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UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

A COMPARISON OF THE PERCEIVED EFFECTS  
OF INJURY ON COLLEGIATE  
DANCERS AND ATHLETES

A Thesis Submitted in Partial Fulfilment  
of the Requirements for the Degree of  
Master of Arts

Megan E. Chiles

College of Performing and Visual Arts  
School of Theatre Arts and Dance  
Dance Education

December 2023

This Thesis by: Megan E. Chiles

Entitled: *A Comparison of the perceived effects of injury of collegiate dancers and athletes*

has been approved as meeting the requirements for the Degree of Master of Arts in the College of Performing and Visual Arts in the School of Theatre Arts and Dance, Program of Dance Education

Accepted by the Thesis Committee:

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Ray Schwartz, M.F.A., Chair, Advisor

---

Christy O'Connell-Black, M.A., Committee Member

Accepted by the Graduate School

---

Jeri-Anne Lyons, Ph.D.  
Dean of the Graduate School  
Associate Vice President for Research

## ABSTRACT

Chiles, Megan E. *A comparison of the perceived effects of injury on collegiate dancers and athletes*. Unpublished Master of Arts thesis, University of Northern Colorado, 2023.

This research study focused on sustained injuries to collegiate dancers and athletes and the physical and mental effects that followed the sustained injuries. The researcher used an electronic survey to gather quantitative and qualitative data. Quantitative data included average weekly hours of practice and conditioning, if an injury was sustained during participation of their activity, where the injury was sustained, and if medical treatment was provided to them through their universities. Qualitative data included whether the injured participants ever felt pressured to continue participation after an injury was sustained.

This research study demonstrated that both collegiate dancers and athletes sustain injuries at a high rate and mainly to their lower bodies. While injured athletes had medical treatment provided to them, injured dancers had a much harder time seeking medical treatment because it was not provided to them through their universities.

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## CHAPTER I

### INTRODUCTION TO THE STUDY

#### **Goal Of Thesis**

There is no doubt that dancers and athletes are known for spending hours perfecting their craft, and those hours of perfecting tend to drastically increase when participating at a collegiate level. Hours of training can easily double in college compared to high school commitments. As a result, dancers and athletes are often not properly prepared for the toll the increased hours take on their bodies both physically and mentally. While no dancer or athlete plans to get injured, injuries are extremely likely to happen due to the stress that is continually put on their bodies for a prolonged period.

Athletic trainers and doctors are a blessing for athletes with injuries. Athletic trainers that work at colleges and universities work with injured athletes firsthand and are an athlete's first line of defense when an injury occurs. If an injury is too severe, the athletic trainer refers the injured athlete to other doctors best suited to rehab them. However, dancers, especially dancers in dance major programs, generally do not have the same access to campus athletic staff as athletes on the campus do. Though dance majors may have access to the campus nurse if an injury occurs, they will not get the same treatment and individualized care with the campus nurse as injured athletes receive with the athletic training staff. Gigi Berardi explains in her book *Finding Balance: Fitness, Training and Health for a Lifetime in Dance*, "Most professional dance institutions now incorporate therapy, injury prevention, nutrition, conditioning, Pilates, weight training, and the physics of dance as vitally necessary parts of the curriculum" (xix).

While proper precautions are taken at a professional dance level, dancers at the collegiate level are often looked over and it is up to the injured party to find their own treatment. In a 2016 thesis for Temple University, Erica D. Henn explains that dancers who are a part of a dance team at a collegiate level are more likely to have easier access to athletic trainers and doctors than dancers in a dance major program who are pursuing dance through a liberal arts lens. Henn also goes on to explain that “While many researchers have examined dancer injury through the lens of sports medicine, few focus on dancers in a liberal-arts setting” (xiv). Dr. Alyssa Arms PT, DPT, OSC, states:

For so long dance has been seen more as an art than a sport and universities don’t tend to want to fund the arts as much as sports. Within that, universities may be more inclined to support theater or other visual arts. Dance is seen as this other world that historically just hasn’t had great support in general, much less at the college level.

The researcher’s goal of this study was to compare the physical and mental effects from injuries that collegiate dancers and athletes experience during their seasons. The researcher found very few resources that included both dancers and athletes when looking at injuries. There were several resources that addressed dancers and athletes' injuries separately, however none of them compared them directly, thus, there seemed to be a need for more research to study and compare the physical and mental effects of collegiate dancers and athletes.

In this study, the researcher compared the injuries both dancers and athletes sustained, and the type of treatment they were able to get after the injury occurred. While the researcher investigated the effects on the body through a variety of different sports, she focused on dance styles that were influenced by the aesthetics of ballet. Such styles of dance focus on the dancer

using turnout and extreme flexibility, both of which may contribute to injuries, when coupled with fatigue and overuse, the researcher also investigated the mental effects that the injury had on the dancers and athletes and whether they were able to get proper treatment.

### **Purpose Of Study**

The first purpose of this study was to recognize the type of physical injuries that occur in both dancers and athletes. The survey divided injuries into three categories: upper body, lower body, and brain injuries. After the study was conducted, the researcher investigated which type of activity in dance and sports accrued which type of injury the most. Athletic trainers and physical therapists who work directly with collegiate dancers and athletes were interviewed by the researcher and asked what types of injuries they most commonly see among dancers and athletes of different sports. Dancers, athletes, and athletic trainers were asked about the type of treatment that was available to them when an injury happened. The types of treatment received were compared between the dancers and athletes of different sports.

The second purpose of this study was to recognize the type of psychological effects that collegiate dancers and athletes experience after an injury happens. This study investigated whether counseling or other services were provided to the injured party after they received an injury.

The research questions addressed in this study were:

- Q1 Are there similarities between the injuries dancers and athletes receive?
- Q2 What is the difference in treatment plans between dancers and athletes?
- Q3 Are dancers and athletes being pressured into participating in their craft even though they have an injury?

## **Significance Of Study**

The significance of this study was to shed light on the impact that collegiate dancers' and athletes', both physically and mentally, go through during their seasons. Many people see and respect the impact that athletes' bodies go through, however dancers' injuries often go unnoticed. In a 2009 study, Jatin Ambegaonkar and Shane Caswell state that “despite the physical demands and rigor involved with dance, relatively little attention has been devoted to the unique health care needs of dancers” (Ambegaonkar and Caswell 17). The researcher wanted to shed light on the sacrifices dancers make and prove that athletes are not the only people who endure bodily sacrifice when participating in their craft.

Another significant role of the study was to investigate the psychological effects that injuries can cause on collegiate dancers and athletes. Physical effects of an injury are easy to diagnose and treat and, while mental health is becoming more important, mental effects can still be harder to diagnose and treat. The study investigated whether colleges are providing enough counseling for dancers and athletes when they receive an injury.

## CHAPTER II

### REVIEW OF LITERATURE

People can often see the strain athletes put on their bodies between their long practices and competitive game days. However, most people do not recognize that dancers put their bodies through just as much strain. Both dancers and athletes who participate at a collegiate level have rigorous training schedules along with the academic workload that they are expected to complete at an exemplary level. Cornish College of the Arts, states that their dance majors will “spend an average of 6 to 8 hours each day in the studio, with a minimum of 13 hours of technique classes per week” (Dance Major). A study conducted in 2015 showed “student-athletes report spending an average of 21 hours per week on required athletic activities” (Student-Athlete). The study stated that “athletic activities” not only included practice, but also conditioning, receiving treatment, and traveling for games and matches. Not only are the dancers’ and athletes’ physical bodies being affected by the long training hours, but their mental state can also take a toll when injuries arise.

