people with disabilities are thought to lead to inclusive environments and acceptance. At the same time if attitudes toward people with disabilities are negative they can contribute to social exclusion (Yuker, 1988). This section will review the study of attitudes towards people with disabilities and the methods used in the research.

The study of attitudes has been documented since 1850 and research specific to the study of attitudes toward people with disabilities has been documented since 1931 (Antonak & Livneh, 1988). The study of attitudes relies on the assumption that the attitude of the individual being observed is a direct reflection of the individual's external behavior (Antonak & Livneh, 1988). Studies of attitudes toward people with disabilities have used both indirect and direct methods to collect data. When researchers use indirect data collection, participants are unaware they are providing information related to their attitudes toward people with disabilities (Antonak & Livneh, 1988). When direct methods are used to obtain data respondents are aware that they are participating in an attitude measurement experiment. Some of the direct methods used include opinion surveys, interviews, rankings, Q-methodology, adjective checklists, paired comparison scales, probabilistic rating scales, and deterministic rating scales (Antonak & Livneh, 1988).

Opinion surveys require the respondent to express their beliefs, attitudes, and feelings either in writing, orally, or in person. Opinion surveys are comprised of questions resulting in either closed or open responses (Antonak & Livneh,

1988). Threats to opinion surveys occur when privacy and confidentiality are not ensured resulting in respondents possibly altering their responses or provide a desired answer (Antonak & Livneh, 1988).

Summated rating scales have been widely used in the study of attitudes toward people with disabilities. Likert- format scales allow the participant to respond to a statement indicating a level of agreement or disagreement (Antonak & Livneh, 1988). Some of the scales used in researching attitudes towards people with disabilities include the Attitude Toward Disabled Persons (ATDP) scale, the Multidimensional Attitudes Scale Toward Persons with Disabilities (MAS), Contact with Disabled Persons (CDP) Scale, and researcher-developed surveys.

The Attitude Toward Disabled Persons scale (ATDP) is a 20- item summated rating scale published in 1960 by Yuker, Block, and Campbell (Yuker & Block, 1986). It is the most widely used scale used to measure attitudes toward people with disabilities having been used in over a hundred studies and translated into 13 languages (Antonak & Livneh, 1988). Studies using the ATDP have included nursing professionals, nursing students, occupational therapists, occupational students, physiotherapists, physiotherapy students, social workers, social work students, healthcare professionals, healthcare students, first year, third year, and fourth year medical students (Au & Man, 2006; Paris, 1993; Stachura & Garven, 2007; Tervo, Azuma, Palmer, & Redinius, 2002; Tervo & Palmer, 2004; White & Olson, 1998).

Although the ATDP has been used in many studies to measure attitudes toward people with disability, it does not provide information related to the frequency of interaction. Also, some of the terminology in the ATDP scale is outdated and would not accurately assess levels of comfort and confidence in providing athletic training services to athletes with disabilities. The MAS investigates three dimensions of attitude including affect, cognition, and behavior (Yuker & Block, 1986). Findler, Vilchinsky, and Werner distributed the MAS to 132 Jewish Israelis without disabilities and found comparable results to the ATDP (Findler, Vilchinsky, & Werner, 2007). They observed a strong correlation between behaviors and emotions, between behaviors and cognitions, and between cognitions and emotions. Although the MAS measures affect, cognition and behavior, it does not provide data specific to the study including frequency of interaction.

CDP Scale uses 20 items and five response categories to measure a person's contact with people with disabilities (Yuker & Hurley, 1987). Similar to the MAS, the CDP was correlated using scores from the ATDP (Yurker & Hurley, 1987) and found to be reliable. The CDP does provide information on the amount of contact that professionals have with persons who have disabilities but does not allow for data collection regarding the level of comfort or confidence related to service delivery.

Researcher-developed surveys allow for the collection of specific information related to a study. Recent studies of attitudes toward people with disabilities using researcher-developed surveys have examined attitudes toward

people with disabilities and the effect contact has on attitudes (Braddell, 2006; Barr & Bracchitta, 2008). Braddell (2006) found that the attitudes of education students toward children with disabilities improved significantly after taking a course on special education. Results of Barr and Bracchitta's (2008) study, also on undergraduate education students, found that participants who had more contact with people with disabilities had fewer misconceptions about people with disabilities.

Throughout the history of the study of attitudes toward people with disabilities, many variables have been found to be relevant or irrelevant in a population's attitude toward people with disabilities. Recent literature has found contact or prior experience with people with disabilities creates a more positive attitude toward people with disabilities (Yuker, 1988). Gender was once thought to be a factor of attitude toward people with disabilities but a review of studies by Yuker (1988) shows no significant relationship. Studies have found that age is not a factor in determining attitude unless the participant is a child (Yuker, 1994).

To research the attitudes of ATCs toward providing care for athletes with disabilities a researcher-developed survey was used. The researcher-developed survey collected information about ATCs' attitudes and frequency of interaction with athletes with disabilities. Demographic information was also collected to evaluate variables within the ATC profession and identify any factors associated with positive or negative attitudes.

CHAPTER 3

METHODS

Descriptive survey research methodology was used to evaluate athletic trainers' confidence and comfort in their ability to provide athletic training care to athletes with disabilities. The independent variables were gender, age, years of certification, work setting, amount of education related to disability, relationships with people with a disability, and amount of care provided for athletes with disabilities. The dependent variables were attitudes, specifically perceived confidence and comfort levels in providing treatment and care for athletes who have disabilities.

Participants and Sampling Method

Selection criteria. Participants were athletic trainers certified by the Board of Certification (BOC) and are members of the National Athletic Trainers' Association (NATA). In order to participate in the study, ATCs must have had their e-mail addresses registered with the NATA database and agreed to have their e-mail address distributed through the NATA to participate in research.

Sample size. Patten (2007) indicated for survey research of a population of 30,000 (the approximate membership of the NATA), 379 respondents are required to obtain significant representation of the population. To obtain an estimated 400 participants, at a 30% return rate, the survey should have been distributed to 1,334 athletic trainers. However, due to the threat of incorrect or changed e-mail addresses, the researcher increased the distribution to 2,000

athletic trainers.

