

THE IMPACT OF ATHLETIC TRAINERS IN A CLINIC SETTING

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**Title**

The impact of Athletic Trainers in a clinic setting

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**MASTER OF SCIENCE**

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## **ABSTRACT**

The purpose was to determine if patients understand the abilities and skill sets of ATs in an orthopedic sports medicine clinic and to examine how ATs employed in an orthopedic sports medicine clinic setting influence patient satisfaction. A total of 126 patients, 68 male and 58 female patients seen at the clinic participated in the study. A survey to determine patient satisfaction, perception and knowledge of ATs was adapted by combining portions of three surveys. 47.5% of participants were either “very familiar” or “extremely familiar” in the abilities of an AT. While 93% of participants rated their satisfaction during their experience with an AT an eight or higher out of ten. A majority of participants had an understanding of the skills and abilities of an AT. ATs employed in an orthopedic sports medicine clinic appear to have a positive impact on patient’s satisfaction.

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## CHAPTER 1. INTRODUCTION

The profession of athletic training has continued to evolve over the past years with the addition of new settings. One of the newer settings growing in popularity is Athletic Trainers (ATs) in an orthopedic sports medicine clinic setting or a physician practice setting.<sup>1,2</sup> As a further understanding of ATs and their skills and abilities is developed, the benefits of having an AT in a clinic setting are becoming clearer. ATs are able to aid the physician by completing the following skills: triage, taking patient histories, performing evaluations, wound care, suture removal, splinting, casting, brace fitting, instruction on exercise programs and general patient care.<sup>3</sup> Athletic Trainers, also, have a strong understanding of the musculoskeletal system which allows them to communicate effectively with physicians specifically in regards to medical terminology.<sup>1</sup> Because the ATs in a clinic setting have musculoskeletal evaluation skills they can benefit the clinic by increasing patient throughput, increasing patient contact, increasing generated revenue, increasing efficiency within the clinic and overall benefits to the physician.<sup>1,3-5</sup> Physicians have reported being happy with the addition of ATs in their clinic because of their ability to see more patients while also spending more time with each patient.<sup>6</sup> Some physicians have suggested that his or hers overall quality of life has been improved with the addition of an AT.<sup>4</sup>

There are many benefits with the addition of ATs in a clinic setting, but the most commonly considered is their effect on number of patients seen and generated revenue for the clinic. Various studies have suggested that the addition of an AT increases the number of patients seen each day by 18% to 22%.<sup>4,5</sup> Thereby, positively impacting the amount of revenue generated each day.<sup>5</sup> One study compared generated revenue between an AT and a medical assistant at a

sports medicine clinic.<sup>3</sup> Athletic Trainers are able to more efficiently see patients in a clinic because of their skills, which has led to an increase in revenue of \$200 to \$1200 each day.<sup>3</sup>

Athletic Trainers in a clinic setting have shown to be beneficial for many reasons that impact the physicians or practice itself. However, little research considers the impact on the patient. Patient satisfaction has become an important aspect in healthcare.<sup>7-9,10</sup> It is common for healthcare practices to incorporate a patient satisfaction questionnaire. Satisfied patients are more likely to adhere to treatment, benefit from the care they receive and overall improve their quality of life.<sup>7-9,10</sup>

### **Purpose of the Study**

The purpose of this study was to determine if patients understand the abilities and skill sets of athletic trainers and to examine the influence of athletic trainers employed in an orthopedic sports medicine clinic setting on patient satisfaction.

### **Research Questions**

- (1) Are patient's aware of the skills and roles of an athletic trainer?
- (2) Does an athletic trainer in an orthopedic sports medicine clinic setting influence patient satisfaction?

### **Inclusion Criteria**

- (1) Participants were fluent in reading and writing English.
- (2) Participants were seen by an athletic trainer prior to the physician.
- (3) Participants were between the age of 13 and 70 years old.

### **Exclusion Criteria**

- (1) Participant was not fluent in reading and writing English.
- (2) Participant was not seen by an athletic trainer prior to the physician.

(3) Participant was under the age of 13 or over the age of 70 years old.

### **Limitations**

- (1) The amount of previous experience with athletic trainers can impact participants' knowledge and perception.
- (2) Depending on the appointments needs, the amount of time spent with an athletic trainer can vary. The amount of time could influence their overall impression of the athletic trainer and the participants' satisfaction.
- (3) A self-report survey is used which could lead to bias.

### **Delimitations**

- (1) Participants were recruited from only one orthopedic sports medicine clinic setting.

### **Definition of Terms**

Patient satisfaction can be described as fulfilling a need or want, specifically regarding an individual's health care.<sup>25</sup>

“Trust is a belief (and/or feeling) that an athletic trainer has the patient's best interest in mind and that therapy, and any associated information provided during therapy, will help the patient return to activity.”<sup>22</sup>

Empathy has been described as “adopting the perspective of another person in order to understand their beliefs and feelings, and expressing this understanding positively through interpersonal interactions.”<sup>7</sup>

Relatedness has been described as “the extent to which a patient feels connected to, respected or understood by the clinician.”<sup>7</sup>

A clinic setting is generally an orthopedic or sports medicine clinic. Athletic trainers are becoming more commonly employed in these clinics because of their knowledge, abilities and skill sets.<sup>1,2</sup>

## **CHAPTER 2. REVIEW OF LITERATURE**

### **Introduction**

The purpose of this study was to determine if patients understand the abilities and skill sets of athletic trainers and to examine the influence of athletic trainers employed in an orthopedic sports medicine clinic setting on patient satisfaction. The following research questions guided this study: (1) Are patients aware of the skills and roles of an athletic trainer? (2) How does an athletic trainer in an orthopedic sports medicine clinic setting influence patient satisfaction?

The literature review is organized into the following areas: Athletic Trainers in the Clinic Setting, Value of Athletic Trainers in the Clinic, Knowledge and Perception of Athletic Trainers, Patient Satisfaction and Summary.

### **Athletic Trainers in the Clinic Setting**

The role of an AT has continued to evolve over the years. One of the newest roles for ATs is in an orthopedic sports medicine clinic setting or the physician practice setting.<sup>1</sup> Although an AT in the clinic setting is gaining awareness, ATs have been used in sports medicine clinics for more than 20 years. The increase in ATs in this setting was directly correlated with the increase of sports medicine treatment centers.<sup>11</sup> In the eighties, there was nearly a 100% increase in sports medicine treatment centers.<sup>11</sup> Athletic Trainers have formed strong relationships with team physicians, therefore it is fitting to have them employed in this setting.<sup>15</sup> In one case study, Physician John Xerogeanes, Emory University Chief of Sports Medicine, stated: “Between the two worlds of orthopedic surgery and athletic training, we have both the need and the skill to form a symbiotic working relationship.”<sup>1</sup> The teamwork exhibited between a physician and an AT allow for the best patient care.

Because of a particular knowledge and skill set, ATs have many versatile qualities that allow them to thrive in this role. They are able to multi-task, effectively communicate and easily understand medical terminology.<sup>1</sup> Athletic Trainers are able to assist a physician with a variety of tasks including: triage, taking patient histories, performing evaluations, wound care, suture removal, splinting, casting, brace fitting, instruction on exercise programs and general patient care.<sup>3</sup> Because of their skill set, they are also able to increase efficiency within the clinic by helping with the evaluation and treatment process during an appointment.<sup>1,3</sup> The AT can then report initial findings to a physician, which allows for better time management while also allowing the physician to have a general idea of the issue prior to seeing the patient.<sup>1</sup> Athletic Trainers have many qualities that can be beneficial for a clinic, however it is also important to consider what value they can bring.

### **Value of Athletic Trainers in the Clinic**

It is important that ATs are not only properly trained for a clinic setting but they are able to meet the needs of a clinic setting. Due to the acceptance of the role by physicians, the number of ATs working in orthopedic clinic settings has drastically increased.<sup>6</sup> Physicians are highly satisfied with the clinical skills of ATs. Knowledge of the musculoskeletal system makes them preferred over medical assistants, entry-level physician assistants and nurse practitioners. These same physicians also suggested that ATs improve his or her own quality of life.<sup>4</sup>

The increase in ATs in the clinic setting has been seen as beneficial to the clinic. There have been various studies that have supported that ATs have a positive influence on increasing patient volumes and patient contact time.<sup>3-5</sup> With the addition of an AT, a physician can increase direct patient contact time by one hour per day.<sup>3</sup> Physicians are able to see more patients, while also being able to spend more time with each patient, which leads to higher satisfaction rates.<sup>12</sup>

The clinics in one study reported that they were satisfied or very satisfied with the use of ATs because of this increase in contact time.<sup>4</sup> Furthermore, the clinics reported that they hoped to maintain or even increase the number of ATs employed in their practice.<sup>4</sup> With the addition of ATs in the clinic setting, wait times to schedule an appointment and wait time upon arrival were also lower than the overall mean wait time.<sup>4</sup> Overall, this study supports the notion that physicians practices are aware of the benefits an AT can bring to their clinic.