While athletic trainers and doctors are more easily accessible to collegiate athletes, dancers struggle to find medical care at all, and both collegiate dancers and athletes find the need for social support is severely lacking. Sydney Brown and Eric E. Hall conducted a study in 2018 with fourteen Division I student-athletes and asked them about their experiences with injury and their rehabilitation process. In their article for the “Medicine & Science in Sports & Exercise” journal titled *Evaluating the Effectiveness of Applying Grief-Response Models to Sport Injury in Collegiate Student-Athletes*, they found “a need for increased availability of social support

resources on campus, as well as training for coaching staff on how to better meet the expectations and needs of injured athletes” (325). During their study, Brown and Hall found “regarding social support, participants reported one or both of their parents as their greatest source of social support, while coaches were the primary source that the student-athletes wished they had received more support” (325) from. Since the collegiate dancers and athletes are spending much of their time with their coaches, it is natural they are seeking support and guidance from them during their time being injured. If the dancers and athletes do not find the support they are looking for in their coaches, it can cause more frustration and hardship during their recovery.

### **Dancer Injuries**

Dancers are meant to make things look effortless and to show off their extreme range of motion, however that extreme range of motion can cause severe strain to their bodies. Dancers train to achieve perfection while pushing their bodies to exceptional limits. In a 2021 honors project for SUNY Brockport, Honors College, *What are Stated Gaps in Injury Prevention and Treatment Available on College Campuses for Dancers?*, Carly Andrade stated, “It is common that dancers will injure themselves while trying to achieve the aesthetic nature of dance. For example, many dancers might force their turnout, or hip external rotation in ballet, resulting in injuries to the knees, ankles, or low back” (11). While that supreme range of motion is pleasing to the eyes of audience members, it can do major harm to the dancers’ body if not properly taken care of. In a 2020 article for the *International Journal of Sports Physical Therapy (IJSTP)* titled *Functional Movement Screen (FMS) Scores do not Predict Overall or Lower Extremity Injury Risk in Collegiate Dancers*, the authors explained that “due to its aesthetic nature and expressivity, dance is a physically demanding activity, with 50-85% of dancers suffering injury

during a single performance season” (Coogan et al. 1030). Dancers go through physical demands during their season; their mental health can also be under extreme stress. Not easily achieving the perfection that dancers strive for can cause great distress.

### Physical Effects

“The majority of dancers’ injuries are in the lower extremity (LE) and chronic in nature. These injuries often arise when causal factors are not identified early and addressed before they result in an injury” (1029). Dancers who take influence from styles such as ballet and contemporary are known for pushing their bodies to use maximum flexibility and turnout. Turnout used in dance is described as the external rotation of your legs starting at the hip socket. “The International Association of Dance Medicine and Science states that on average 60 percent of turnout comes from the hip, 20-30 percent from the ankle and the remaining 10-20 percent comes from the knee and tibia” (Haas 148). If forced passed one's natural hip rotation, turnout puts incredible torque on the person's knees, hips, and ankles. “Ideal turnout of 180 degrees is physically challenging and can create compensation and potential injuries” (148). Dancers are known for striving for excessive mobility which can easily lead to injuries during their season, and since dancers' seasons generally go for most of the year, little recovery time is allotted to properly recover after an injury.

Amanda Greene and Andrea Lasner are former dancers who are now doctors at John Hopkins Physical Medicine and Rehabilitation. Greene and Lasner wanted to share their love for the artform by helping current dancers prevent and rehabilitate injuries. In their 2022 article titled *Common Dance Injuries and Prevention Tips* for the John Hopkins Medicine webpage, they explain that “on top of the intensive training, many dancers get little time to recover



between the sessions and have no ‘offseason’” (Green and Lasner). Many colligate dancers have many performances throughout the year with very little turnaround time between performances, which means their bodies are not properly resting and recovering in between.

Since dancers have extraordinarily little time between performances to recover many of them push their bodies and perform even though they are suffering from an injury. In a 2018 article titled *Dance exposure, wellbeing and injury in collegiate Irish and Contemporary dancers: A Prospective Study* for the “Physical Therapy in Sport Journal”, the authors explained how “dancers frequently performing when injured” (Cahalan et al. 77) was a common occurrence when surveying their subjects. They noted a “sudden spike” (81) in practice hours, i.e., days leading up to performance, was “associated with increased injury” (81).

In a personal interview with Alyssa Arms, PT, DPT, OSC, she states that dancers tend to hold off on getting injuries treated because:

Scientifically, dancers have a higher pain threshold, so it takes more of a stimulus of pain for them to recognize a problem. When an injured dancer finally seeks treatment, they may come across as ‘more injured’ because it took longer for them to even perceive that something was wrong in the first place.

### Mental Effects

While dance is very physical and athletic, it is, at its core, an art form. Often when dancers go in for treatment, they are treated from a sports medicine outlook and not a liberal arts outlook. A dancer being evaluated from a sports medicine outlook can lead to frustration due to not being fully understood regarding what their bodies go through during their season. In a 2016

thesis that was submitted to Temple University for a Master of Arts Degree, Erica D. Henn investigated how dancers at a collegiate level often felt “overlooked” (xiv) when injuries would arise.

Dancers generally do not receive specialized care after incurring an injury. Many times, dancers feel they are treated through an athletic lens rather than being understood for their unique needs, which is not helpful considering dancers and athletes move differently due to the extreme range that dancers typically need for their movement. Former professional dancer Natsuko Oshima suffered three major injuries during her career. After undergoing surgery for a fractured shin, she realized her professional dance career was over. Oshima found that “from the surgeons to the physical therapists on her medical team, few were sensitive to her artistic needs. Her own doctor made diagnostic decisions based on the cases of basketball and volleyball players” (Setting the stage). Since her doctors “underestimated the effect of torsion induced by turning legs out, she reinjured herself” (Setting the stage), and her professional dance career finally came to an end.

Lynda M. Mainwaring and Caitlin Finney wrote a review for the “Journal of Dance Medicine & Science” titled *Psychological Risk Factors and Outcomes of Dance Injury: A Systematic Review*. In their review they stated:

While there has been significant effort to provide dancers with dance-specific medical specialists, there is also a need to offer dancers psychological support and education. Given the profound impact that psychological variables can have on the incidence, outcome, and subjective experience of injury, dance schools and companies would greatly benefit from offering dancers access to psychological interventions and treatment programs. (94)

Although Mainwaring and Finney found that more “dance-specific medical specialist(s)” (94) were being used, Erica D. Henn found that those dance-specific medical specialist(s) were only found at a professional level:

The subject of dance and injury has become an increasingly important area of study for sports medicine, education, and dance studies. However, the majority of current research focuses on professional dancers or pre-professional dancers in a conservatory training context. The research typically overlooks dancers in a university setting who pursue baccalaureate-level dance programs. (iii)

Along with not being properly treated by dance specialists, other life stressors can prolong one’s injuries. “Both negative life stress and negative dance stress, regardless of whether the stress was considered to be major or minor, were found to be positively associated with a longer duration of injury” (92).

Whether you are on a dance team or majoring in dance, your season generally lasts the entire academic year which easily can lead to the dancers becoming burnt out. Dancers are constantly training for their next performance, which does not allow their bodies to properly recover in between. In a 2017 article for the Dance Major Journal entitled *Walking the tightrope: Effective treatment for dancer burnout*, the author stated that “Students at universities studying dance are especially at risk for becoming “burnt out” because on top of their rehearsal and dance class requirements, they are also enrolled in academic classes that may consume any rest time they might have after a day of dancing” (Dirickson). This burnout and mental fatigue can lead to potential injury.

## **Dancers' Pushing Through Injuries**

Along with the distress dancers feel when they are pushing their body beyond natural limits, even more distress is felt when an injury occurs. "Dancers have been reported to perceive injury as a barrier to participation, and hence either under report injury or resort to self-treatment" (Prakash 69). Being injured can greatly reduce the time you can participate in your craft, and some dancers are not willing to give up participating, so they ignore the pain of their injury or compensate in other ways to still perform. By ignoring the pain of their injury, the dancers risk worsening their injury leading them to have to sit out for a longer period when they finally do get the injury treated.