Informed consent. Approval to conduct this research was obtained from the Biomedical and Health Institutional Review Board at Michigan State University (Appendix A). The cover page to the questionnaire (Appendix B) explained the purpose of the study. Participants were informed that they were providing informed consent by completing and submitting the survey. Participants reserved the right to withdraw or exit the survey without consequence.

Instrumentation

Data were obtained using the Self-Efficacy Scale for Certified Athletic Trainers (Appendix B), a written survey developed by the investigator. Section 1 includes demographic questions about age, gender, educational background, health care certifications, and experience with disability. Section 2 includes questions regarding athletic trainer's confidence in providing general care for athletes with disabilities, confidence in their ability to provide specific athletic training services for athletes with disabilities, level of comfort in providing care for athletes with specific disabilities, level of comfort in communicating and interacting with athletes with disabilities, level of interest in seeking knowledge, experience, and level of interest in applying for a job related to athletes with disabilities. Responses to the confidence and comfort-related questions were measured using an 11-point Likert-type scale ranging from 0 "not at all confident/comfortable" to 10 "extremely confident/comfortable".

Data Collection Procedures

Procedures. Participants were notified about the survey via email. The

email correspondence directed the ATCs to access the survey on the internet at www.SurveyMonkey.com. The survey was available 24 hours a day for a 2-week period. To improve the return rate, participants who had not responded to the survey received a second email 2 weeks following the first request. The survey was then available 24 hours a day for another 2-week period. Participants needed approximately 15 minutes to complete the survey.

Key personnel. Marissa Siebel ATC completed this research to fulfill a master's thesis requirement. Dr. John W. Powell served as chairperson for the committee. Members of her thesis committee included Dr. Gail M. Dummer, and Dr. Sally E. Nogle.

Data management. Data were recorded electronically through Survey Monkey as each participant completed the survey. Only Marissa Siebel and her master's thesis committee viewed individual responses. Identifiable information such as the person's name, social security number, NATA certification number, etc., was not requested; therefore, the personal identity of individual responses could not have been known. Paper and electronic copies of research data were placed in a locked file cabinet in the Athletic Training Research office.

Data Analyses

Survey data (Appendix B) were analyzed using descriptives and crosstabs features of the Statistical Package for the Social Sciences (SPSS) software. But first, the 11-point Likert-type scores for confidence and comfort levels were recoded into fewer categories as shown in Table 2.

Table 2

Survey Response and Level of Confidence and Comfort

<u>Survey Response</u>	<u>Level of Confidence/ Comfort</u>
0	Represented not at all confident/comfortable
1-3	Represented low level of confidence/comfort
4-6	Represented medium level of confidence/comfort
7-10	Represented high level of confidence/comfort

Research Question #1. Survey questions #10 through #23 evaluated ATCs' level of confidence working with athletes with disabilities. Data pertaining ATCs in providing *general* athletic training services to athletes with disabilities were obtained from survey questions #10 through #13. Responses to survey questions #14 through #23 assess levels of confidence providing *disability-specific* care for athletes with disabilities.

Research Question #2. Survey questions #24 through # 35 evaluated ATCs' level of comfort working with athletes with disabilities. Responses to questions #24 through #31 were tallied to determine comfort level with respect to providing athletic training services to athletes with disabilities. Data about comfort communicating and interacting with athletes with disabilities was obtained from questions #32 through #35. Related to ATCs' level of comfort working with athletes with disabilities, responses to questions #36 through #39 were tallied to determine the likelihood that ATCs would seek additional knowledge or jobs related to working with athletes with disabilities.

Research Question #3. Data about the frequency with which ATCs provide athletic training services for athletes with disabilities were based upon responses to questions #40 through #47.

Research Question #4. Demographic information was obtained from questions #1 through #9.

CHAPTER 4

RESULTS

Participant Characteristics

The sample included 386 certified athletic trainers (ATCs) (201 female, 181 male) with a mean age of 35.92 years ($SD=10.83$ years). The sample size satisfied the recommended goal of 379 participants, providing a sample of the estimated 30,000 ATCs (Patten, 2007). The results (Table 3) related to participant characteristics reveals that the majority of participants have earned a master's degree, work in high school or collegiate settings, and have prior volunteer or work experience working with athletes with disabilities.

Table 3
Demographic Characteristics of Participants (n=386)

Variable	Frequency	Percent¹
Gender		
Female	201	52%
Male	181	47%
Did not report	4	1%
Highest level of education completed		
BA/BS	115	30%
MA/MS	245	64%
EdD/PhD	22	6%
Did not report	4	1%
Additional credentials		
Certified Strength/Conditioning Specialist (CSCS)	48	12%
Emergency Medical Technician (EMT)	28	7%
Physical Therapy Assistant (PTA)	5	1%
Physical Therapist (PT)	22	6%
Physician Assistant (PA)	5	1%
Registered Nurse (RN)	0	0%
Doctor of Osteopathic Medicine (DO)	0	0%
Doctor of Medicine (MD)	1	0.3%
Other	55	14%
Athletic Training Employment Setting		
Hospital	23	6%
Fitness Industry	7	2%
Academic	20	5%
Clinic	66	17%
High School	135	35%
College	137	36%
Professional Sports	13	3%
Other	40	10%
Prior Contact with People Who Have Disability		
Immediate Family Member	38	10%
Extended Family Member	84	22%
Prior Work or Volunteer Experience	242	63%
Education/College Courses		
0 Courses	149	39%
1-2 Courses	191	50%
3-4 Courses	29	8%
5+ Course	17	4%

¹Because of rounding to whole numbers, or because of the possibility of multiple responses to certain questions, percentages within a data category may not add to 100%.

Level of Comfort

As noted in Table 4, most of the ATCs surveyed have medium to high levels of comfort in providing athletic training services across all disability populations. ATCs were found to have higher levels of comfort providing care for athletes who are deaf or blind, or who have general health conditions, dwarfism, or amputations. ATCs were found to have lower levels of comfort providing athletic training services to athletes with cognitive disability, spinal conditions, and neurological disabilities.