A benefit that is often considered is the financial impact of an AT in an orthopedic practice. In today's society, revenue is a driving force so it is important to know how ATs can benefit a clinic financially. Studies have shown that with the use of an AT, the number of patients seen each day has increased 18% to 22%.<sup>3,5</sup> Because there is an increase in the number of patients seen each day, there is an increase in clinic revenue.<sup>5</sup> In one study, patient encounters, charges and collections from two sports medicine physicians over a 12-month period were obtained. Each physician was assisted by an AT for six months and a medical assistant for six months.<sup>3</sup> There was a statistically significant increase ( $p < 0.01$ ) in both patient encounters and revenue generated when ATs were used compared to the medical assistant.<sup>3</sup> The utilization of an AT compared to a medical assistant can increase patients seen by three to four each day which increases collections by \$200 to \$1200 each day.<sup>3</sup> ATs can be a beneficial addition to a sports medicine clinic because they are able to increase efficiency and productivity.

### **Knowledge and Perception of Athletic Trainers**

The use of ATs continues to grow in different settings but it is important for the knowledge and perception of ATs to also continue to grow. The lack of understanding of the role of a health care provider has an impact on patient satisfaction and can positively influence a patient's treatment.<sup>14</sup> It is also important for patients to understand the knowledge an AT exhibits

in order to feel comfortable with their experience.<sup>13,14</sup> Since ATs are the primary link between an athlete and the medical community, developing a strong rapport between an athlete and AT is important.<sup>14</sup> To investigate patients perceptions of ATs, a study considered DI and DII collegiate student-athletes and their perceptions of their collegiate ATs.<sup>14</sup> Results suggested that the more satisfied an athlete may be with their care, the more trust they will have in their AT.<sup>14</sup>

Maintaining trust between AT and athlete is important in order to provide consistent healthcare in the athletic population.<sup>14</sup>

Researchers have compared patient perceptions of ATs and orthopedic medical residents, both were primary clinical support staff in a sports medicine clinic.<sup>13</sup> The name badge for each clinician was removed and a survey was distributed randomly to patients at the clinic. The survey included questions related to the perceived level of orthopedic knowledge and level of care provided by the initial clinician the patient encountered.<sup>13</sup> Both the ATs and orthopedic medical residents received high scores in overall patient satisfaction and orthopedic knowledge. Therefore, there was no evidence that patients perceived ATs differently than orthopedic medical residents.<sup>13</sup> This could be seen as positive when considering the education required of a orthopedic medical resident.

Furthermore, another study specifically looked at high school athletes' and their parents' perceptions and knowledge of an AT.<sup>15</sup> For this study, a survey was developed that included questions related to experience, knowledge, and perception of ATs. The survey was then distributed to 760 parents who had a child that competed in at least one high school sport. The results suggested that 50% of parents always perceived the secondary school AT as a health care provider but 61% stated they did not always trust the ATs opinion.<sup>15</sup> Furthermore, parents with little experience with ATs, believed that emergency care is one of their main responsibilities.<sup>15</sup>



Parents believed this because most of their experiences with ATs were during sporting events when an AT manages acute injuries or emergency situations.<sup>15</sup> The more experience parents had with an AT the greater trust they had in the skills and job requirements. After completing the survey, there was an increase in understanding of the AT's role.<sup>15</sup> Interestingly, no additional education was provided to the parents during this study. After completing the survey, majority of parents, 57%, stated they were more likely to send their child to an AT and 38% responded stating they already send their child to the AT.<sup>15</sup> An increase in knowledge of ATs appears to positively impact trust and satisfaction in ATs as health care providers.

### **Patient Satisfaction**

There is little research supporting the benefits ATs in the clinic setting bring to their patients. Patient satisfaction is an important growing aspect of health care and should be considered when evaluating the use of ATs in the clinic setting. In almost all healthcare areas, patient satisfaction questionnaires are being implemented to determine the quality of care and also overall clinic performance.<sup>7-10</sup> Satisfied patients are more likely to adhere to treatment, benefit from their health care and have a higher quality of life.<sup>8</sup> It has also been suggested that patient satisfaction is important in generating patient loyalty.<sup>16</sup> Therefore, keeping patients satisfied is crucial in continuing a successful practice.

Since patient satisfaction is an increasingly important aspect of patient care, it is important to know what can influence it. A qualitative study worked to identify factors that influence patient satisfaction in orthopedic outpatient clinics.<sup>7</sup> The researchers conducted patient interview and focus groups identifying key factors of patient satisfaction including: clinic wait time, clinical contact time, empathy, communication, expectation, trust and relatedness.<sup>7</sup>

### **Clinic Wait Time**

The most commonly discussed aspect was clinic wait time. The longer a patient has to wait, the less satisfied they may be.<sup>7</sup> Additionally, the longer a patient had to wait, the more issues they may want to discuss. Whereas, if the patient was seen at their appointment efficiently and in a timely manner, there would be more focus on the chief complaint.<sup>7</sup>

### **Clinic Contact Time**

Another aspect, related to timing, that influences patient satisfaction is clinical contact time. Patients do not like the feeling of being rushed through their appointment. Many patients discussed their lack of trust in the clinician due to not having enough time with him or her.<sup>7</sup> Along with having adequate time with a clinician, patients want to be carefully reevaluated and followed up with when necessary.<sup>8</sup> All clinicians must keep in mind the importance of spending adequate time with each patient.

### **Empathy**

The next aspect with a strong influence on satisfaction was empathy. Empathy has been described as “adopting the perspective of another person in order to understand their beliefs and feelings, and expressing this understanding positively through interpersonal interactions.”<sup>7</sup> Patients tended to feel more comfortable and appreciated caring behaviors from their health care providers.<sup>7</sup> Empathy is a vital component to the establishment of a positive doctor-patient relationship, it must be perceived and felt by the patient to be effective.<sup>17,18</sup> Higher levels of empathy can also increase higher levels of clinical competence and positive patient outcomes; which in return can increase patient satisfaction.<sup>17</sup> In fact, patients perceived medical students clinical competence higher when more empathy was exhibited.<sup>17</sup> This is important to

acknowledge because it shows that the simple act of empathy can lead patients to be more confident in a health care providers' abilities.

Empathy is also connected to communication.<sup>19</sup> Empathy is considered to be an influential aspect of communication, but it is easily ignored.<sup>19</sup> When using empathy to enhance communication the following benefits have been observed: encouragement to patients to better explain symptoms and concerns, increase the efficiency of collecting and understanding health information for an accurate diagnosis, assisting patients in their treatment and recovery, and lastly soothing patients in a therapeutic manner.<sup>19</sup> Combining empathic skills with communication could be considered the best ways to improve patient satisfaction and compliance.<sup>18</sup> Empathy is a major component that must be exhibited when striving for an increase in patient satisfaction.

### **Communication**

Communication was also identified as an aspect influencing patient satisfaction. Doctor-patient communication has been shown to have a strong influence on patients behavior and well-being, including the following aspects: satisfaction with care, adherence to treatment, recall and understanding of medical information, coping with a disease, quality of life and state of health.<sup>20,21</sup> The patients interviewed in one study discussed the importance of communication with the exchange of information, specifically in a manner that is clear to the patient.<sup>7</sup> To a patient it is important that his or her condition is clearly explained, there is proper education and explanation of the patient's role in the treatment process.<sup>8</sup> Not only does the patient need to understand given information, adequate information needs to be given to the health care provider to ensure the proper diagnosis and treatment plan.<sup>18</sup> One study discussed that the amount of information a health care provider gives is often influenced by the patient.<sup>18</sup> The more a patient

has questions, concerns or exhibits anxious behaviors, the more information the provider is likely to give.<sup>18</sup> Effective communication allows for a better understanding and expectations for the patient.

### **Expectation**

Expectation was another aspect that influences patient satisfaction. The patient's expectation can largely impact their satisfaction, especially if they do not receive the treatment they thought was necessary.<sup>7,8</sup> This expectation could stem from a referring health care provider who may have told them to expect a certain outcome. However when in reality the new provider most likely specializes in a certain area and could have a better understanding.<sup>7</sup> Some of the most common expectations patients may have include: pain control, regaining function and returning to activities of daily living. Patients generally have an expectation regarding their appointment, whether their expectations are met largely impacts their overall satisfaction.