Dancers are notorious for overlooking their injuries and continuing to participate, "sometimes it almost seems glorified to push through injuries" (Arms). It is not that dancers want to continue participation while injured but that they "are under substantial pressure to remain dedicated and persevere through pain in order to pursue mastery of their craft" (Mainwaring and Finney 87). "The aesthetic value of dance causes dancers to constantly judge their appearance and to have their appearance evaluated by others" (Andrake 15). In the dance world the "pressure exists to maintain possibly injurious aesthetics, training, or schedules in order to perform a specific dance style at a high level" (Henn xiii). Dancers strive for perfection and often find that perfection means putting their bodies through severe strain as they force their turnout and overstretch their muscles to obtain the perfection that dance styles, such as those influenced by ballet aesthetics require.

Another factor of dancers pushing through injuries is that "at some levels of dance, if you admit you are injured and seek help for that injury, it could mean you are cut from your current position and you lose that job" (Arms). Dancers will train for years to obtain notoriety in the

dance world, and they will not allow an injury to stop them from obtaining their dream of dancing professionally. While already injured, Natsuko Oshima got an opportunity to dance professionally in Uruguay. Even though she had just undergone surgery for an injury, she refused to say no to the dance opportunity. Oshima was not yet fully healed from surgery when she took the job and pushed herself “to dance under less than ideal circumstances, which led to the worsening of my condition” (Setting the Stage). Taking the job and pushing herself through a pre-existing injury led to the end of her professional dance career.

Dancers will feel pressure to still participate even when they have an injury, simply because they do not have anyone to take their place if they are gone. “Dance, unlike other art forms, often doesn’t have the same concept of having understudies or people who are prepared to step into those roles, so there is this pressure of ‘I still need to perform, because there is no one else to do it’” (Arms).

### **Treating Dancer Injuries**

Dance Specific, Physical Therapist Alyssa Arms explained in an interview that “medical personnel are taught to rehab to ‘normal’ motion, strength, and control, however that does not account for the extreme range that dancers need for their craft” (Arms). When dancers are only able to be treated back to ‘medical normal’ they may still feel they are not back to one hundred percent which leads to more frustration.

When looking at medical texts, the ‘normal range’ of planter flexion is going from zero to forty-five to fifty degrees, while the average range of motion for dancers is one hundred fourteen to one hundred nineteen degrees in planter flexion. Medical texts are saying that dancers only need to be rehabbed to nearly half of what is expected of them. (Arms)

As mentioned above, dancers often feel they are not truly understood when seeking treatment for an injury from a medical professional. “The medical professional plays a significant role in not only treating and rehabilitating the injuries dancers incur, but also preventing them. Dancers respond well to medical providers who respect both the aesthetics and intensity of dance” (Solomon and Russell). If an injured dancer feels more comfortable and understood by the medical professional that is treating them, they are more likely to continue seeking treatment until properly cleared. An injured dancer who feels understood by a medical professional is also more likely to seek help once an injury occurs instead of waiting for it to progress as mentioned above. Unfortunately, if dancers feel they are not understood by medical professionals, this can cause frustration and avoidance of treatment all together.

A 2018 study conducted by Tina J. Wang, MD and Jeffrey A. Russell, PhD, AT, looked at collegiate dancers and how often those dancers experienced injuries, and their access to medical professionals after an injury had occurred. After their study was conducted, they found:

Ninety-six of the 175 dancers (55%) disclosed negative experiences with those professionals. Of those 96, the top three reasons for their dissatisfaction stemmed from the professionals’ not understanding dance or dancers (67 dancers, 70%), providing unhelpful advice (41 dancers, 43%), or not spending enough time in the healthcare consultation (32 dancers, 33%). (113)

While Wang and Russell found that injured dancers will seek medical advice if they have access to it, “dancers were most inclined to seek advice from their dance instructors when confronted with an injury” (116).

Wang and Russell further explain that “despite the popularity of dance, dancers are a marginalized patient population. While they can be considered athletes, they often have difficulties accessing medical resources that may be more readily accessible to traditional athletes” (111). Arms says treating injured patients is essentially the same, however the differences come with what that injured party needs to get back to. “In the grand scheme of things, treatment is the same and principles should be similar as how we return them to their sport. We should be working on strength, flexibility and control no matter what the sport is” (Arms). Where the disconnect comes with dancers and the medical professionals treating them is their need for extreme flexibility and range of motion.

Another disconnect is that medical professionals do not get much experience with dancers. “In my experience, it is extremely rare to find physical therapists who are educated and sensitive enough to a classically-trained dancer’s needs” (Setting the Stage). “Dancers’ fundamental negative impressions may not be their lack of confidence in physicians’ abilities to make a correct diagnosis, but their belief that physicians’ treatment plans lack practicality” (Wang & Russell 115-116). Very few schools and companies offer continuing educational opportunities to treat dancers, “while we are starting to see a lot more research come out about dance medicine, compared to most other sports, there is still a long way to go” (Arms). Arms explained that her process for becoming a dance specific physical therapist was because she had studied dance her entire life and chose to work with dancers during her schooling process, not because an opportunity was available to her through her schooling. “It’s definitely important for people to understand how dancers’ bodies work if they are going to be working with them” (Arms), but unfortunately many dancers are still searching for medical professionals that truly

understand their needs. During their study, Wang and Russell found “relatively few medical practitioners (22%) have exposure to dance and dance medicine (115).

### **Athlete Injuries**

Athletes at a collegiate level generally have access to athletic trainers to help them recover from any injury they may incur while being an athlete. “Certified athletic trainer or trainers (ATC) provide injury evaluation, treatment, and rehabilitation to the physically active. ATC are the only healthcare professionals that provide coverage of athletes from pre-injury through the return to competition” (Campbell 1). In her 2016 thesis, Erica D. Henn found that “injury prevention and treatment for athletes is plentiful in the numerous publications within sport sciences on the top of sporting athletes injury prevention” (xiii).

At most universities or colleges, athletic trainers are easily accessible for any athlete that is injured, however if the athletic trainers are not at every practice or game, it can decrease the urgency of an athlete reporting an injury. “Having an athletic trainer on site for events allows for immediate assessment of injury as well as a trained professional to watch the event and proactively aid in athlete safety” (Nickols 18). If an athletic trainer is not at practices or games, it is up to the injured athlete to report their injury to an athletic trainer but many trainers are noticing athletes under reporting their injuries so they can continue to participate in their sport. “Unless the athlete communicates the injury to someone with the knowledge and ability to intercede, no treatment of that injury will take place” (13). Without proper treatment, athletes can worsen their injury and that could lead to longer recovery times or permanent damage.

### **Physical Effects**

“As a result of the passion and commitment involved in an athlete’s desire to overcome their opponent the natural outcome is a battle for victory and with that physical battle comes the



danger of injury” (Nickols 1). Collegiate athletes know the potential risks involved with participating in their sport, however, their love for the activity often outweighs that risk.

Justin Ernat, MD, a sports medicine surgeon at University of Utah Health was interviewed for an online article. Ernat stated, “in the top five athletic injuries, the knee is number one” (Top 5). The article explained that athletes “don’t plan to get hurt. Yet there are common athletic injuries doctors see time and again—with knees getting the brunt of athletic exertion” (Top 5). Knee injuries are the top injury for athletes, with shoulder, foot and ankle, hip and head injuries completing the top five athletic injuries.