Table 4

Level of Comfort Providing Athletic Training Services to Athletes with Disabilities

Disability Population	Valid N	Level of Comfort			
		Not at All	Low	Medium	High
Deafness	361	4%	16%	31%	49%
Blindness	360	4%	17%	30%	49%
Health conditions	359	4%	13%	35%	48%
Dwarfism	360	9%	15%	30%	46%
Amputations	359	8%	22%	28%	42%
Cognitive disability	361	9%	22%	32%	37%
Neurological disability	363	11%	24%	32%	33%
Spinal conditions	362	15%	28%	30%	27%

Of the assessed demographic characteristics (Table 5), gender and having a family member with a disability did not seem to influence ATCs' level of comfort providing athletic training services to athletes with disabilities. Having prior work experience or the completion of a course related to disability were found to have a positive relationship with level of comfort. ATCs working in college settings were found to have lower levels of comfort compared to ATCs working in a high schools, hospitals, or clinics. ATCs working in clinics were found to have the highest levels of comfort providing athletic training services to athletes with disabilities of the work settings surveyed.

Table 5***Level of Comfort Providing Athletic Training Services
to Athletes with Disabilities as a Function of ATC Characteristics***

ATC Characteristic	Valid N	Level of Comfort			
		Not at All	Low	Medium	High
Gender					
Male	172	9%	19%	32%	41%
Female	186	8%	21%	30%	39%
Prior work or volunteer experience					
Yes	230	3%	15%	32%	50%
No	129	17%	29%	29%	26%
Immediate family member with a disability					
Yes	36	11%	20%	29%	40%
No	323	8%	20%	31%	41%
College courses related to disability					
0 courses	139	15%	24%	26%	36%
1-2 courses	182	5%	20%	36%	39%
3 or more courses	40	0%	11%	28%	61%
Current work setting					
College	127	11%	25%	33%	30%
High school	126	6%	18%	30%	45%
Clinic	62	4%	16%	28%	52%
Hospital	21	5%	16%	39%	40%

***ATCs Level of Comfort with Communication and Interaction
with Athletes who have Disabilities***

Of the ATCs surveyed, 66% had high levels of comfort interacting with athletes with disabilities (Table 14). The majority of ATCs (65%) were found to have high levels of comfort when providing simple instructions and 42% were found to have high levels of comfort using person-first language. But half of ATCs (52%) surveyed were not comfortable using sign language.

Table 6

***Comfort with Communication and Interaction
with Athletes who have Disabilities***

	Valid N	Level of Comfort			
		Not at all	Low	Medium	High
Interacting (sharing time, doing activities together)	357	2%	7%	25%	66%
Providing Simple Instructions	360	2%	10%	23%	65%
Using Person-First Language	356	12%	14%	32%	42%
Using Sign Language	358	52%	31%	12%	5%

***ATCs' Level of Comfort with Communication and Interaction
with Athletes who have Disabilities as a Function of ATC Characteristics***

Similar to all other areas of the study, ATCs who had prior experience working with or volunteering with people with disabilities and those who took college courses related to disabilities had higher levels of comfort communicating and interacting with athletes with disabilities than other ATCs (Table 7). The more completed college courses related to disability, the higher the levels of comfort they had communicating and interacting with athletes with disabilities. ATCs working in clinics were found to have significantly higher levels of comfort communicating than those working in colleges.

Table 7

*Comfort with Communication and Interaction with Athletes
who have Disabilities as a Function of ATC Characteristics*

ATC Characteristic	Valid N	Level of Comfort			
		Not at all	Low	Medium	High
Gender	357				
Male	171	18%	16%	25%	42%
Female	186	17%	15%	22%	46%
Prior work or volunteer experience	355				
Yes	228	14%	13%	23%	50%
No	127	23%	19%	23%	34%
Immediate family member with a disability	354				
Yes	34	14%	14%	27%	45%
No	320	18%	16%	23%	44%
College courses related to disability	357				
0 courses	137	22%	14%	22%	41%
1-2 courses	180	15%	18%	23%	45%
3 or more courses	40	15%	12%	9%	65%
Current work setting	334				
College	126	19%	17%	20%	44%
High school	125	15%	14%	24%	47%
Clinic	62	12%	15%	23%	51%
Hospital	21	14%	19%	37%	31%

Level of Confidence

Overall ATCs were found to have medium or high levels of confidence providing general athletic training services to athletes with disabilities (Table 8). Of the ATCs surveyed, 71% indicated a high level of confidence providing treatments of sports injuries to athletes with disabilities. ATCs were found to have lower levels of confidence in their abilities to evaluate sports injuries and lowest levels of confidence in their abilities to rehabilitate and prevent sport injuries for athletes with disabilities.

Table 8

Level of Confidence When Providing General Athletic Training Services to Athletes with Disabilities

	Valid N	Level of Confidence: General Athletic Training Services			
		Not at All	Low	Medium	High
Treatment of sports injuries	376	2%	7%	21%	71%
Evaluation of sports injuries	375	3%	16%	33%	48%
Rehabilitation of sports injuries	376	4%	12%	40%	43%
Prevention of sports injuries	376	5%	20%	35%	40%

Provision of general athletic training services. ATCs who had prior experience with people with disabilities and those who had taken a course related to disabilities had significantly higher levels of confidence in providing general athletic training services for athletes with disabilities than ATCs with less personal background (Table 9). Having a family member with a disability was not

a factor in level of confidence. Unlike ATCs' level of comfort when working with athletes with disabilities, a difference between genders was found in ATCs' level of confidence. Males indicated higher levels of confidence in providing general athletic training services than females. ATCs working in clinics were found to have the highest levels of confidence in providing general athletic training services to athletes with disabilities followed by hospitals, and high schools. ATCs working in college settings were found to have the lowest level of confidence of the work settings observed.