### **Trust**

Trust also plays an important role in patient satisfaction. In one study, a Patient-AT Trust Instrument was developed in regards to the collegiate setting.<sup>22</sup> The study also developed their own trust definition specifically regarding athlete and AT. It was defined as: "Trust is a belief (and/or feeling) that an athletic trainer has the patient's best interest in mind and that therapy, and any associated information provided during therapy, will help the patient return to activity."<sup>22</sup> A patient must trust a health care provider in order to be satisfied with an outcome. The aspect of trust is greatly influenced by a health care provider's reputation and demeanor.<sup>16</sup> If a patient perceives a provider as committed, sincere, honest and transparent he or she is more likely to trust in the provider's recommendations and trust in the treatment they may be receiving.<sup>16</sup> A few interpersonal traits that can also lead to trust include: attentiveness, caring,

coordination, continuity and competence in the professional knowledge.<sup>24</sup> Without trust, patients would likely become unsatisfied.

### **Relatedness**

The final aspect influencing patient satisfaction is relatedness.<sup>7</sup> Researchers have described relatedness as “the extent to which a patient feels connected to, respected or understood by the clinician.”<sup>7</sup> Many patients discussed the notion of being respected and validated by the clinician. These characteristics can lead to a connection or bond between patient and clinician.<sup>7</sup> In return, forming a connection or bond with the clinician leads to an increase in satisfaction.

There are many aspects of patient care that have shown to be important aspects affecting patient satisfaction. It is important for all health care providers to be aware and understand the various aspects. Many of the factors can be considered more interpersonal factors, which can sometimes be overlooked.<sup>7</sup> Patient satisfaction is a complex aspect of health care that needs to be thoroughly considered when adding ATs into a newer setting.

### **Summary**

Athletic training has continued to evolve and emerge into new settings. The use of ATs in a physician practice has been gaining more awareness due to the benefits they bring to a clinic. ATs bring value to a clinic regarding patient volume, revenue and overall efficiency of the clinic. Even though there are many benefits for a clinic, there is little research regarding the benefits to a patient. The aim of this study is to determine patient satisfaction with the use of an AT in an orthopedic sports medicine clinic setting, but also patient’s knowledge and perception of ATs. This study was guided by the following research questions: (1) Are patient’s aware of the skills and roles of an athletic trainer? (2) How does an athletic trainer in an orthopedic sports medicine

clinic setting influence patient satisfaction? This information will allow for individuals to have a full understanding of the use of ATs in a physician practice setting, but also how ATs can influence a patient.

## **CHAPTER 3. METHODOLOGY**

### **Research Design**

The design of this study was non-experimental and survey based. The purpose of this study was to determine if patients understand the abilities and skill sets of athletic trainers and to examine the influence of athletic trainers employed in an orthopedic sports medicine clinic setting on patient satisfaction.

### **Sample of Study**

The sample of participants was recruited at an Orthopedic and Sports Medicine clinic in Fargo, North Dakota, a clinic that employs ATs who work closely with physicians. Following their appointment, the co-investigator, with the use of an oral script, recruited participants. The oral script can be found in Appendix A.

Inclusion criteria for this study involved participants between the age of 13 and 70, fluent in reading and writing in English and were seen by an athletic trainer prior to the physician. Exclusion criteria included individuals who were under the age of 13 or over the age of 70, were unable to read and write in English and were not seen by an athletic trainer prior to the physician. The goal of this study was to obtain a minimum of 200 completed surveys.

### **Instrumentation**

The instrument used to determine patient satisfaction, perception and knowledge of athletic trainers was developed using various validated survey instruments.<sup>13,15,22</sup> Each instrument covered different topics and were considered when developing the instrument used in this study. The first instrument considered was a short survey regarding “Patient Perceptions of Athletic Trainers and Orthopaedic Medical Residents as Primary Clinical Support Staff in Sports Medicine Practice.”<sup>13</sup> This short survey included questions regarding the knowledge of the first

clinician the patient encountered, and the care that was received from the first clinician.<sup>13</sup> The questions on this survey were used to help develop similar questions on the instrument for this study.

The next instrument used was the *Role Delineation Study*. The *Role Delineation Study* is completed by the Board of Certification to analyze the practice of athletic training based on the following areas: essential domains, tasks, knowledge and skill.<sup>23</sup> One of the references, titled: “High School Athletes’ Parents’ Perceptions and Knowledge of the Skills and Job Requirements of the Certified Athletic Trainer” used the *Role Delineation Study* to construct their survey.<sup>15</sup> This study helped to develop questions related to participants’ knowledge of the abilities and skill sets of athletic trainers.

The final instrument used was the Patient-AT Trust Instrument.<sup>22</sup> This instrument was developed in order to evaluate the patient’s trust in their athletic trainer in a collegiate study. The instrument was adapted in order to better fit the clinic setting. Because the clinic setting is different than a traditional collegiate setting, some questions needed to be changed or omitted. For example, terms that related to sports or a team were removed to better align with the patients seen in the clinic setting.

Lastly, demographic questions were included. The demographic questions helped to identify possible differences regarding age, biological sex and chronicity of the condition. The survey contained a total of 16 questions and took less than 10 minutes to complete. Most of the questions on the survey have likert response options. The questions regarding the participants’ knowledge of an AT in the clinic have the response options of “extremely familiar,” “very familiar,” “moderately familiar,” “slightly familiar,” and “not familiar at all.” Whereas the questions related to the perception of athletic trainers have the response options of “strongly



agree,” “somewhat agree,” “neither agree nor disagree,” “somewhat disagree” and “strongly disagree.” Lastly, the questions related to the satisfaction with the athletic trainer included response options of “extremely dissatisfied”, “somewhat dissatisfied”, “neither satisfied nor dissatisfied”, “somewhat satisfied”, “extremely satisfied” and “not applicable.” The last table had the response options in opposite order of the previous tables. This was to help ensure all participants were reading each table and not just simply clicking through the answers. The complete survey can be found in Appendix B.

### **Pilot Study**

A pilot study was conducted in order to validate the developed survey. This process included think alouds with a random sample of males and females over the age of 18 with varying levels of knowledge of athletic trainers. There were also three content experts that reviewed the survey. All three content experts are licensed athletic trainers with a minimum of 10 years of clinical experience in a variety of settings. All feedback was compiled and the survey was modified based on the provided suggestions. No major concerns arose from the pilot data collection.

### **Procedure**

Data collection took place at the Orthopedic and Sports Medicine clinic in the private room following the participants’ scheduled appointment. The research team used an oral script to recruit each participant. Participants were then given the opportunity to ask any questions regarding the study. After each participant agreed to the study and was over the age of 18, the informed consent form was distributed. The informed consent form can be found in Appendix C. If the participant was under the age of 18, a parent consent form was provided to the parents of the participant, as well as a youth assent form to the participant. The parent consent form can be

found in Appendix D and the youth assent form can be found in Appendix E. After consent occurred, each participant was provided with the survey taking approximately 10 minutes to complete. The survey was made using the Qualtrics online system and participants were given an iPad to complete the survey. A random number generator was used to select 10 participant numbers at the beginning of the study that would receive a \$15 gift card upon their completion of the survey for their time. This study was approved by the University's Institutional Review Board.

### Statistical Analysis

Descriptive information was analyzed including means, standard deviations, and frequencies. Independent *t*-tests were used to evaluate differences between age and gender and overall patient satisfaction. Significance was set at  $\alpha \leq 0.05$ . Data processing was completed by using IBM SPSS (Version 23) statistics software.

### References

1. Practice Profiles: Athletic Trainers in Orthopedic Offices. National Athletic Trainers' Association. <http://www.nata.org/professional-interests/emerging-settings/physician-practice>. Published July 20, 2016.
2. Nicolelle TS, Pecha FQ, Omdal RL, Nilsson KJ, Homaechvarria AA. Patient Throughput in a Sports Medicine Clinic With the Implementation of an Athletic Trainer: A Retrospective Analysis. *Sports Health*. 2017; 9(1): 70-74.
3. Pecha FQ, Xerogeanes JW, Karas SG, Himes ME, Mines BA. Comparison of the Effect of Medical Assistants Versus Certified Athletic Trainers on Patient Volumes and Revenue Generation in a Sports Medicine Practice. *Sports Health*. 2013; 5 (4): 337-339.
4. Frogner BK, Westerman B, DiPietro. The Value of Athletic Trainers in Ambulatory Settings. *J Allied Health*. 2015; 44 (3): 169-176.
5. Hajart AF, Pecha F, Hasty H, Burfeind SM, Greene J. The financial Impact of an Athletic Trainer Working as a Physician Extender in Orthopedic Practice. *Greenbranch Publishing LLC*. 2014.
6. Pecha FQ, Bahnmaier LA, Hasty MJ, Greene JJ. Physician Satisfaction With Residency-Trained Athletic Trainers as Physician Extenders. *Human Kinetics*. 2014; 19(2): 1-3.
7. Waters S, Edmondston SJ, Yates PJ, Gucciardi DF. Identification of factors influencing patient satisfaction with orthopaedic outpatient clinic consultation: A qualitative study. *Man Ther*. 2016; 25: 48-55.