An article entitled *Epidemiology of Sports Injuries on Collegiate Athletes at Single Center* found that “the most common injury was to the anterior cruciate ligament (ACL), followed by the ankle ligament injury” (Rosa et al. 322). An ACL injury has a tremendous impact on athletes' lives because it requires “the largest number of surgical treatments and time off” (232). Of the injuries that were discussed in this study, 55.8% of them occurred in the lower body. The article also found that of the five hundred eighty-five participants, two hundred ninety-two (49.91%) of them had received a sports injury during their college career. Of the two-hundred ninety-two injured participants, one-hundred sixty-five (49.1%) were men while one-hundred twenty-seven (51%) were women, “which shows the similarity in injury incidence between both genders” (322).

#### Mental Effects

An injury is not just a physical impairment. Injuries affect both the physical and mental well-being of the injured person. Not only can the injury affect the person while they are recovering, but it can also affect them when they are returning to their activity after an injury.

“Athletes’ sports injuries will affect many aspects. The first is that they cannot participate in training normally, and even cannot participate in competitions. This will cause huge psychological pressure, such as restlessness and loss of confidence” (Sun 286).

In a 2018 article for the “Medicine & Science in Sports & Exercise” journal titled *Evaluating the Effectiveness of Applying Grief-Response Models to Sports Injury in Collegiate Student-Athletes*, Sydney Brown and Eric E. Hall found that “for an athlete whose identity is contingent upon their participation in sport, an injury that forces them to cease participation can represent a significant loss” (325). Collegiate athletes’ schedules revolve around their involvement in their sport and when they are no longer allowed to participate because of an injury, they often have a hard time adapting to the new schedule.

The pressure athletes feel from not only themselves but also their coaches may cause tremendous distress. In Philp R. Nickols’ 2016 thesis titles *Underreporting of concussions in NCAA division I men’s soccer team* he found:

Athletes are placed under an enormous amount of psychological and emotional stress due to the pressure that is placed on them to perform. Although physical injury is the most commonly thought form of distress experienced by athletes, the psychological and emotional distress that occurs specifically within athletes can have a direct impact on overall health and performance as well. (17)

Nickols also found that “social factors such as the athlete’s relationship with the coach, athletic trainer, and teammates will have an effect on underreporting” (4).

### **Athletes’ Pushing Through Injuries**

In Wolverton’s article “Coach Makes the Call” for the *Chronicle of Higher Education*, he states that “elite athletes also underreport head injuries, recent studies have shown, in some cases

because they don't want to lose playing time or risk having their scholarships revoked" (Wolverton). Many college athletes rely heavily on their scholarships and would not be able to continue college without them. The fear of their scholarships getting pulled if they receive an injury leads them to hide their injury from their coaches and athletic trainers the best they can.

Not only are athletes trying to hide their injuries so they can continue to participate, but coaches, who should be looking out for the best interest of their athletes, are pushing their athletes to participate even if they are injured. "Nearly half of the major-college football trainers who responded to a recent *Chronicle* survey say they have felt pressure from football coaches to return concussed players to action before they were medically ready" (Wolverton). The coaches and athletes who strive to win often outweigh their need for safety.

The timing of the season can add tremendous pressure to athletes to hide injuries. A study conducted by Meredith Kneavel, William Ernst, and Lynn Brandsma, found that athletes often push through injuries because they know they are not going to play in the future long term, so the current injury does not matter. As one athlete stated during their study "if it's the end of the season your senior year and you know you're not gonna play ever again, then it's like, what's the point, let's go out with a bang" (437). Another athlete admitted they would push through an injury if it was a major game, they were playing in. "If I'm playing for the national championship and the coach tells me 'You get hit the wrong way and you're never going to see again', I'm taking my chances" (438). Athletes may never get the opportunity to play in such a high stakes game again, and they do not want to sit on the sidelines during that opportunity because of an injury.

Like dancers, collegiate athletes love their sport and have a hard time sitting out, even if it is due to an injury. Athletes are fully aware of the risk their bodies go through when they

participate in a sport, especially at a collegiate level. The athlete's willingness to play, more times than not, outweighs the fear of getting injured or furthering an injury by pushing through. Collegiate athletes dedicate a lot of time to their sport and at the end of the day “we just want to play” (438). Catherine Daniel, MEd, LAT/ATC, CES/PES, at Benedictine College in Atchison, Kansas says she will receive pushback from athletes because there is a “competitive edge in every athlete, including dancers. And that competitive edge has a stigma around injury and the establishment of a care plan for proper recovery” (Daniel).

Athletes are all part of a team, and that team is after the same goal of being the most successful team during their season. When you are a part of a team, your teammates rely on you to perform at your best for the greater good of the team. During Kneavel, Ernst, and Brandsma’s study, one athlete talked about how he is not only playing for himself, but he was also playing for all his teammates, and that he did not want to let them down by sitting out because of an injury (438). Overall, in the same study, the researchers found that “student-athletes reported that there is a general expectation for themselves and teammates that one should push through injuries whether they are concussions or other and that there is respect for players when they do this” (437). Athletes explained that even if you are not hiding an injury the mentality is to still push past the injury and participate. One participant in their study simply stated, “if you can walk, you can play” (437).

An online article in “The Vie Collegienne”, a student run newspaper at Lebanon Valley College, discussed mental toughness in athletes and how, although it is an important skill to possess as an athlete, it sometimes can be taken too far, “the cause for concern comes when an athlete, or maybe a student-athlete, puts their performance or ability to be on the field over their general well-being” (Kime). In the article, Zach Kime interviewed Sam Long, a student-athlete at

the school that played lacrosse. Long had suffered from many injuries throughout his student-athlete career, but the biggest injury he suffered was a deltoid ligament strain. Long eventually fully recovered from the strain but says “that to this day he still feels like athletes should fight through what they physically can handle, for the greater good of the team” (Kime). Pushing through an injury may seem glorified to some athletes, however “it’s important for one to note that not all athletes will be rewarded for pushing through the pain with a worldwide platform to showcase their talent” (Kime). Kime says it is important for each athlete to know their physical and mental limits, however most student-athletes he interacted with felt they had “an obligation to the team and to my family and coaches too” (Kime).

### **Treating Athlete Injuries**

As stated above with dancers, athletes also need to feel comfortable with the medical professionals who are treating them. “It’s important that the athletes feel comfortable with the staff and room,” Tretner said. ‘We want them to want to come back, this way we can get them back as soon as possible” (Francesconi). Trevor Francesconi interviewed the Athletic Training coordinator, Nikki Webb, and Erika Tretner who is a student assistant in the athletic training room at New York University. Webb states that her goal in the athletic training room is to work “collaboratively with the intent of achieving the best results for the students in their care” (Francesconi). Catherine Daniel “found it monumental in my career to educate athletes on care for an injury, through a holistic mode”. Daniel also states:

Healthcare is very much a customer service. If your patient isn’t satisfied with the care they receive or they have a disagreement with you, they will likely leave with the intent to never come back and seek care from another provider. I have found success in patient-

centered care plans, which allow the patient to be at the center of every exercise, goal, and timeline that is established.

Athletic trainers are not only there for athletes to treat a physical injury, but they also often provide the injured athlete mental support as they navigate their way back from an injury. Marquel Love was a student athlete at New York University who suffered a severe knee injury. After visiting with trainers “she expressed how she couldn’t begin to imagine where she would be without the help and motivation the NYU athletic trainers provide on a daily basis” (Francesconi). In Katelyn R. Berens thesis titled *Injured athletes’ perceptions of social support received from their athletic trainer at a Division III college*, she states:

Athletic trainers must be able to provide a comfortable environment and social support system that allows athletes to feel at ease and secure with the treatment they are receiving throughout the rehabilitation process. Athletes’ responses to injury are very diverse and they utilize a variety of coping resources throughout the recovery process. Athletic trainers may need to help athletes identify coping skills they can utilize as well as teach them new coping strategies following their injury to help optimize their recovery. (9)

The thesis also states that “athletic trainers may be the most important person able to offer social support to athletes. If athletes perceive a high level of social support from their athletic trainer it may have a direct positive influence on their rehabilitation” (17). When athletes feel comfortable and feel a strong sense of support from the trainers, they are more likely to continue seeing the athletic trainers and not avoid them if and when they do get an injury.