Table 9

Level of Confidence Providing General Athletic Training Services to Athletes with Disabilities as a Function of ATC Characteristics

ATC Characteristic	Valid N	Level of Confidence: General Athletic Training Services			
		Not at All	Low	Medium	High
Gender					
Male	179	3%	11%	29%	57%
Female	193	4%	17%	36%	44%
Prior work or volunteer experience					
Yes	237	2%	11%	30%	58%
No	137	6%	20%	36%	38%
Immediate family member with a disability					
Yes	37	1%	17%	33%	49%
No	337	4%	14%	32%	51%
College courses related to disability					
0 courses	146	8%	19%	33%	41%
1-2 courses	187	0%	12%	35%	52%
3 or more courses	43	0%	4%	18%	78%
Current work setting					
College	133	3%	18%	37%	42%
High school	133	3%	12%	30%	55%
Clinic	63	2%	11%	29%	58%
Hospital	22	0%	8%	36%	56%

Provision of disability-specific athletic training services. ATCs had lower levels of confidence about providing disability-specific than general athletic training services to athletes with disabilities (Table 10). ATCs had the highest level of confidence facilitating wheelchair transfers, managing seizures, regulating temperature, providing skin care, and treating injuries to body parts with no or limited sensation. Of the ATCs surveyed, 39% indicated no confidence in identifying and managing shunt malfunctions, 36% in the prevention and management of autonomic dysreflexia, 30% in identification of bladder infections, 30% in prevention of injuries related to cochlear implants, and 27% in prevention of injuries related to atlantoaxial instability.

Table 10

Level of Confidence When Providing Disability-Specific Athletic Training Services to Athletes with Disabilities

	Valid N	Level of Confidence: Disability-Specific Athletic Training Services			
		Not at All	Low	Medium	High
Skin care	369	13%	30%	27%	31%
Temperature regulation	368	8%	22%	34%	35%
Bladder infections	368	30%	35%	25%	10%
Autonomic dysreflexia	368	36%	33%	22%	9%
Seizure management	365	6%	19%	30%	44%
Wheelchair transfers	364	7%	17%	27%	49%
Treat injuries in parts of the body with little/no sensation	364	10%	27%	34%	29%
Prevent injuries related to atlantoaxial instability	364	27%	33%	25%	15%
Shunt malfunctions	364	39%	37%	17%	7%
Prevent injuries related to cochlear implants	364	30%	31%	25%	15%

Athletic trainers who reported prior experience with people with disabilities and those who had taken a college course related to disability had significantly higher levels of confidence providing disability-specific athletic training services than those with less personal experience and knowledge (Table 11). Athletic trainers' gender was not a factor in their level of confidence when providing disability-specific athletic training services to athletes with disabilities. ATCs

working in college settings were found to have the lowest levels of confidence, while ATCs working in clinics were found to have the highest levels of confidence of the works settings evaluated.

Table 11

Level of Confidence Providing Disability-Specific Athletic Training Services to Athletes with Disabilities as a Function of ATC Characteristics

ATC Characteristic	Valid N	Level of Confidence: Disability-Specific Athletic Training Services			
		Not at All	Low	Medium	High
Gender					
Male	170	20%	25%	27%	28%
Female	190	22%	31%	26%	21%
Prior work or volunteer experience					
Yes	233	16%	25%	29%	30%
No	131	30%	34%	22%	14%
Immediate family member with a disability					
Yes	36	23%	28%	29%	21%
No	327	20%	28%	26%	25%
College courses related to disability					
0 courses	141	30%	31%	22%	18%
1-2 courses	185	16%	29%	31%	25%
3 or more courses	42	9%	18%	24%	49%
Current work setting					
College	128	24%	29%	28%	18%
High school	129	20%	33%	24%	24%
Clinic	63	17%	25%	30%	28%
Hospital	21	23%	19%	33%	25%

Experience

Of the ATCs surveyed, 42% had a great deal of experience working with athletes with health conditions (Table 12). But over half of the ATCs had no experience providing athletic training services to athletes with disabilities such as spinal conditions, amputations, cerebral palsy, other physical disabilities, or dwarfism.

Table 12

Experience Providing Athletic Training Services to Athletes with Disabilities

Disability	Valid N	Experience			
		None	A Little	Some	Great Deal
Health conditions (e.g., diabetes, seizures)	356	6%	21%	32%	42%
Cognitive disability	355	39%	42%	14%	5%
Deaf	354	45%	43%	9%	3%
Spinal conditions (e.g., spinal cord injury, spina bifida)	358	52%	36%	8%	4%
Amputation	360	53%	34%	10%	3%
Cerebral palsy	360	55%	32%	10%	3%
Other physical disability (e.g., dwarfism, muscular dystrophy)	358	58%	33%	8%	2%
Blind	356	66%	28%	6%	1%

ATCs who had prior work or volunteer experience with people with disabilities and ATCs who have taken three or more college courses related to disability were found to have more experience providing athletic training services

to athletes with disabilities than other ATCs (Table 13). Gender was not a factor in the amount of experience ATCs had working with athletes with disabilities. ATCs working in hospitals were found to have the most experience when compared to those employed in high schools, clinics, and colleges.

Table 13***Experience Providing Athletic Training Services to Athletes with Disabilities as a Function of ATC Characteristics***

ATC Characteristic	Valid N	Experience			
		None	A Little	Some	Great Deal
Gender					
Male	170	43%	35%	14%	9%
Female	184	50%	32%	11%	7%
Prior work or volunteer experience					
Yes	227	37%	38%	15%	10%
No	128	64%	25%	5%	5%
Immediate family member with a disability					
Yes	34	42%	36%	14%	7%
No	320	49%	35%	8%	8%
College courses related to disability					
0 courses	137	58%	27%	9%	6%
1-2 courses	180	43%	37%	13%	8%
3 or more courses	39	24%	40%	21%	16%
Current work setting					
College	125	56%	30%	8%	7%
High school	125	44%	35%	14%	8%
Clinic	62	40%	37%	15%	9%
Hospital	21	40%	31%	15%	14%

Although the majority of ATCs generally have little experience working with athletes with disabilities, most are moderately or highly likely to seek knowledge, hands-on experience, and take a course or workshop related to athletes with disabilities (Table 14). Of the ATCs surveyed, 51% would be moderately or highly likely to apply for a job where 25% of the clients have a disability.

Table 14

Likelihood that ATCs Will Seek Additional Experience, Knowledge, or Work Involving Athletes with Disabilities

	Valid N	Likelihood			
		Not at all	Low	Medium	High
Seek Knowledge	357	7%	14%	30%	49%
Seek Hands-on Experience	358	6%	20%	34%	41%
Take a Course or Workshop	358	6%	16%	28%	49%
Apply for a Job where 25% of Clients Have a Disability	359	16%	33%	30%	21%

ATCs who had prior experience working or volunteering with people with disabilities and those who completed three or more college course related to disability were found to have the highest likelihood of seeking additional experience, knowledge, or work with athletes with disabilities (Table 15). ATCs with family members with disabilities were not found to more likely to seek experience, knowledge, or work with athletes with disabilities. ATCs working in

hospitals and clinics had a higher likelihood than those working in college settings of seeking additional knowledge and experience.