8. Hush JM, Cameron K, Mackey M. Patient Satisfaction With Musculoskeletal Physical Therapy Care: A Systematic Review. *Physical Therapy*. 2011; 91 (1): 25-36.
9. Casserley-Feeney SN, Phelan M, Duffy F, Roush S, Cairns MC, Hurely DA. Patient satisfaction with private physiotherapy for musculoskeletal pain. *BMC Musculoskelet Disord*. 2008; 9 (50).
10. Sitzia J, Wood N. Response rate in patient satisfaction research: an analysis of 210 published studies. *Int J Qual Health Care*. 1998; 10 (4): 311-317.
11. Cormier J, York A, Domholdt E, Kegerreis S. Athletic Trainer Utilization in Sports Medicine Clinics. *Journal of Orthopedic & Sports Physical Therapy*. 1993; 17 (1): 36-40.
12. Greene JJ. Athletic Trainers in an Orthopedic Practice. *Human Kinetics*. 2004; 9 (5): 56-57.
13. Pecha FQ, Nicoletto TS, Xerogeanes JW, Karas S, Labib SA. Patient Perceptions of Athletic Trainers and Orthopedic Medical Residents as Primary Clinical Support Staff in Sports Medicine Practice. *J Allied Health*. 2015; 44 (4): 225-228.
14. Unruh, S. Perceptions of Athletic Training Services by Collegiate Student-Athletes: A Measurement of Athlete Satisfaction. *J Athl Train*. 1998; 33(4): 347-350.
15. Weitzel RL, Miller MG, Giannotta ER, Newmann CJ. High School Athletes' Parents' Perceptions and Knowledge of the Skills and Job Requirements of the Certified Athletic Trainer. *J Athl Train*. 2015; 50 (2): 1286-1291.
16. Suki NM. (2011). Assessing patient satisfaction, trust, commitment, loyalty and doctor's reputation towards doctor services. *Pak J Med Sci*, 2011; 27 (5): 1207-1210.
17. Ogle J, Bushnell JA, Caputi P. Empathy is related to clinical competence in medical care. *Medical Education*. 2013; 47: 824-831.
18. Kim SS, Kaplowitz S, Johnston MV. The Effects of Physician Empathy on Patient Satisfaction and Compliance. *Evaluation & The Health Professionals*. 2004; 27 (3): 237-251.
19. Chu CI, Tseng CA. A survey of how patient-perceived empathy affects the relationship between health literacy and the understanding of information by orthopedic patients? *BMC Public Health*. 2013; 13(155).
20. Swenson SL, Buell S, Zettler P, White M, Ruston DC, Lo B. Patient-center Communication Do Patients Really Prefer It? *J Gen Intern Med*. 2004; 19: 1069-1079.
21. Ong LML, De Haes JCMJ, Hoos AM, Lammes FB. Doctor-Patient Communication: A Review of Literature. *Soc. Sci. Med*. 1995; 40 (7): 903-918.
22. David S. *Development and Validation of the Patient-AT Trust Instrument*. Athens, Ohio: The Patton College of Education, Ohio University; 2013.
23. Henderson J. The 2015 Athletic Trainer Practice Analysis Study. Omaha, NE: Board of Certification; 2015.
24. Radwin LE, Cabral HJ. Trust in Nurses Scale: construct validity and internal reliability evaluation. *J Adv Nurs*. 2010; 66(3): 683-689.
25. Merriam-Webster. <https://www.merriam-webster.com/dictionary/satisfaction>. Accessed February 9, 2017.

## CHAPTER 4. THE IMPACT OF ATHLETIC TRAINERS IN A CLINIC SETTING

### Abstract

**Context:** Athletic Trainers (ATs) in the clinic is a newer employment setting but has had a positive impact on a clinic and physicians. However, little is known on the impact they have on patients. **Objective:** To determine if patients understand the abilities and skill sets of ATs in the clinic and to examine if ATs employed in an orthopedic sports medicine clinic setting influence patient satisfaction. **Design:** Non-experimental survey. **Setting:** Orthopedic sports medicine clinic in the upper Midwest. **Patients or Other Participants:** A total of 126 participants, 68 male and 58 female (85 participants were between 13 and 29 years old) patients seen at the clinic participated in the study. **Intervention(s):** A survey to determine patient satisfaction, perception and knowledge of ATs was adapted by combining portions of three surveys. To validate the adapted survey, a pilot study was completed that included think-alouds and content experts. The survey was distributed to participants using an iPad with a link to the Qualtrics online system. **Main Outcome Measure(s):** Descriptive information was analyzed including means, standard deviations, and frequencies (percentages). **Results:** Responses revealed that 62.7% of participants were able to correctly identify the AT and 77.8% of participants agreed that an AT had “a lot” or “a great deal” of knowledge in orthopedics. At least 47.5% of participants were either “very familiar” or “extremely familiar” in the skills and abilities of an AT. Lastly, 93% of participants rated their satisfaction during their experience with an AT an eight or higher out of ten. **Conclusion:** A majority of participants had an understanding of the skills and abilities of an AT. ATs employed in an orthopedic sports medicine clinic appear to have a positive impact on patient’s satisfaction.

**Key Words:** Athletic Trainer, clinic setting, physician practice

## **Introduction**

The profession of athletic training has continued to evolve over the years with the addition of new settings. One of the newer settings growing in popularity is Athletic Trainers (ATs) in an orthopedic sports medicine office or a physician practice setting.<sup>1,2</sup> As a further understanding of ATs and their skills and abilities is developed, the benefits of having an AT in a clinic setting are becoming clearer. ATs are able to aid the physician by completing the following skills: triage, taking patient histories, performing evaluations, wound care, suture removal, splinting, casting, brace fitting, instruction on exercise programs and general patient care.<sup>3</sup> Furthermore, ATs have a strong understanding of the musculoskeletal system which allows them to communicate effectively with physicians specifically regarding medical terminology.<sup>1</sup> Because the ATs in a clinic setting have musculoskeletal evaluation skills, they can benefit the clinic by increasing patient throughput, increasing patient contact, increasing generated revenue, increasing efficiency within the clinic and provide overall benefits to the physician.<sup>1,3-5</sup> Physicians have reported being happy with the addition of ATs in their clinic because of their ability to see more patients while also spending more time with each patient.<sup>6</sup> Additionally, physicians have suggested that his or her overall quality of life has been improved with the addition of an AT.<sup>4</sup>

There are many benefits with the addition of ATs in a clinical setting but the most commonly considered benefit is the effect on number of patients seen and generated revenue for the clinic. Various studies have suggested that the addition of an AT increases the number of patients seen each day by 18% to 22%.<sup>4,5</sup> Thereby, positively impacting the amount of revenue generated each day.<sup>5</sup> One study compared generated revenue between an AT and a medical

assistant at a sports medicine clinic.<sup>3</sup> ATs were able to more efficiently see patients in a clinic (because of their skill set), which led to an increase in revenue of \$200 to \$1200 each day.<sup>3</sup>

However, little research considers the impact on the patient, although patient satisfaction has become an important aspect in healthcare.<sup>7-9,10</sup> Patient satisfaction can be described as fulfilling a need or want, specifically regarding an individual's health care.<sup>25</sup> Satisfied patients are more likely to adhere to treatment, benefit from the care they receive and overall improve their quality of life.<sup>7-9,10</sup> Because of its importance, it is common for healthcare practices to incorporate a patient satisfaction questionnaire. Therefore, the purpose of this study was to determine if patients understand the abilities and skill sets of ATs and to examine the influence of ATs employed in an orthopedic sports medicine clinic setting on patient satisfaction.

## **Methods**

### **Participants**

A total of 126 participants were recruited from an Orthopedic and Sports Medicine clinic in an upper Midwest state. The clinic employs ATs who work closely with various physicians. Inclusion criteria for this study involved participants between the age of 13 and 70, fluent in reading and writing in English and were seen by an AT prior to the physician. Exclusion criteria included individuals who were under the age of 13 or over the age of 70, were unable to read and write in English and were not seen by an AT prior to the physician.

### **Instrumentation**

The instrument used to determine patient satisfaction, perception and knowledge of ATs for this study was adapted by considering three previously validated survey instruments.<sup>11-13</sup> Each instrument covered different topics related to ATs in a clinic setting, perceptions and knowledge of ATs, and patient trust in ATs.

The first instrument considered was a short survey regarding “Patient Perceptions of Athletic Trainers and Orthopaedic Medical Residents as Primary Clinical Support Staff in Sports Medicine Practice.”<sup>11</sup> This eight question survey included questions regarding the knowledge of the first clinician the patient encountered and the care that was received from the first clinician.<sup>11</sup> The questions on this survey were used to help develop similar questions on the instrument for this study. A total of two questions on the current survey were developed using this validated instrument. In these questions, the words “first clinician” were changed to be “athletic trainers.”