While rehabilitating student-athletes to their full potential is the goal for collegiate athletic trainers, many times the trainers are feeling pressure from coaches to release the athlete before they are fully healed and ready to return to play. “When trainers push back too hard, they

often face repercussions. More than a dozen Division I athletic trainers have been fired or demoted in recent years, The Chronicle has learned, often over questionable return-to-play calls” (Wolverton). Kevin Guskiwicz, a leading concussion researcher from the University of North Carolina at Chapel Hill, was interviewed for the Chronicle article and spoke about his feelings towards the study that was conducted for this article. Guskiwicz stated that “any institution that places a coach in a supervisory role over the athletic trainer or allows a coach to put pressure on medical decisions is just asking for trouble” (Wolverton). In the Chronicle article, two Pac-12 Conference athletic trainers stated they had lost their jobs after disagreeing with the coaches about medical treatment. One of the trainers said, “it was uncomfortably close to infringing on the medical well-being of the athlete” (Wolverton). Catherine Daniel says while she often receives pushback from coaches “at the end of the day, I am a healthcare provider that would get sued if further harm came to my patient from return to play at the wrong time”. She states she often receives pushback when the timeframe of return to play is not ideal for the player or coach but “because of my duty and oath to my state licensure to practice athletic training, there are certain timeframes that are unachievable at times”.

### **Summary**

Physical activity comes with the inherent risk of injury, especially when you are dedicating hours of your time to the activity like collegiate dancers and athletes do. If an injury does occur, the injured party wants to feel they are being taken care of and that the medical professionals have their best interest throughout their recovery. Athletes participating at the collegiate level have a direct source of treatment through the athletic trainers that work for the college or university. Dancers on the other hand generally have a harder time finding treatment. Few dancers feel they have access to treatment, and if they do have access to medical treatment,

they often feel their needs are not fully understood by the person treating them. If medical treatment is readily available, there is always the possibility for collegiate dancers and athletes to try and hide an injury, so they are able to continue participation. Through a dancer's lens, they fear they will be replaced, or they may feel there is simply no one else to fill the role. Athletes fear a scholarship could be revoked or they do not want to miss out on a big game. Those feelings cause dancers and athletes to continue participating while injured and risk further injury or a longer recovery time.

Mental effects are an area that both collegiate dancers and athletes can struggle with as well as have a hard time finding support to deal with those struggles. Whether it is feeling pressure from coaches or other teammates or just feeling the stress from participating in their activity at a collegiate level, many colleges and universities are not providing proper treatment to their students regarding mental health and the students struggling are turning to the people closest to them for support.

Whether you are participating in a collegiate dance program or are a collegiate athlete, there is no doubt your body is put under extreme stress both physically and mentally. Treatment through the university should be provided to all dancers and athletes who are participating under their name in order to keep them safe and able to recover with confidence.



### CHAPTER III

#### METHODOLOGY

The first purpose of this study was to recognize the type of physical injuries that occur both in dancers and athletes. The survey divided injuries into three categories: upper body, lower body, and brain injuries. After the study was conducted, the researcher investigated which type of activity, dance or sport, accrued which type of injury the most. Athletic trainers and doctors who work directly with collegiate dancers and athletes were interviewed and asked what types of injuries they most commonly see among dancers and athletes of different sports. Dancers and athletes were also asked about the type of treatment that was available to them when an injury happened. The types of treatment received were compared between the dancers and athletes of different sports.

The second purpose of this study was to recognize the type of mental effects that collegiate dancers and athletes go through after an injury happens. This study investigated whether counseling or other services were provided to the injured party after they received an injury.

The research questions addressed in this study were:

- Q1 Are there similarities between the injuries dancers and athletes receive?
- Q2 What is the difference in treatment plans between dancers and athletes?
- Q3 Are dancers and athletes being pressured into participating in their craft even though they have an injury?

The following chapter explains the methodology used to conduct the study and how the researcher collected data. An electronic survey was used to collect data, which was then analyzed quantitatively and qualitatively. The purpose of the questions was to see if the dancer or athlete had occurred an injury while participating in their craft and if proper healthcare was offered to them after the injury had occurred. The questions in the survey also gauged if the dancers or athletes ever felt pressure to hide an injury from their coaches to continue participating in their craft.

### **Preparation Of Study**

Before conducting the research study, approval from the Institutional Review Board (IRB) was required. The purpose, methods, data collection and handling procedures, sample consent forms and survey questions were put together in a formal narrative and submitted to the IRB for approval. The IRB requested a revision of the consent forms to provide more details about the consent form process and what the subjects were agreeing to before final approval. The IRB also approved the online questionnaire, and the follow-up interview questions that were used to collect the data for the study. The approval from IRB can be found in Appendix A.

### **Research Design**

The researcher used electronic surveys to collect data that described the participants' experiences with injuries, how the injuries were cared for, and the mental toll it took on them when receiving an injury. Two separate surveys were created for this study. One survey was created for current collegiate dancers and athletes. The second survey was created for former collegiate dancers and athletes. Both surveys can be found in Appendix B. The electronic survey was designed by the researcher with Qualtrics, an online software used to collect and analyze data.

Both surveys included twenty-one questions that included multiple-choice questions about where an injury occurred: upper body, lower body, or brain injuries. Multiple-choice questions were also used to gauge whether participants felt pressure to continue participation after they have received an injury. Clarifying questions were employed and the participants were asked to list what type of injuries occurred when participating in their activity. Informative questions were included at the beginning of the survey for participants to state if they identified as a dancer or athlete. If the participant was a dancer, the survey prompted them to answer whether they participated in a dance major program, a dance team program or both. The athlete participants were asked which sport they participated in.

Responses from the electronic survey were collected from January 5, 2023, through September 1, 2023. A copy of both electronic surveys can be viewed in Appendix B.

### **Research Participants**

The researcher emailed several colleges and universities who had all three types of participants she was looking for, dance programs, as well as an athletic department with a variety of sports, and a dance team. The researcher asked the head of the dance and athletic department to pass along the survey to their students. The study included participants who identified as male or female, and all were participating in collegiate level dance or athletics. Before completing the survey, participants were asked to read through and click “accept” on an electronic consent form. The consent form described the intent and goal of the study. A copy of the consent form can be found in Appendix C.

After completing the electronic consent form, participants were taken directly to the survey where they were asked to answer a series of questions. Participants were able to leave the

survey at any time during the process if they no longer wanted to be involved in the study. Participation in the study was completely voluntary and no compensation was given to those involved. 127 participants completed the survey in its entirety. Of the 127 participants, 50 reported being athletes, 38 reported being in a dance program, and 39 reported being on the dance team.

### **Data Collection And Analysis**

Quantitative and qualitative methods were used to analyze data from this study. Participants answered twenty-one questions in the electronic survey resulting in the data that was used for this research. Quantitative data for this study included hours that the participants were in practice or rehearsal each week, as well as, hours of conditioning and dance technique they participated in weekly. Qualitative data included if the participants felt pressured to continue participating while injured and if they ever felt nervous to attend practice/rehearsal that they might receive an injury.

Answers to survey questions were submitted through Qualtrics and the researchers kept all survey responses secure. Completed surveys were downloaded onto a password protected computer and stored in a password protected folder. Surveys were sorted into four different categories: Former Dancers, Former Athletes, Current Dancers, Current Athletes. Once all surveys were sorted into their corresponding folder, the researcher went through all surveys properly coding each one with a letter: 'FD', 'FA', 'CD' and 'CA', followed by the number in which it fell in line. The dance surveys were then sorted into Dance Team participants and Dance Major participants. Surveys were analyzed for trends, tendencies, and other factors that are addressed in the following chapter.