Table 15

Likelihood that ATCs Will Seek Additional Experience, Knowledge, or Work Involving Athletes with Disabilities as a Function of ATC Characteristics

ATC Characteristic	Valid N	Likelihood			
		Not at all	Low	Medium	High
Gender					
Male	172	8%	18%	29%	45%
Female	182	4%	16%	28%	53%
Prior work or volunteer experience					
Yes	226	5%	18%	31%	46%
No	129	16%	26%	29%	29%
Immediate family member with a disability					
Yes	36	12%	23%	27%	39%
No	320	9%	21%	31%	40%
College courses related to disability					
0 courses	138	13%	27%	26%	33%
1-2 courses	180	7%	19%	34%	41%
3 or more courses	40	4%	8%	28%	60%
Current work setting					
College	125	13%	25%	30%	31%
High school	125	7%	21%	31%	41%
Clinic	61	8%	14%	27%	51%
Hospital	20	3%	10%	36%	51%

Factors That Influence Levels of Comfort and Confidence

Gender. Results of the study show there are no differences between female and male athletic trainers in their levels of comfort and experience providing care for athletes with disabilities. The data show that males tend to have higher levels of confidence in providing general athletic training services to athletes with disabilities than females. Similarly, gender does not impact athletic trainers' likelihood to seek knowledge or ability to communicate with athletes with disabilities.

Work or volunteer experience. Athletic trainers who reported prior work or volunteer experience with people with disabilities have significantly higher levels of confidence in providing general and disability-specific athletic training services to athletes with disabilities than ATCs with more limited experience. Prior volunteer or work experience also appears to relate to higher levels of comfort when working with athletes with disabilities, greater comfort interacting and communicating, and greater likelihood to seek more knowledge related to athletes with disabilities.

Immediate family member with a disability. There was no difference found between athletic trainers with an immediate family member with a disability and those who did not have a family member with respect to level of confidence in providing general athletic training services to athletes with disabilities. Similar to athletic trainers without immediate family members with a disability, half of the athletic trainers with an immediate family member with a disability reported no comfort or low levels comfort providing disability specific care to athletes with

disabilities. Of the athletic trainers surveyed, 10% of those with immediate family members with disabilities indicated not being comfortable providing athletic training services to athletes with disabilities. Athletic trainers without an immediate family member with a disability were found to have a slightly higher likelihood than other ATCs to seek knowledge related to athletes with disabilities, as well as somewhat more experience providing care for athletes with disabilities.

Completion of college courses related to disability. Athletic trainers who completed one or more college courses related to disability were found to have higher levels of confidence than other in providing general athletic training services to athletes with disabilities. Athletic trainers who took three or more courses were found to have significantly higher levels of confidence. There appears to be a direct relationship with the number of courses athletic trainers have taken and their level of confidence in providing disability-specific care to athletes with disabilities. The majority of the athletic trainers who have not taken a course had low or no confidence in providing care for athletes with disabilities. Athletic trainers who have taken college course had an overall high level of comfort providing care, interest in obtaining more knowledge, interacting with, and more experience working with athletes with disabilities.

Work settings. An athletic trainer's work setting was found to impact level of comfort, confidence, desire to obtain more knowledge, and amount of experience working with athletes with disabilities. ATCs who are employed in hospital, clinic, or high school settings were found to have the highest levels of confidence in providing general athletic training services to athletes with

disabilities. Of the athletic trainers surveyed, half of the athletic trainers working in the hospital or clinic settings indicated medium or high level of confidence in providing disability-specific care. One half of the athletic trainers working in a college or high school were found to have low or no confidence in providing disability-specific care for athletes with disabilities.

Athletic trainers employed at hospitals and clinics were found to have the highest levels of comfort providing care, interacting with, interest in obtaining more knowledge, and experience providing services for athletes with disabilities. Athletic trainers working at high schools were also found to have medium or high levels of comfort providing care for, interacting with, and experience providing care for athletes with disabilities. Athletic trainers working in a college setting were found to have moderate levels of comfort providing care for, interacting with athletes with disabilities. Those who work in the college setting were found to have the lowest likelihood of seeking knowledge, lowest level of comfort providing care for, and least amount of experience with athletes with disabilities.

Of the demographic factors evaluated in this study (gender, volunteer or work experience with people with disabilities, immediate family members with a disability, college courses taken regarding disability, and athletic trainers work settings) prior volunteer or work experience with people with disabilities, college courses related to disability, and work settings had the strongest relationships to athletic trainers' attitudes toward providing athletic training services for athletes with disabilities.

CHAPTER 5

DISCUSSION

The purpose of this study was to assess certified athletic trainers' (ATCs) levels of comfort and confidence in their ability to provide athletic training care for athletes with disabilities. Results of the study show the majority of ATCs have moderate to high levels of comfort and confidence providing general care for athletes with disabilities. Interestingly the results also show ATCs' have low levels of confidence and comfort in providing disability specific care and have had limited interaction providing care for athletes with disabilities. The difference between ATCs' moderate to high levels of confidence in providing general care and the low level of confidence in providing disability specific care indicate the need for further education regarding disability specific care. The significant difference between the moderate to high levels of comfort and confidence ATCs' have providing general athletic training care and the limited hands on experience ATCs had working with athletes with disabilities suggests ATCs need more clinical experience working with athletes with disabilities. The limited amount of experience certified athletic trainers have had with athletes with disabilities also suggests ATCs may not be fully aware of their abilities to provide care for athletes with disabilities or their level of comfort when providing care.