The next instrument used was a survey distributed to high school athletes’ parents’ that included questions regarding their perceptions and knowledge of the skills and job requirements of an AT.<sup>12</sup> In order to construct the instrument used in this study, the *Role Delineation Study* was used to develop questions related to the skill set of ATs. The *Role Delineation Study* is completed by the Board of Certification to analyze the practice of athletic training based on the following areas: essential domains, tasks, knowledge and skill.<sup>14</sup> This study helped to develop two questions formatted in a table with a total of 15 statements related to participants’ knowledge of the abilities and skill sets of ATs.

The final instrument used was the Patient-AT Trust Instrument.<sup>13</sup> This instrument was previously developed in order to evaluate the patient’s trust in their AT in a collegiate setting. For this reason, the instrument was modified to better fit the clinical setting. For example, terms that related to sports or a team were removed to better align with the patients seen in the clinic setting.

The finalized survey for this study contained a total of 49 questions and took less than 10 minutes to complete. Nine questions regarding the participants’ knowledge of an AT in the clinic have likert response options of “extremely familiar,” “very familiar,” “moderately familiar,”

“slightly familiar,” and “not familiar at all,” whereas the questions related to the perception of ATs have the response options of “strongly agree”, “somewhat agree”, “neither agree nor disagree”, “somewhat disagree” and “strongly disagree.” Lastly, the questions related to the satisfaction with the AT included response options of “extremely dissatisfied”, “somewhat dissatisfied”, “neither satisfied nor dissatisfied”, “somewhat satisfied”, “extremely satisfied” and “not applicable.” The last table had the response options in opposite order of the previous tables. This was to help ensure all participants were reading each table and not just simply clicking through the answers.

### **Pilot Study**

A pilot study was conducted in order to validate the newly developed survey. This process included think-alouds with a random sample of five males and three females 18 or older with varying levels of knowledge of ATs. Three content experts also reviewed the survey. All three content experts are licensed ATs with a minimum of 10 years of clinical experience in a variety of settings. Feedback from the think-alouds and content experts was compiled and the survey was modified based on the provided suggestions. No major concerns arose from the pilot data collection and minor issues were easily clarified.

### **Procedures**

Data collection took place at an Orthopedic and Sports Medicine clinic in the private room following the participants’ scheduled appointment. The research team used an oral script to recruit each participant and participants were then given the opportunity to ask any questions regarding the study. After each participant agreed to the study and met the inclusion criteria, the informed consent form was distributed. If the participant was under the age of 18, a parent consent form was provided to the parents, as well as a youth assent form to the participant. After



consent was obtained, each participant was provided with an iPad to complete the survey using the online Qualtrics system. This study was approved by the University's Institutional Review Board. There were four different ATs, male and female that were considered by participants when completing the survey.

### **Data Analysis**

Descriptive information was analyzed including means, standard deviations, and frequencies. Independent *t*-tests were used to evaluate differences between age and gender and overall patient satisfaction. Significance was set at  $\alpha \leq 0.05$ . Data processing was completed by using IBM SPSS (Version 23) statistics software.

### **Results**

A total of 126 patients at an orthopedic sports medicine clinic participated in this study. There were 68 males and 58 females with an age range of 13-70 years old (85 participants were between the age of 13 and 29). More specific demographic information can be found in Table 1. The participants had a variety of reasons for their appointment with varying pain levels and differences in the chronicity of the patient's chief complaint. The many affected body regions can be found in Table 2.

Out of the 126 participants, 79 people (62.7%) correctly identified the first health care provider they saw at the clinic as an AT (Table 1). The average range of time an AT spent with a patient prior to the physician was between six and ten minutes. The amount of previous experience a patient had with an AT varied amongst participants. However, only 9.5% of participants stated that they had no experience with an AT.

**Table 1.** Demographic Characteristics of Participants in Study

Variable	Number (Percentage)
Biological Sex	
Male	68 (54%)
Female	58 (46%)
Age Group (n=125)	
13-19	57 (45.6%)
20-29	28 (22.4%)
30-39	7 (5.6%)
40-49	12 (9.6%)
50-59	11 (8.8%)
60-70	10 (8%)
Chronicity of Issue (n=110)	
Less than 1 week	29 (26.3%)
1-4 weeks	32 (29.1%)
4-8 weeks	17 (15.5%)
More than 8 weeks	32 (29.1%)
Profession of first health care provider (n=126)	
Athletic Trainer	79 (62.7%)
Medical Assistant	12 (9.5%)
Nurse	19 (15.1%)
Other	16 (12.7%)
Time spent with first health care provider (n=126)	
Less than 5 minutes	38 (30.2%)
6-10 minutes	61 (48.4%)
11-15 minutes	15 (11.9%)
More than 15 minutes	12 (9.5%)
Previous experience with an athletic trainer (n=126)	
None at all	12(9.5%)
A little	40 (31.7%)
A moderate amount	46 (36.5%)
A lot	18 (14.3%)
A great deal	10 (7.9%)
Amount of knowledge an athletic trainer has in the field of orthopedics (n=126)	
A little	6 (4.8%)
A moderate amount	22 (17.5%)
A lot	63 (50%)
A great deal	35 (27.8%)

n value listed due to varying responses for each question

**Table 2.** Affected Body Region

Body Region	Number of participants
Head/Concussion	4 (3.2%)
Neck	2 (1.5%)
Back	3 (2.4%)
Shoulder	10 (8%)
Elbow	2 (1.5%)
Wrist/hand	5 (4%)
Hip	6 (4.8%)
Knee	41 (32.5%)
Lower leg	7 (5.5%)
Foot/Ankle	15 (11.9%)
Physical	21 (16.7%)
Other	10 (8%)

n=126

In regards to the knowledge of ATs, many participants were familiar with an AT's knowledge in the field of orthopedics. A total of 77.8% of participants agreed that an AT had “a lot” or “a great deal” of knowledge in the field of orthopedics (Table 1). Of the 119 participants who answered the question regarding the highest level of education an AT must obtain, 58.8% correctly answered with a four-year degree. The remaining participants selected the wrong degree, which included the options of: high school diploma (0.8%), a two-year degree (10.9%), some college (1.7%), a professional degree (26.1%), or a doctorate (1.7%).

The next portion of the survey was related to the participant's familiarity of various skills and abilities of an AT. At least 47.5% of participants were either “very familiar” or “extremely familiar” with the skills and abilities of an AT. The specific skills and abilities considered can be found in Table 3. The next portion of the survey focused on patient perceptions of ATs. This section included statements related to ATs and asked participants about their level of agreement with each statement. Each statement can be found in Table 4. 81.5% of participants responded

“strongly agree” that it was necessary for ATs to pass a certification exam. The remainder of the results regarding the patient’s perceptions of an AT can be found in Table 4.

**Table 3.** Participant Familiarity to Skills and Abilities of Athletic Trainers: How familiar is the athletic trainer in the clinic to complete the following skills?

Skill	Extremely Familiar	Very Familiar	Moderately Familiar	Slightly Familiar	Not Familiar at all
Interpret pre-participation screening information to minimize the risk of injuries and illnesses. n=122	39 (31.9%)	56 (45.9%)	19 (15.6%)	4 (3.3%)	4 (3.3%)
Obtain an individual’s history to assess injuries and illnesses. n=121	49 (40.6%)	54 (44.6%)	13 (10.7%)	4 (3.3%)	1 (0.8%)
Perform a physical exam to formulate diagnoses. n=121	43 (35.5%)	46 (38.1%)	27 (22.3%)	4 (3.3%)	1 (0.8%)
Make custom protective equipment and properly fit protective equipment (ie. shoulder pads, helmets). n=122	44 (36%)	41 (33.6%)	24 (19.7%)	9 (7.4%)	4 (3.3%)
Recognize potential life threatening conditions (ie. Diabetes, heat stroke, asthma). n=122	37 (30.3%)	47 (38.5%)	28 (23%)	6 (4.9%)	4 (3.3%)
Establish action plans using available resources to provide health care services. n=122	44 (36.1%)	52 (42.6%)	21 (17.2%)	3 (2.5%)	2 (1.6%)
Properly immobilize fractures and dislocations. n=121	63 (52.1%)	40 (33.1%)	12 (9.8%)	4 (3.3%)	2 (1.7%)
Administer rehab and conditioning exercises to facilitate recovery, function and performance. n=122	64 (52.5%)	36 (29.5%)	16 (13.1%)	4 (3.3%)	2 (1.6%)
Educate patients about their diagnosis or condition and treatment. n=121	59 (48.8%)	47 (38.8%)	10 (8.2%)	3 (2.5%)	2 (1.7%)

n value listed due to varying responses for each question

**Table 4.** Participants Perceptions of Athletic Trainers: How do you perceive the following statements regarding athletic trainers?