## CHAPTER IV

### RESULTS

In this study, the researcher examined the injuries that collegiate dancers and athletes sustain during their seasons of participation. The researcher looked at both physical and mental injuries of the dancers and athletes and if they were provided proper care after an injury has occurred.

#### **Hours Of Participation**

Participants in this study participated in a collegiate dance program (majoring in dance), dance team or were on a sports team. Participants were asked the average number of hours they spent in practice/rehearsal and technique class/conditioning each week [participation]. Figures 4.1, 4.2, and 4.3 show the average number of participation hours each week. Over half of the participants that were part of a dance program spent 21 hours or more per week in technique classes and rehearsals while only 15.8% spent between six and ten hours a week in technique classes and rehearsals.

### Dance Program

38 responses

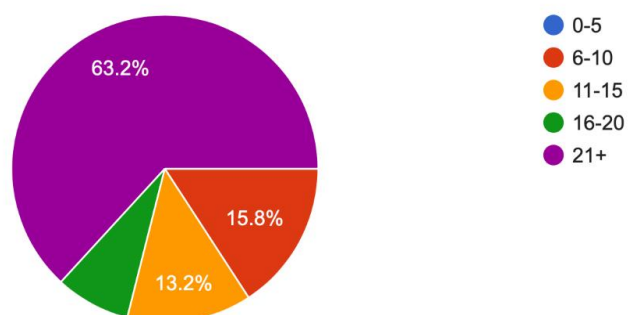


Fig. 4.1: Dance Program—Weekly participation hours

Participants on the dance team had significantly less average participation hours each week with 41% of dance team participants spending between eleven and fifteen hours a week in practices and conditioning, while only 5.1% spent twenty-one hours or more a week in practices and conditioning.

### Dance Team

39 responses

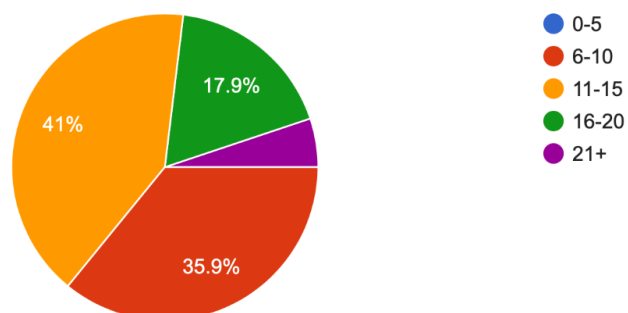


Fig. 4.2: Dance Team—Weekly participation hours

Athletes in this study all had higher numbers of practice and conditioning hours per week. No athlete in this study participated less than eleven hours a week. Of athlete participants, 40% spent twenty-one hours or more in practices each week, which was closely followed by participants who spent between eleven and fifteen hours practicing a week (34%).

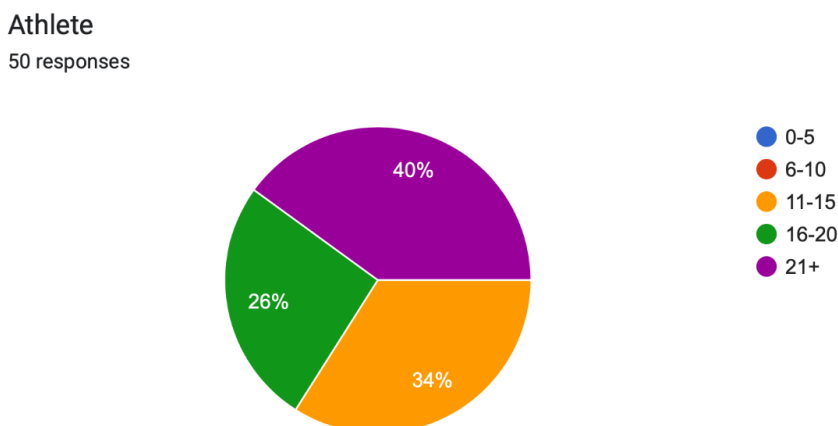


Fig. 4.3: Athletes—Weekly participation hours

### Area Of Injury

The researcher asked participants if they received an injury while participating in their activity. The researcher further asked if an injury was received, where the injury occurred: Upper Body, Lower Body, or Brain. Multiple areas were able to be checked off on this question.

Figures 4.5, 4.6, and 4.7 show percentages for areas of injury.

Dance program participants stated that 52.6% of sustained injuries happened to their lower body. Most of the lower body injuries were to the ankle including sprains and fractures. Hip injuries were the second most common among lower body injuries to the dance program participants. Participant hip injuries included torn hip labrums and hip flexor strains. Only 23.7% of participants claimed that no injuries were sustained while 15.8% of participants claimed they sustained injuries to multiple areas of their body.

### Dance Program

38 responses

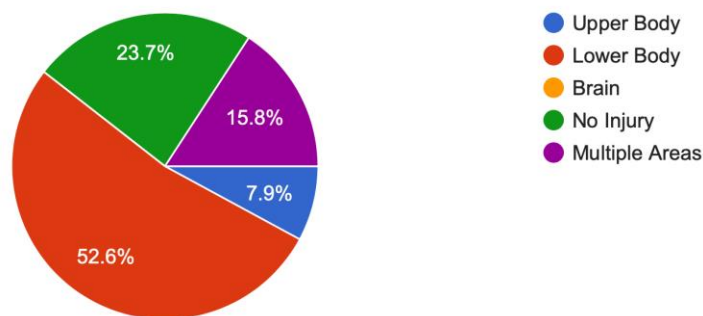


Fig. 4.4: Dance Program—Areas of injury

Most dance team participants in this survey (35.9%) sustained injuries to their lower body. Knee injuries were the most common lower body injury among this group of participants. Knee injuries included: torn ACL's, torn MCL's and knee dislocations. Shoulder injuries were common among the participants who sustained an injury to their upper bodies (15.4%). Only 25.6% of participants claimed they sustained no injuries and 17.9% of participants sustained injuries to multiple areas of their bodies.

### Dance Team

39 responses

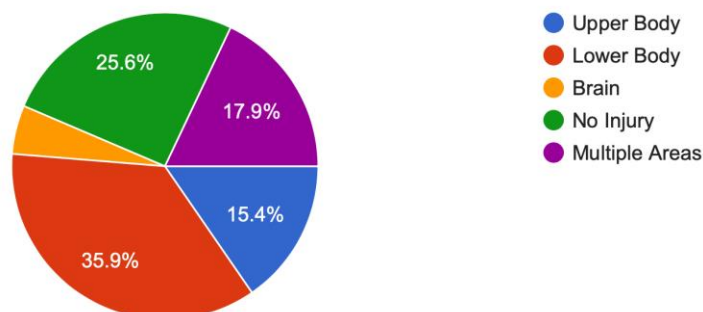


Fig. 4.5: Dance Team—Areas of Injury



Athletes who experienced injuries also sustained the most injuries in their lower bodies (46%). Knee injuries were the most common lower body injury that occurred with ankle injuries closely following. Injuries were sustained in multiple areas of their body in 32% of participants, while only 6% of participants sustained upper body injuries. The majority of upper body injuries included finger and wrist injuries. Fractured fingers were common among a variety of different athletes. Wrist sprains were seen in several baseball players that participated in the study.