The differences between ATCs' level of comfort providing general athletic training care for athletes with disabilities and their level of confidence providing disability-specific care may provide information regarding ATCs' education and clinical experience providing care for athletes with disabilities. When ATCs were

asked their level of comfort providing care for athletes with specific disabilities 80% of ATCs indicated high or medium level of comfort providing care for athletes who are deaf. In contrast to the high level of comfort providing care for athletes who are deaf, 83% of ATCs surveyed had little to no knowledge of sign language and 61% had little to no confidence in providing care for an athlete with a cochlear implant. The majority of ATCs surveyed, 88% had little to no experience working with athletes who were deaf. In a similar comparison, 76% of ATCs indicated a high to medium level of comfort providing care to athletes with dwarfism, yet 76% of ATCs had little to no comfort providing care for athletes who had shunts. Also, of the ATCs surveyed, 96% of ATCs had little to no experience providing care for athletes with dwarfism. Of the disabilities list on the survey, ATCs were found to have the lowest level of comfort providing care for athletes with spinal conditions. Although, ATCs had the lowest level of comfort providing care for athletes with spinal conditions, 76% of ATCs were found to have medium to high levels of confidence facilitating wheelchair transfers, 69% had medium to high levels of regulating temperature, and 58% had medium to high levels of confidence providing skin care including care for pressure sores.

Excluding athletes with general health conditions, the majority of ATCs were found to have little to no experience working with the disability populations listed on the survey including athletes who are deaf, blind, are amputees, have dwarfism, have neurological conditions, or who have spinal conditions. As found in the present study, the ATCs with previous experience working with people with disabilities were found to have more confidence providing care and higher levels

of comfort. The results of the present study are similar to recent studies (Tervo, Palmer, & Redinius, 2004; White & Olson, 1998), of the attitudes of health professional students, rehabilitation nurses, occupational therapists, and physical therapists toward people with disabilities where previous experience with people with disabilities has been found to be a common factor related to positive attitudes toward people with disabilities.

Contrary to the medium to high levels of comfort ATCs indicated in their ability to provide care in the present study, a recent study of ATCs' beliefs toward providing athletic training care for Special Olympians by Conatser and associates (2009) showed ATCs did not feel competent working with Special Olympians. Although the levels of perceived comfort are contrasting between the present study and Conatser and associates (2009) study, both found courses in adapted physical activity to be associated with ATCs' having positive attitudes toward working with athletes with disabilities (Conatser, et al. 2009).

The differences between ATCs' high level of comfort providing care for athletes with disabilities, lower levels of confidence providing disability-specific care, and little to no experience providing care warrants further study. This study suggests there is a need for education regarding providing disability-specific care and perhaps most importantly, the need for ATCs to have clinical experience providing care to athletes with disabilities to truly assess their abilities and attitudes toward providing care.

Limitations

The researcher- developed survey used in the study had face validity obtained by expert review prior to administration to ATCs but reliability was not determined. Reliability of the survey would provide knowledge that the survey is a consistent tool to be used attitude research. Future studies could evaluate reliability of the Self-Efficacy Scale for Certified Athletic Trainers (Appendix B).

Conclusion

Throughout the study ATCs with prior experience with people with disabilities or who had taken a course related to disability had higher levels of comfort, confidence, and interaction with athletes with disabilities. Results of this study demonstrate the value of interaction with people with disabilities and courses related to disability to ATCs. The results of this study can be used to promote the importance of education of disabilities and disability sports among athletic training curricula. By offering education for ATCs both in the classroom and clinically we are not only improving ATCs' ability to provide quality care but, most importantly greatly improving the health and lives of athletes with disabilities.

Appendix A

Self-Efficacy Scale for Certified Athletic Trainers

SELF-EFFICACY SCALE FOR CERTIFIED ATHLETIC TRAINERS

Instructions:

- Circle one number in each row unless specified
- Answer honestly

SECTION 1. DEMOGRAPHIC INFORMATION

1. Are you Female or Male? Female Male
2. What is your age in years? _____ years
3. What is the highest level of education you have completed? BA/BS MA/MS EdD/PhD
4. Other than ATC or LAT, do you have any other health care credentials? (circle all that apply)
CSCS EMT PTA PT PA RN DO MD Other: _____
5. What is your athletic training employment setting?
Hospital Fitness Academic Clinic High school College Professional Other: _____
6. Do you have an immediate family member (child, sibling, parent) who has a disability? Yes No
7. Do you have an extended family member (cousin, grandparent, etc.) who has a disability? Yes No
8. Do you have any prior work or volunteer experience with persons who have disabilities? Yes No
9. How many college courses related people with disabilities have you taken? 0 1-2 3-4 4+

SECTION 2. SELF-EFFICACY SCALE FOR ATHLETIC TRAINERS

How confident are you in your ability to provide general athletic training services for athletes with disabilities?

	Not at all Confident	Extremely Confident
10. Preventing injuries (e.g., training & conditioning, fitting equipment, using medications, and nutrition)	0 1 2 3 4 5 6 7 8 9 10	
11. Clinically evaluating and diagnosing injuries (e.g., understanding pathology of illness & injury, referring to medical care)	0 1 2 3 4 5 6 7 8 9 10	
12. Providing immediate treatment and care of injuries (e.g., first-aid and injury management)	0 1 2 3 4 5 6 7 8 9 10	
13. Designing and implementing rehabilitation programs for injuries	0 1 2 3 4 5 6 7 8 9 10	

How confident are you in your ability to provide specific athletic training services for athletes with disabilities?

	Not at all Confident	Extremely Confident
14. Provide skin care (e.g., stump care, decubitus ulcers)	0 1 2 3 4 5 6 7 8 9 10	
15. Manage temperature regulation	0 1 2 3 4 5 6 7 8 9 10	
16. Evaluate and treat bladder infections	0 1 2 3 4 5 6 7 8 9 10	
17. Evaluate and treat autonomic dysreflexia	0 1 2 3 4 5 6 7 8 9 10	
18. Provide seizure management	0 1 2 3 4 5 6 7 8 9 10	
19. Facilitate safe wheelchair transfers	0 1 2 3 4 5 6 7 8 9 10	

20. Evaluate an athlete's injury that is in an area of little to no sensation	0 1 2 3 4 5 6 7 8 9 10
21. Prevent injuries related to atlantoaxial instability (AAI)	0 1 2 3 4 5 6 7 8 9 10
22. Evaluate and treat symptoms due to shunt malfunction	0 1 2 3 4 5 6 7 8 9 10
23. Prevent injuries related to cochlear implants	0 1 2 3 4 5 6 7 8 9 10

How comfortable are you providing athletic training services to persons with these disabilities in your typical athletic training responsibilities or at special competitions such as Paralympic Games, Deaflympics, or Special Olympics?