Statement	Strongly Agree	Somewhat Agree	Neither agree or disagree	Somewhat disagree	Strongly disagree
Athletic trainers are healthcare professionals. n=125	81 (64.8%)	34 (27.2%)	9 (7.2%)	1 (0.8%)	0
It is necessary for athletic trainers to pass a certification exam. n= 124	101 (81.5%)	19 (15.3%)	3 (2.4%)	0	1 (0.8%)
It is necessary for athletic trainers to acquire state licensure. n= 123	80 (65.1%)	31 (25.2%)	8 (6.5%)	2 (1.6%)	2 (1.6%)
Athletic training and personal training are the same thing. n= 124	7 (5.7%)	14 (11.3%)	23 (18.5%)	50 (40.3%)	30 (24.2%)
Society needs athletic trainers. n=125	82 (65.6%)	33 (26.4%)	9 (7.2%)	0	1 (0.8%)
Athletic trainers are an appropriate and effective source of rehabilitating injuries. n=125	89 (71.2%)	29 (23.2%)	7 (5.6%)	0	0

n value listed due to varying responses for each question

Most participants were highly satisfied with ATs in a clinic setting with 93% of participants who rated their satisfaction at eight or higher. The remaining 7% rated their satisfaction between five and seven, and 0.9% rated their satisfaction at one. Following the question of overall satisfaction, the survey included questions with statements about more specific aspects influencing patient satisfaction. The following were all aspects considered: “professional manner demonstrated,” “strong communication,” “adequately answered all questions,” “willingness to carefully listen to you,” “quality time spent with you,” “attentiveness and responsiveness to your needs,” and lastly, “provided proper aftercare instructions if applicable.” The most highly rated aspect was “professional manner demonstrated” with 83.2% of participants stating they were “extremely satisfied.” Another important aspect was “attentiveness and responsiveness to your needs” 81% of participants stated that they were

“extremely satisfied.” A few more aspects were considered with similar results, this information can be found in Table 5.

**Table 5.** Patient Satisfaction with Athletic Trainers in a Clinic Setting: Please consider the first health care provider you saw today when answering the questions below, how satisfied were you with the following:

Statement	Extremely dissatisfied	Somewhat dissatisfied	Neither satisfied or dissatisfied	Somewhat satisfied	Extremely satisfied
Professional manner demonstrated. n=125	7 (5.6%)	2 (1.6%)	2 (1.6%)	10 (8%)	104 (83.2%)
Strong communication skills. n=125	7 (5.6%)	2 (1.6%)	3 (2.4%)	13 (10.4%)	100 (80%)
Adequately answered all questions. n=115	7 (6.1%)	2 (1.7%)	2 (1.7%)	13 (11.3%)	91 (79.2%)
Willingness to carefully listen to you. n=123	7 (5.7%)	2 (1.6%)	4 (3.3%)	11 (8.9%)	99 (80.5%)
Quality time spent with you. n=124	5 (4%)	3 (2.4%)	7 (5.6%)	16 (13%)	93 (75%)
Attentiveness and responsiveness to your needs. n=121	6 (5%)	3 (2.5%)	3 (2.5%)	11 (9%)	98 (81%)
Provide proper aftercare instructions if applicable. n=99	7 (7.1%)	2 (2%)	6 (6.1%)	10 (10.1%)	74 (74.7%)

n value listed due to varying responses for each question

## Discussion

### Recognition of Athletic Trainers

This study examined the impact of an AT in an orthopedic sports medicine clinic. Participants were asked questions regarding their knowledge and perception of ATs and their overall satisfaction with their experience with an AT. Of the 126 participants, 62.7% correctly identified the AT. There were four athletic trainers within the clinic that were considered by

participants. Interestingly, each AT wore a badge stating they were an AT as well as different clothing than scrubs that nurses employed in the clinic wore but not all participants correctly identified the AT. The majority of patients were able to identify the AT, but some participants assumed the first health care provider was a nurse, medical assistant, or another provider. This response was not particularly surprising since an AT is new to the clinic setting and in the past, almost all clinics have employed nurses or medical assistants to work with physicians. However, it is necessary for a patient to be able to identify an AT in order to understand their knowledge and the reason why an AT is employed in this setting. Surprisingly, 9.5% of participants stated they had no experience at all with an AT. This was unexpected considering the number of patients who correctly identified an AT compared to the number of patients who had previous experience with an AT. Although some may not be able to identify an AT, many participants had experience with an AT at another time or in a different setting.

### **Knowledge of Athletic Trainers**

The data collected revealed that participants are aware of an AT's knowledge in the field of orthopedics as 77.8% of participants stated ATs had "a great deal" of knowledge in regards to orthopedics. This is important because it suggests that a majority of patients understand an AT's connection to the field. Previously, a study compared an AT to an orthopedic medical resident and both were rated equally high in their knowledge in the field of orthopedics.<sup>11</sup> This comparison is interesting due to the difference in amount of education required for an AT (Bachelor degree) and an orthopedic medical resident (Bachelor degree and medical degree). The results from this current study were similar to that previous study because the participants suggested ATs had "a great deal" of knowledge in the field of orthopedics. It is reassuring to know that most participants understood the amount of knowledge an AT has in the field of

orthopedics and it can lead one to believe that people have a further understanding of the abilities of an AT.

Participants understood the amount of knowledge an AT has in the field of orthopedics, however many were unable to identify the amount of education needed to become an AT. It was unfortunate that only 58.8% of participants correctly identified the amount of education required to be an AT. Some participants selected a higher degree, but many had chosen only a high school degree, or a two-year degree. For the profession of athletic training to be fully respected, it is imperative that there is a better awareness of the educational requirements.

### **Skills and Abilities of Athletic Trainers**

Next, participants were questioned regarding specific skills and abilities of an AT. Of all the skills listed 47.5% of participants were “very familiar” or “extremely familiar” with the skills and abilities of an AT. Having an understanding of the skills and abilities of a health care provider allows an individual to trust and feel comfortable working with them. Previous studies have supported that if an individual trusts the health care provider they have seen, they are more likely to adhere to treatment and be satisfied with the outcome.<sup>12,15-16</sup> Additionally, with an increase in understanding of the skills and abilities of an AT, there is an increase in patient satisfaction as well.<sup>12</sup> It is important for ATs to be properly perceived in order for them to be fully supported within the community. This notion not only applies within an orthopedic sports medicine clinic but also throughout the profession in all settings. These results suggest that participants are more aware of what an AT is able to do and are able to recognize it which anecdotally has not always been the case.



## **Patient Satisfaction with Athletic Trainers in a Clinic**

The last aspect considered during this study was the impact an AT in the clinic has on patient satisfaction. With the growing importance of patient satisfaction, it was necessary that this aspect was studied as a part of this survey. Studies have suggested that patient satisfaction is important in increasing patient adherence, increasing benefits from their care and increasing the patients overall quality of life.<sup>7-10</sup> The results from this study suggest 93.5% of participants rated their satisfaction an eight or higher out of ten. The remaining 5.6% rated their satisfaction between five and seven, and one individual rating their satisfaction at one. This suggests that having ATs in the clinic has a positive impact on patient satisfaction and therefore ATs should continue to be employed in the clinic setting.

## **Limitations**

It is important to note a few aspects that limited this study. Sample size was a limitation of this study. There were a few factors that impacted the ability to recruit more participants, one being patient's under the age of 18 who came to an appointment without a parent or guardian. With no parent or guardian present, the child was unable to be recruited for the study since no parent consent could be given.

Further studies could include more participants seen in more than one clinic. Another study could also compare the use of an AT versus a nurse or medical assistant and the impact on patient satisfaction. Previous studies have compared an AT versus a nurse or medical assistant, but only considered the effect on a sports medicine practice.

## **Clinical Implications**

Overall, a majority of participants had an understanding of the skills and abilities of an AT and were able to correctly identify the various roles of an AT. It is promising for the

profession because the general public is able to recognize an AT, which is important. This allows individuals to fully trust in the abilities and ultimately treatment provided by ATs. Findings from this study indicate that patients seen in an orthopedic sports medicine clinic are satisfied with his or her experience with an AT. ATs employed in an orthopedic sports medicine clinic appear to have a positive impact on patient's satisfaction. Therefore, ATs should continue to be considered when staffing an orthopedic sports medicine clinic.