Athlete  
50 responses

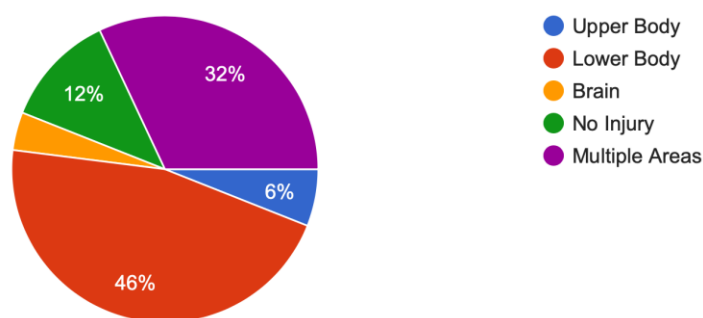


Fig. 4.6: Athlete—Area of Injury

### Treatment Provided

Participants were asked, regardless of if they had sustained an injury or not, if medical treatment was provided to them through their university or college. Figures 4.7 and 4.8 show the results from the survey with 63.2% of dance program participants stating they were not provided medical treatment if an injury was sustained. However, 92.3% of dance team participants said they were provided medical treatment if an injury was sustained. Dance team participants were most likely provided medical treatment because they are usually a part of an athletic department. All athletic participants were provided with medical treatment (100%).

### Dance Major

38 responses

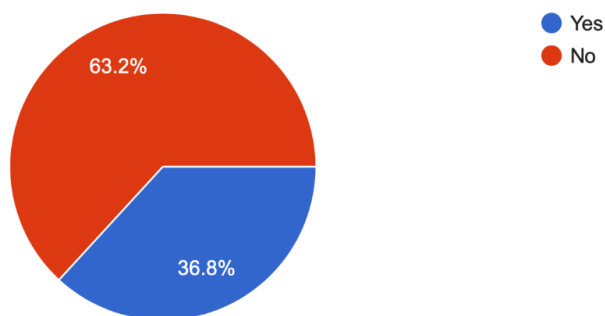


Fig. 4.7: Dance Program—Was treatment provided if an injury was sustained

### Dance Team

39 responses

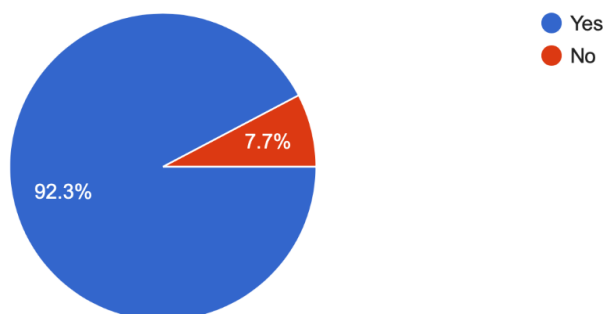


Fig. 4.8: Dance Team—Was treatment provided if an injury was sustained

### Participated While Injured

For participants that stated they sustained an injury during participation, they were asked if they continued participation while injured. Out of the 29 dance program participants that stated they had sustained an injury through participation, 100% of them also claimed they continued participation while they were injured. Figure 4.9 shows that 27.6% of those participants stated

they felt pressured to continue participation even though they were injured. Of the dance program participants, 34.5% disagreed with feeling pressure to continue participation while injured.

Dance Program  
29 responses

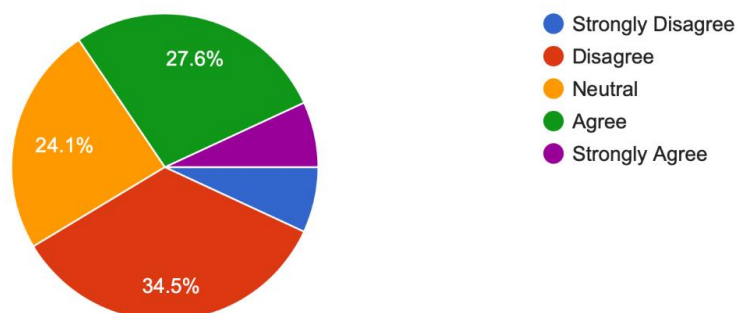


Fig. 4.9: Dance Program—Felt pressure to continue participation while injured

Of dance team participants, 93.1% also stated they continued participation while they were injured. Only 29.5% of the participants disagreed with feeling pressure to continue participation while 22.2% of those participants agreed that they did feel pressure to continue to participate while they were injured. Figure 4.10 shows the above results.

## Dance Team

27 responses

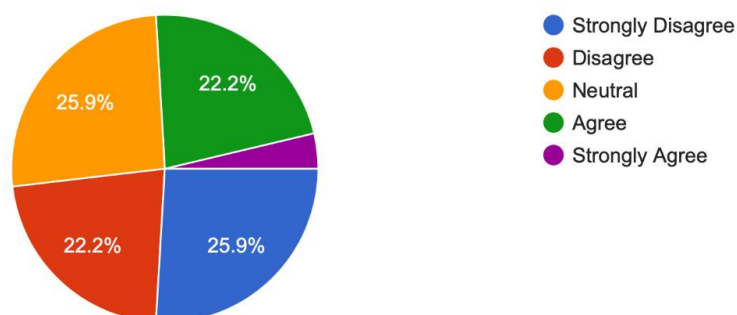


Fig. 4.10: Dance Team—Felt pressure to continue participation while injured

Athletic participants were split on if they felt pressure to participate after an injury had been sustained. Of athletic participants, 23.7% disagreed with feeling pressure to participate through an injury while another 23.7% agreed with feeling pressure to continue participation. Figure 4.11 shows that most of the athletes, 28.9%, strongly disagreed with feeling pressure to participate while they were injured.

## Athlete

38 responses

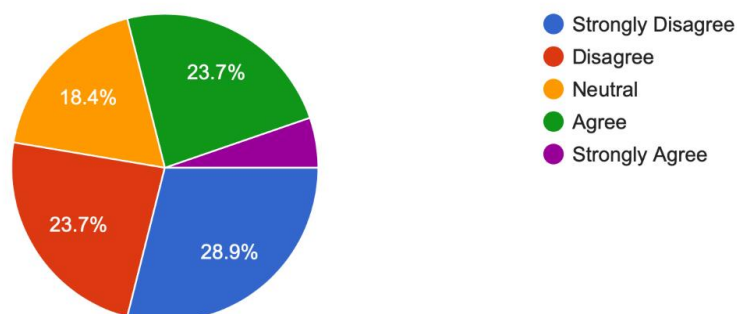


Fig. 4.11: Athlete—Felt pressure to continue participation while injured

### **Athletic Trainers/Medical Personnel Attended Practice/Rehearsal**

Participants were asked if athletic trainers or doctors ever attended their rehearsals or practices. As stated in chapter two, “having an athletic trainer on site for events allows for immediate assessment of injury as well as a trained professional to watch the event and proactively aid in athlete safety” (Nickols 18). When dancers or athletes do not have access to medical assistance on-site, they are more likely to hold off on reporting an injury if they report the injury at all. Figures 4.12, 4.13 and 4.14 show the results of athletic trainers and doctors attending practices. Overwhelmingly, 97.4% of dance program participants said that athletic trainers or doctors did not attend their practices, only 2.6% of participants said athletic trainers or doctors occasionally attended their practices.

Dance Majors  
38 responses

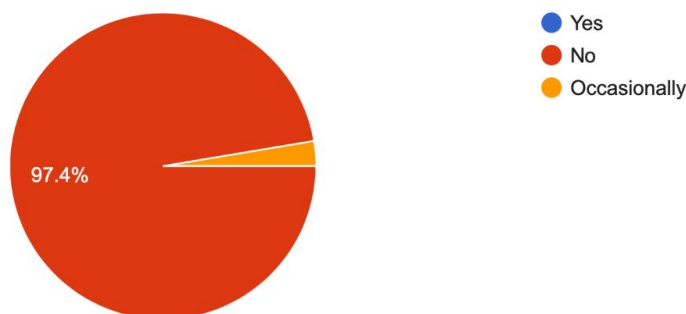


Fig. 4.12: Dance Program—Athletic Trainers/Doctors attending practice

Dance team participants had similar results to the dance program participants with 89.7% of dance team participants stating that athletic trainers and doctors do not attend practices, while 10.3% said athletic trainers and doctors occasionally attend their practices.