	Not at all Comfortable	Extremely Comfortable
24. Cognitive disabilities such as mental retardation, Down syndrome, severe learning disabilities, and autistic spectrum disorder	0 1 2 3 4 5 6 7 8 9 10	
25. Spinal conditions such as spinal cord injury, spina bifida, and polio	0 1 2 3 4 5 6 7 8 9 10	
26. Neurological conditions such as cerebral palsy, stroke, and head injury	0 1 2 3 4 5 6 7 8 9 10	
27. Amputations (acquired) and limb deficiencies (congenital)	0 1 2 3 4 5 6 7 8 9 10	
28. Dwarfism	0 1 2 3 4 5 6 7 8 9 10	
29. Health conditions such as cardiac, breathing, and seizure problems	0 1 2 3 4 5 6 7 8 9 10	
30. Vision loss or blindness	0 1 2 3 4 5 6 7 8 9 10	
31. Hearing loss or deafness	0 1 2 3 4 5 6 7 8 9 10	

Overall, how comfortable are you in your knowledge and ability to communication with athletes with disabilities?

	Not at all Comfortable	Extremely Comfortable
32. Communicating using person-first terminology	0 1 2 3 4 5 6 7 8 9 10	
33. Communication using sign language	0 1 2 3 4 5 6 7 8 9 10	
34. Communicating using simple instructions	0 1 2 3 4 5 6 7 8 9 10	
35. Interacting (sharing time, doing activities together)	0 1 2 3 4 5 6 7 8 9 10	

How likely are you to seek experience and knowledge about or seek jobs or work special events for persons with disabilities?

	Not at all Likely	Extremely Likely
36. Seek knowledge related to disabilities	0 1 2 3 4 5 6 7 8 9 10	
37. Seek practical "hands-on" experience	0 1 2 3 4 5 6 7 8 9 10	
38. Take a course, workshop, seminar, inservice training, etc. to gain more knowledge?	0 1 2 3 4 5 6 7 8 9 10	
39. Apply for a job where 25% or more of your clients had disabilities	0 1 2 3 4 5 6 7 8 9 10	

40. As and ATC, how much experience have you had providing care for athletes with spinal cord conditions (such as spinal cord injury, spina bifida, or polio) in your athletic training room or at special competitions such as the Paralympic Games?

No Experience	Little Experience	Some Experience	A Great Deal of Experience
0 Events/ 0 Athletes	1-3 Events/ 1-5 Athletes	4-7 Events/ 6-10 Athletes	8+ Events/ 11+ Athletes

41. As and ATC, how much experience have you had providing care for athletes with cerebral palsy (and related neurological conditions such as stroke or head injury) in your athletic training room or at special competitions such as the Paralympic Games?

No Experience	Little Experience	Some Experience	A Great Deal of Experience
0 Events/ 0 Athletes	1-3 Events/ 1-5 Athletes	4-7 Events/ 6-10 Athletes	8+ Events/ 11+ Athletes

42. As and ATC, how much experience have you had providing care for athletes with amputations or limb deficiency in your athletic training room or at special competitions such as the Paralympic Games?

No Experience	Little Experience	Some Experience	A Great Deal of Experience
0 Events/ 0 Athletes	1-3 Events/ 1-5 Athletes	4-7 Events/ 6-10 Athletes	8+ Events/ 11+ Athletes

43. As and ATC, how much experience have you had providing care for athletes with other physical disabilities (such as dwarfism, muscular dystrophy) in your athletic training room or at special competitions such as the Paralympic Games?

No Experience	Little Experience	Some Experience	A Great Deal of Experience
0 Events/ 0 Athletes	1-3 Events/ 1-5 Athletes	4-7 Events/ 6-10 Athletes	8+ Events/ 11+ Athletes

44. As and ATC, how much experience have you had providing care for athletes who are blind in your athletic training room or at special competitions such as the Paralympic Games?

No Experience	Little Experience	Some Experience	A Great Deal of Experience
0 Events/ 0 Athletes	1-3 Events/ 1-5 Athletes	4-7 Events/ 6-10 Athletes	8+ Events/ 11+ Athletes

45. As and ATC, how much experience have you had providing care for athletes with cognitive disabilities (such as mental retardation, severe learning disabilities, or autism) in your athletic training room or at special competitions such as the Special Olympics?

No Experience	Little Experience	Some Experience	A Great Deal of Experience
0 Events/ 0 Athletes	1-3 Events/ 1-5 Athletes	4-7 Events/ 6-10 Athletes	8+ Events/ 11+ Athletes

46. As and ATC, how much experience have you had providing care for athletes who are deaf in your athletic training room or at special competitions such as the Deaflympics?

No Experience	Little Experience	Some Experience	A Great Deal of Experience
0 Events/ 0 Athletes	1-3 Events/ 1-5 Athletes	4-7 Events/ 6-10 Athletes	8+ Events/ 11+ Athletes

47. As and ATC, how much experience have you had providing care for athletes who have health conditions (such as high blood pressure, diabetes, seizure, asthma) in your athletic training room or at special competitions?

No Experience	Little Experience	Some Experience	A Great Deal of Experience
0 Events/ 0 Athletes	1-3 Events/ 1-5 Athletes	4-7 Events/ 6-10 Athletes	8+ Events/ 11+ Athletes

REFERENCES

The Americans with Disabilities Act of 1990, 42 U.S.C. §12101(1990).

Antonak, R. F., & Livneh, H. (1988). *The measurement of attitudes toward people with disabilities: Methods, psychometrics, and scales*. Springfield, Ill: C.C. Thomas.

Attitude. (2009). In Merriam-Webster Online Dictionary. Retrieved December 3, 2009, from <http://www.merriam-webster.com/dictionary/attitude>.

Au, K. W., & Man, D. W. (2006). Attitudes toward people with disabilities: A comparison between health care professionals and students. *International Journal of Rehabilitation Research*, 29, 155-160.