### References

1. Practice Profiles: Athletic Trainers in Orthopedic Offices. National Athletic Trainers' Association. <http://www.nata.org/professional-interests/emerging-settings/physician-practice>. Published July 20, 2016.
2. Nicolette TS, Pecha FQ, Omdal RL, Nilsson KJ, Homaechvarria AA. Patient Throughput in a Sports Medicine Clinic With the Implementation of an Athletic Trainer: A Retrospective Analysis. *Sports Health*. 2017; 9(1): 70-74.
3. Pecha FQ, Xerogeanes JW, Karas SG, Himes ME, Mines BA. Comparison of the Effect of Medical Assistants Versus Certified Athletic Trainers on Patient Volumes and Revenue Generation in a Sports Medicine Practice. *Sports Health*. 2013; 5 (4): 337-339.
4. Frogner BK, Westerman B, DiPietro. The Value of Athletic Trainers in Ambulatory Settings. *J Allied Health*. 2015; 44 (3): 169-176.
5. Hajart AF, Pecha F, Hasty H, Burfeind SM, Greene J. The financial Impact of an Athletic Trainer Working as a Physician Extender in Orthopedic Practice. *Greenbranch Publishing LLC*. 2014.
6. Pecha FQ, Bahnmaier LA, Hasty MJ, Greene JJ. Physician Satisfaction With Residency-Trained Athletic Trainers as Physician Extenders. *Human Kinetics*. 2014; 19(2): 1-3.
7. Waters S, Edmondston SJ, Yates PJ, Gucciardi DF. Identification of factors influencing patient satisfaction with orthopaedic outpatient clinic consultation: A qualitative study. *Man Ther*. 2016; 25: 48-55.
8. Hush JM, Cameron K, Mackey M. Patient Satisfaction With Musculoskeletal Physical Therapy Care: A Systematic Review. *Physical Therapy*. 2011; 91 (1): 25-36.
9. Casserley-Feeney SN, Phelan M, Duffy F, Roush S, Cairns MC, Hurely DA. Patient satisfaction with private physiotherapy for musculoskeletal pain. *BMC Musculoskelet Disord*. 2008; 9 (50).
10. Sitzia J, Wood N. Response rate in patient satisfaction research: an analysis of 210 published studies. *Int J Qual Health Care*. 1998; 10 (4): 311-317.
11. Pecha FQ, Nicoletto TS, Xerogeanes JW, Karas S, Labib SA. Patient Perceptions of Athletic Trainers and Orthopedic Medical Residents as Primary Clinical Support Staff in Sports Medicine Practice. *J Allied Health*. 2015; 44 (4): 225-228.
12. Weitzel RL, Miller MG, Giannotta ER, Newmann CJ. High School Athletes' Parents' Perceptions and Knowledge of the Skills and Job Requirements of the Certified Athletic Trainer. *J Athl Train*. 2015; 50 (2): 1286-1291.

13. David S. *Development and Validation of the Patient-AT Trust Instrument*. Athens, Ohio: The Patton College of Education, Ohio University; 2013.
14. Henderson J. The 2015 Athletic Trainer Practice Analysis Study. Omaha, NE: Board of Certification; 2015.
15. Unruh, S. Perceptions of Athletic Training Services by Collegiate Student-Athletes: A Measurement of Athlete Satisfaction. *J Athl Train*. 1998; 33(4): 347-350.
16. Suki NM. (2011). Assessing patient satisfaction, trust, commitment, loyalty and doctor's reputation towards doctor services. *Pak J Med Sci*, 2011; 27 (5): 1207-1210.

## APPENDIX A. ORAL SCRIPT

Hi, my name is Danielle Kirsch. I am a graduate student in the Department of Health, Nutrition and Exercise Science at North Dakota State University, and I am conducting a research project to determine if patients understand the abilities and skill sets of athletic trainers and to examine the influence of athletic trainers employed in a sports medicine clinical setting on patient satisfaction. It is our hope, that with this research, we will have a better understanding of the perception of athletic trainers in the clinic. Additionally, a better understanding of the relationship with athletic trainers can improve patient satisfaction.

Would you like to hear more about our study?

[If yes,]

You are invited to participate in this research study. The criteria for participating in the study is that you must be between the age of 13 and 70, interacted with an athletic trainer prior to a physician and are comfortable with reading and writing English. Your participation is entirely voluntary, and you may change your mind or quit participating at any time, with no penalty; however, your assistance would be greatly appreciated in making this a meaningful study.

If you decide to participate, you will be asked to complete a survey that should take less than 10 minutes. The survey will ask a few general questions about your visit at the clinic, questions about your overall satisfaction, and lastly your knowledge and perception of athletic trainers. The study will take place in the same private room following your appointment.

When writing about the study, your information will be combined with information from other people taking part in the study; we will write about the combined information that we have gathered. You will not be identified in these written materials. We may publish the results of the study; however, we will keep your name and other identifying information private.

Feel free to ask any questions about the study now, or contact me later at [danielle.kirsch@ndsu.edu](mailto:danielle.kirsch@ndsu.edu). You may also contact my advisor, Dr. Shannon David at [shannon.david@ndsu.edu](mailto:shannon.david@ndsu.edu). If you have questions about the rights of human participants in research, or to report a complaint about the research, contact the NDSU Human Research Protection Program, at (701) 231.8995, toll-free at (855) 800-6717, or via email at: [ndsu.irb@ndsu.edu](mailto:ndsu.irb@ndsu.edu). The Sanford Health Institutional Review Board can also be reached at 1-605-312-6430.

Thank you for your participation in this study. If you wish to receive a copy of the research results, please email me at [danielle.kirsch@ndsu.edu](mailto:danielle.kirsch@ndsu.edu).

## APPENDIX B. SURVEY

### The impact of Athletic Trainers in a clinical setting



Please answer the following demographic information.

What is your biological sex?

- Male
- Female

What is your age in years?

- 13-19
- 20-29
- 30-39
- 40-49
- 50-59
- 60-70

What brings you into the clinic today?

How long have you been dealing with this issue?

- Less than 1 week
- 1 week up to 4 weeks
- 4 weeks to 8 weeks
- More than 8 weeks
- Not Applicable

On a scale from 0 to 10, 0 being no pain and 10 being you think you may die, what would you rate your pain today?

What was the profession of the first health care provider you saw today?

- Medical Assistant
- Nurse
- Athletic Trainer
- Other

How much total time did you spend with the first health care provider you saw today?

- Less than 5 minutes
- 6 to 10 minutes
- 11 minutes to 15 minutes
- More than 15 minutes

Please answer the following questions regarding the first health care provider you interacted with today.

How much previous experience do you have with athletic trainers?

- A great deal
- A lot
- A moderate amount
- A little
- None at all

How much knowledge do you believe an athletic trainer has in the field of orthopedics?

- A great deal
- A lot
- A moderate amount
- A little
- None at all

What do you think is the highest level of education required to be a certified athletic trainer?

- Less than high school
- High school graduate
- Some college
- 2 year degree
- 4 year degree
- Professional degree
- Doctorate
- I don't know

How familiar is the athletic trainer in the clinic to complete the following skills:

	Extremely familiar	Very familiar	Moderately familiar	Slightly familiar	Not familiar at all
Interpret pre-participating screening information to minimize the risk of injuries and illness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obtain an individual's history to assess injuries and illnesses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Perform a physical examination to formulate diagnoses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make custom protective equipment and properly fit protective equipment (ie, shoulder pads, helmets)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognize potential life threatening conditions (ie, diabetes, heat stroke, asthma)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Establish action plans using available resources to provide health care services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Properly immobilize fractures and dislocations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Administer rehab and conditioning exercises to facilitate recovery, function and performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Educate patients about their diagnosis or condition and treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How do you perceive the following statements regarding athletic trainers:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Athletic trainers are healthcare professionals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is necessary for athletic trainers to pass a certification exam.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is necessary for athletic trainers to acquire state licensure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Athletic training and personal training are the same thing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Society needs athletic trainers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Athletic trainers are an appropriate and effective source of rehabilitating injuries.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please consider the first health care provider you saw today when answering the questions below, how satisfied were you with the following:

	Extremely dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Extremely satisfied	Not Applicable
Professional manner demonstrated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strong communication skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adequately answered all of your questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Willingness to carefully listen to you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality time spent with you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attentiveness and responsiveness to your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide proper aftercare instructions if applicable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

On a scale from 0 to 10, 0 being extremely dissatisfied and 10 being extremely satisfied, what was your overall satisfaction with the first health care provider you saw today prior to the physician?



The first health care provider you interacted with was an athletic trainer. Please think about that health care experience when answering the following questions below.

I trust the athletic trainer with my healthcare.

- Never/A few times
- Occasionally
- Often
- Always

Please identify how often the athletic trainer:

	Never/A few times	Occasionally	Often	Always	Not Applicable
Verbally communicated well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acted in a respectable manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicated well through writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explained your injury with terms you understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had your best interest in mind	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Listened to your input	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worked to build a good relationship with you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been approachable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please identify how often the athletic trainer:

	Never/A few times	Occasionally	Often	Always	Not Applicable
Been patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explained your treatment with terms you understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been confident about their decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Treated you in a pleasant manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been happy to see you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been confident when engaged in "hands-on" care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provided a comfortable environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## APPENDIX C. INFORMED CONSENT FORM

NDSU North Dakota State University  
Department of Health, Nutrition and Exercise Science  
PO Box 6050 Dept. 2620  
Fargo, ND 58108-6050  
701.231.5686

### **The impact of Athletic Trainers in a clinical setting**

Dear participant:

Our names are Danielle Kirsch and Shannon David. We are a graduate student and faculty member in the Department of Health, Nutrition and Exercise Science at North Dakota State University. We are conducting a research study to determine if patients understand the abilities and skill sets of athletic trainers and to examine the influence of athletic trainers employed in a sports medicine clinical setting on patient satisfaction.

As a patient in the sports medicine clinic that has interacted with an athletic trainer, your participation in this study would provide valuable feedback. Your participation in this research is your choice. If you decide to participate in the study, you may change your mind and stop participating at any time without penalty or loss of benefits to which you are already entitled. Refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled.

A raffle will be held for gift cards with a maximum value of \$15, you have a 1 in 20 chance of winning. A random number generator will select a predetermined number who will receive a gift card. The participant will immediately receive the gift card following the study if they have been selected.

As a participant, you will be asked to complete a survey that should take less than 10 minutes. The survey will ask a few general questions about your visit at the clinic, questions about your overall satisfaction and lastly your knowledge and perception of athletic trainers. The study will take place in the same private room following your appointment. An iPad will be used to complete the survey.

It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known risks to the participant.

Society could potentially have a better understanding of the perception of athletic trainers in a clinical setting. Additionally, a better understanding of the relationship with athletic trainers can improve patient satisfaction in the clinic. However, you individually may not get any benefit from being in this research study.

This study is anonymous. That means that no one, not even members of the research team, will know that the information you give comes from you.

Before you decide whether to accept this invitation to take part in the research study, please ask any questions that might come to mind now. Later, if you have any questions about the study, you can contact the researchers Danielle Kirsch ([danielle.kirsch@ndsu.edu](mailto:danielle.kirsch@ndsu.edu)) or Dr. Shannon David ([shannon.david@ndsu.edu](mailto:shannon.david@ndsu.edu)).

You have rights as a participant in research. If you have questions about your rights, or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program by:

- Telephone: 701.231.8995 or toll-free 1.855.800.6717
- Email: [ndsu.irb@ndsu.edu](mailto:ndsu.irb@ndsu.edu)
- Mail: NDSU HRPP Office, NDSU Dept. 4000, PO Box 6050, Fargo, ND 58108-6050.

The role of the Human Research Protection Program is to see that your rights are protected in this research; more information about your rights can be found at: [www.ndsu.edu/irb](http://www.ndsu.edu/irb) .

This research has been reviewed and approved by the Sanford Institutional Review Board (“IRB”). The Sanford Institutional Review Board is a group of people who protect the rights and welfare of people who participate in research. You may talk to them at (605)- 312-6430 or [eIRB@sanfordhealth.org](mailto:eIRB@sanfordhealth.org) if:

- Your questions, concerns or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research subject.
- You want to get information or provide input about this research.

You are freely making a decision whether to be in this research study. Signing this form means that

1. you have read and understood this consent form
2. you have had your questions answered, and
3. you have decided to be in the study.

You will be given a copy of this consent form to keep.

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Your signature

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Date

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Your printed name

---

Signature of researcher explaining study

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Date

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Printed name of researcher explaining study

## APPENDIX D. PARENT CONSENT FORM

NDSU      North Dakota State University  
Department of Health, Nutrition and Exercise Science  
PO Box 6050 Dept. 2620  
Fargo, ND 58108-6050  
701.231.5686

### **The impact of Athletic Trainers in a clinical setting**

Our names are Danielle Kirsch and Shannon David. We are a graduate student and faculty member in the Department of Health, Nutrition and Exercise Science at North Dakota State University. We are conducting a research study to determine if patients understand the abilities and skill sets of athletic trainers and to examine the influence of athletic trainers employed in a sports medicine clinical setting on patient satisfaction.

As a patient in the sports medicine clinic that has interacted with an athletic trainer, your child's participation in this study would provide valuable feedback. Your child's participation in this research is your choice. If your child decides to participate in the study, your child may change his or her mind and stop participating at any time without penalty. Refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled. The subject may discontinue participation at any time without penalty or loss of benefits to which the subject is otherwise entitled.

A raffle will be held for gift cards with a maximum value of \$15, your child will have a 1 in 20 chance of winning. A random number generator will select a predetermined number who will receive a gift card. The participant will immediately receive the gift card following the study if they have been selected.

As a participant, your child will be asked to complete a survey that should take less than 10 minutes. The survey will ask a few general questions about your child's visit at the clinic, questions about your child's overall satisfaction, and your child's knowledge and perception of athletic trainers. The study will take place in the same private room following your child's appointment. An iPad will be used to complete the survey.

It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known risks to the participant.

A benefit of this project is that society could potentially have a better understanding of the perception of athletic trainers in a clinical setting. Additionally, a better understanding of the relationship with athletic trainers can improve patient satisfaction in the clinic. However, your child may not get any benefit from being in this research study.

This study is anonymous. That means that no one, not even members of the research team, will know that the information your child gives comes from him/her.

Before you decide whether to accept this invitation to take part in the research study, please ask any questions that might come to mind now. Later, if you have any questions about the study, you can contact the researchers Danielle Kirsch ([danielle.kirsch@ndsu.edu](mailto:danielle.kirsch@ndsu.edu)) or Dr. Shannon David ([shannon.david@ndsu.edu](mailto:shannon.david@ndsu.edu)).

Your child has rights as a participant in research. If you have questions about your child’s rights, or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program by:

- Telephone: 701.231.8995 or toll-free 1.855.800.6717
- Email: [ndsu.irb@ndsu.edu](mailto:ndsu.irb@ndsu.edu)
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This research has been reviewed and approved by the Sanford Institutional Review Board (“IRB”). The Sanford Institutional Review Board is a group of people who protect the rights and welfare of people who participate in research. You may talk to them at (605)- 312-6430 or [eIRB@sanfordhealth.org](mailto:eIRB@sanfordhealth.org) if:

- Your questions, concerns or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research subject.
- You want to get information or provide input about this research.

You are freely making a decision whether to be in this research study. Signing this form means that

4. you have read and understood this consent form
5. you have had your questions answered, and
6. you give your permission for your child to be in the study.

You will be given a copy of this form to keep.

Your signature documents your permission for the named child to take part in this research.

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Printed name of child

---

Signature of parent or individual legally authorized to consent to the child’s general medical care

---

Date

---

Printed name of parent or individual legally authorized to consent to the child’s general medical care

**Assent was:**

- Obtained
- Not obtained; child declined, no survey given.

Signature of person obtaining consent and assent	Date
Printed name of person obtaining consent	

## APPENDIX E. YOUTH ASSENT FORM

NDSU North Dakota State University  
Department of Health, Nutrition and Exercise Science  
PO Box 6050 Dept. 2620  
Fargo, ND 58108-6050  
701.231.5686

### YOUTH ASSENT FORM

#### **The impact of Athletic Trainers in a clinical setting**

- You are invited to take part in a research study to determine if patients understand the abilities and skill sets of athletic trainers and to examine the influence of athletic trainers employed in a sports medicine clinical setting on patient satisfaction.
- The study is being done by Danielle Kirsch, ATC and Shannon David, PhD, ATC, ROT, PES

If you agree to participate, you will be asked to complete a short survey that should take no longer than 10 minutes. The survey will ask a few questions about your visit at the clinic, questions about your overall satisfaction, and your knowledge and view of athletic trainers.

For your time in this project, there will be a raffle for a gift card for \$15. You will have a 1 in 20 chance of winning.

It is not possible to find all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known risks to the participant.

One benefit to this study is that society could potentially have a better understanding of the view of athletic trainers in a clinical setting and a better understanding of how the relationship with athletic trainers can improve patient satisfaction. However, you individually may not get any benefit from being in this research study.

- Your parent(s) or legal guardian(s) have given their permission for you to be in the research, but it is still your choice whether or not to take part.
- Even if you say yes now, you can change your mind later, and stop participating.
- Your decision will have no effect (bad or good) on care and treatment you have received today.

The information we collect from you will not have your name with it, or any other way to tell that it came from you. No one, not even the researchers, will know it is from you.

- You should ask any questions you have right now, before deciding whether or not to be a part of the research.
- If you or your parent(s) or guardian(s) have questions later, contact us at: Danielle Kirsch ([danielle.kirsch@ndsu.edu](mailto:danielle.kirsch@ndsu.edu)) or Shannon David ([shannon.david@ndsu.edu](mailto:shannon.david@ndsu.edu))

- Your parent(s) or legal guardian will receive a copy of this form to keep.