Barr, J., & Bracchitta, K. (2008). Effects of contact with individuals with disabilities: Positive attitudes and majoring in education. *The Journal of Psychology: Interdisciplinary and Applied*, 142, 225-244.

Beacom, R. (2007) *Disability sport and the politics of development*. Paper presented at the annual meeting of the International Studies Association, 48th Annual Convention. Retrieved January 11, 2008 from http://www.allacademic.com/meta/p180338_index.html.

Bernardi, M., Castellano, V., Ferrara, M. S., Sbriccoli, P., Sera, F., & Marchetti, M. (2003). Muscle pain in athletes with locomotor disability. *Medicine & Science in Sports & Exercise*, 35, 199-206.

Bjelland, M. J., Erickson, W. A., & Lee, C. G. (2008). *Disability statistics from the American community survey (ACS)*. Retrieved November 30, 2008 from www.disabilitystatistics.org.

Braddell, G. M. (2006). *Attitudes of education students towards persons with disabilities*. (Doctoral dissertation). Available from Dissertations and Theses database.(UMI No. 1437553)

Bureau of Labor Statistics, U.S. Department of Labor. (2008). *Occupational outlook handbook, 2008-2009 edition, athletic trainers*. Retrieved March 27, 2008, from <http://www.bls.gov/oco/ocos294.htm>.

Conatser, P., Naugle, K., Tillman, M., & Stopka, C. (2009). Athletic trainers' beliefs toward working with Special Olympics athletes. *Journal of Athletic Training*, 44, 279-285.

Davis, R. W., Woodard, R. J., Ferrara, M. S., & Campbell, A. (2004). Athletic training students' perceptions during Special Olympics competitions. *Athletic Therapy Today*, 55-57.

- DePauw, K. P., & Gavron, S. J. (2005). *Disability sport* (2nd ed.). Champaign, IL: Human Kinetics.
- Ferrara, M. S., & Peterson, C. L. (2000). Injuries to athletes with disabilities: Identifying injury patterns. *Sports Medicine*, 30, 137-143.
- Findler, L., Vilchinsky, N., & Werner, S. (2007). The multidimensional attitudes scale toward persons with disabilities. *Rehabilitation Counseling Bulletin*, 50, 166-176.
- Fitness and Athletic Equity Law for Students with Disabilities Annotated Code of Maryland. *Education Article*, Title 7, Subtitle 4B, 2008.
- Hums, M. A., Moorman, A. M., & Wolff, E. A. (2003). The inclusion of the Paralympics in the Olympic and Amateur Sports Act. *Journal of Sport & Social Issues*, 27, 261-275.
- International Committee of Sports for the Deaf. (n.d.). *Games, Melbourne 2005*. Retrieved May 20, 2009 from www.deaflympics.com/games/index.asp?GamesID=35.
- International Paralympic Committee. (n.d.). *General information*. Retrieved May 20, 2009, from http://www.paralympic.org/release/Main_Sections_Menu/Paralympic_Games/Past_Games/Beijing_2008/General_Information/index.html.
- National Athletic Trainer's Association. (n.d.). *NATA athletic training policies & procedures manual*, Retrieved March 15, 2008, from www.nata.org/about_AT/worksettings.htm.
- National Athletic Trainer's Association. (n.d.). *NATA athletic training work settings*, Retrieved April 10, 2008, from www.nata.org/about_AT/worksettings.htm.
- National Athletic Trainer's Association. (n.d.). *The matrix for the 3rd Edition competencies*, Retrieved April 7, 2007, from www.nata.org/education/competencies.org.
- Nyland, J., Snouse, S. L., Anderson, M., Kelly, T., & Sterling, J. C. (2000). Soft tissue injuries to USA Paralympians at the 1996 summer games. *Archives of Physical Medicine and Rehabilitation*, 81, 368-373.
- Patten, M. L. (2007). *Understanding research methods*, (6th ed.). Glendale, CA: Pyrzak Publishing.
- Prentice, W. E. (2009). *Arnheim's principles of athletic training*. New York: McGraw-Hill Higher Education.

- Ramirez, M., Yang, J., Bourque, L., Javien, J., Kashani, S., Limbos, M., Peek-Asa, C. (2009). Sports injuries to high school athletes with disabilities. *Pediatrics*, 123, 690-696.
- Special Olympics. (n.d.). *Overview Special Olympics, The global movement*. Retrieved May 20, 2009 from www.specialolympics.org/press_room.aspx.
- Stachura, K., & Garven, F. (2007). A national survey of occupational therapy students' and physiotherapy students' attitudes to disabled people. *Clinical Rehabilitation*, 21, 442- 449.
- Stopka, C. (1996). Managing common injuries to individuals with disabilities: Prevention comes first! *Palaestra*, 12, 2.
- Tervo, R. C., Azuma, S., Palmer, G., & Redinius, P. (2002). Medical students' attitudes toward persons with disability: A comparative study. *Archives of Physical Medicine and Rehabilitation*, 83, 1537-1542.
- Tervo, R. C., & Palmer, G. (2004). Health professional students' attitudes towards people with disability. *Clinical Rehabilitation*, 18, 908-915.
- Triandis, H. C. (1971). *Attitude and attitude change*. New York: Wiley.
- Webborn, N., Willick, S., & Reeser, J. C. (2006). Injuries among disabled athletes during the 2002 winter Paralympic games. *Medicine and Science in Sports and Exercise*, 38, 811-815.
- White, M. J., & Olson, R. S. (1998). Attitudes toward people with disabilities: A comparison of rehabilitation nurses, occupational therapists, and physical therapists. *Rehabilitation in Nursing*, 23, 126-131.
- Yuker, H. E. (1988). Perceptions of severely and multiply disabled persons. *Journal of the Multihandicapped Person*, 1, 5-16.
- Yuker, H. E. (1994). How useful are indirect measures of attitudes toward persons with disabilities. *Rehabilitation Education*, 8, 138-140.
- Yuker, H., & Block, J. (1986). *Research with the attitude toward disabled persons scales (ATDP)*. Hempstead, NY; Hofstra University, Center for the Study of Attitudes Toward Persons with Disability.
- Yuker, H., & Hurley, M. (1987). Contact with and attitudes toward persons with disabilities: The measurement of intergroup contact. *Rehabilitation Psychology*, 32, 145-154.

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