**Dance Team**

39 responses

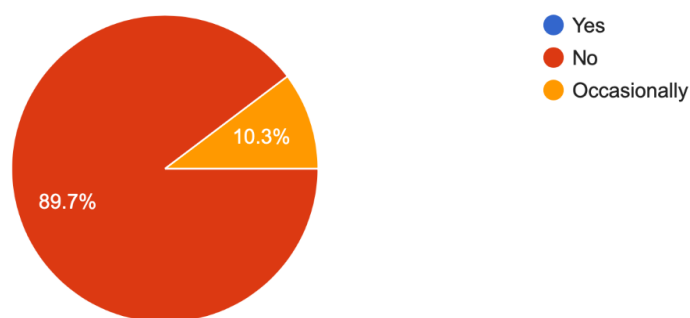


Fig. 4.13: Dance Team—Athletic Trainers/Doctors attending practice

Athletic participants had much higher percentages of athletic trainers and doctors attending their practices. Of the athlete participants, 68% said that athletic trainers and doctors regularly attend their practices, while only 12% of participants said athletic trainers and doctors do not attend their practices.

**Athletes**

50 responses

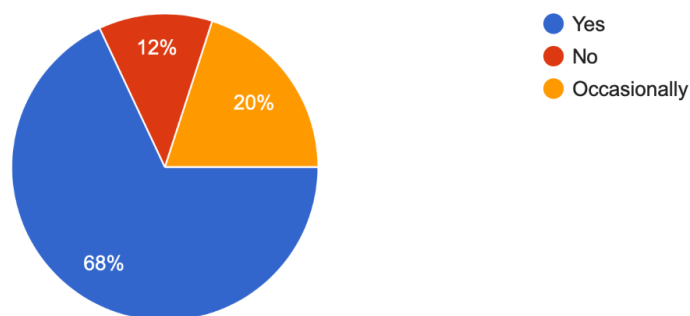


Fig. 4.14: Athlete—Athletic Trainers/Doctors attending practice

## Summary

The results of the study between collegiate dancers and athletes were similar in some areas and vastly different in others. Quantitatively, most dance program participants and athletes participated in their activity for twenty-one or more hours each week on average. While their hours of participation were similar, their access to medical treatment after sustaining an injury were very different. All athlete participants were provided medical treatment, however only 36.8% of dance major participants were provided medical treatment. Dance team members were provided medical treatment more regularly with 92.3% of them claiming they had access to medical treatment after sustaining an injury.

In the qualitative portion of the study, participants stated whether they felt pressure to continue participation after an injury had been sustained. These results were split among all participants. A majority of each group of participants stated they disagreed with feeling pressure to participate while they were injured, however it was also closely followed by participants in each group stated they agreed that they felt pressure to continue participation while injured.

## CHAPTER V

### DISCUSSION AND CONCLUSION

This study was conducted to compare the injuries that collegiate dancers and athletes sustain (both physically and mentally) and the treatment they are provided after an injury occurs. The final chapter of this thesis will discuss: the research questions, the methodology used in the study, a summary of the findings, limitations to the study and a recommendation for any further research.

#### **Research Questions And Methods**

The first purpose of this study was to recognize the type of physical injuries that occur both in dancers and athletes and if they had access to proper medical treatment after an injury had been sustained. The second purpose of this study was to recognize the type of mental effects that collegiate dancers and athletes go through after an injury happens. This study investigated whether counseling or other services were provided to the injured party after they received an injury.

The research questions addressed in this study were:

- Q1 Are there similarities between the injuries dancers and athletes receive?
- Q2 What is the difference in treatment plans between dancers and athletes?
- Q3 Are dancers and athletes being pressured into participating in their craft even though they have an injury?

As explained in chapter three, the methodology used in this study was an electronic survey conducted through Qualtrics. Participants in the study were current and former collegiate dancers and athletes. The online questionnaire asked participants whether they had sustained an



injury while participating in their activity and whether medical treatment was provided to them through their university or college. Both quantitative and qualitative methods were used in this study.

### **Interpretations Of Findings**

Participants in this study answered twenty-one questions in the online questionnaire. Quantitative data for this study included hours that the participants were in practice or rehearsal each week, as well as weekly hours of conditioning and dance technique. Quantitative data also included if the participants had sustained an injury, if medical treatment was provided to them, and if an injury was sustained, where in their body it happened: upper body, lower body, brain.

Both quantitative and qualitative methods were used to collect the data from the survey. A majority of both dance major participants and athletes spent an average of twenty-one hours or more in practice each week. Dance team participants on average spent significantly less time in practice each week, with a majority spending only eleven to fifteen hours weekly in practices. Lower body injuries were the most common area of injury among all participants. While each group of participants sustained injuries, treatment was not equally provided to all participants. One-hundred percent of the athlete participants claimed they received medical treatment through their university. A majority of dance team members also claimed they were provided medical treatment however, treatment provided to dance major participants was considerably less.

### **Limitations Of The Study**

There were several limitations to this study including participant numbers, survey questions and survey participants. The first limitation to this study was the number of participants that consented to be a part of the study. Fifty current and former collegiate athletes participated in the study; however, the researcher was only able to have thirty-eight dance major

participants and thirty-nine dance team participants. The researcher continued to reach out to dance major programs and dance teams across the country, however few dance participants consented to participate in the study.

The second limitation to this study was the survey questions. The researcher attempted to design the survey questions to be simple and straightforward, however after analyzing the answers to the surveys, more direct questions would have been more helpful in analyzing the findings. The researcher was initially planning on conducting a follow-up interview with some of the participants to elaborate on their answers, however, very few athletes agreed to participate in the follow-up interview. Out of both dancer major participants and dance team participants, no one chose to opt into a follow-up interview, therefore no follow-up interviews were conducted. Another limitation within the survey was the lack of questions regarding the type of dance they were studying. Athletes were able to specify what sport they participated in, however dance major participants were not able to specify what type of dance they were mainly studying. While the researcher was looking at the study through the lens of ballet inspired aesthetics, there was no knowing what type of dance style the dance participants were studying.

Another limitation to the study was the description needed for the participants. The researcher did mention that participants needed to be involved in collegiate dance or athletics, however the researcher needed to be more specific that people who participated in intramural sports were not the population that was being studied. The initial title for the study was also a limitation and did not clearly describe what the researcher was investigating during the study. After collecting the data from the study, the researcher performed a modification on the title of the study to better explain what was being looked into during this study.

The last limitation to this study was that no surveys were sent to athletic trainers that worked directly with collegiate dancers and athletes. Initially a separate survey was going to be sent to athletic trainers and medical personnel that work with college athletes, regarding injuries that are most commonly seen among their patients. However, the researcher conducted personal interviews with a dance specific physical therapist and a collegiate athletic trainer. After conducting the personal interviews, the researcher felt it was unnecessary to send the surveys to several different athletic trainers and medical personnel.

### **Recommendations For Further Research**

One topic that could be further researched from this study is the amount of funding that goes into each program. It could be useful to conduct a study on each programs' use of funds for proper treatment. Are these programs able to afford proper treatment of sustained injuries and using the funds for something else or are they simply lacking the funds to provide proper treatment.

Another factor that could be further researched are the long-term effects from the injuries received by the collegiate dancers and athletes. A majority of participants claimed they continued participation while injured therefore allowing their injuries to worsen before finally receiving treatment, or if receiving treatment at all. Looking into the long-term effects of participating while injured could potentially shed light to currently active collegiate dancers and athletes on the importance of receiving treatment for their injuries.

### **Conclusion**

Through the use on an electronic survey, the researcher found that both collegiate dancers' and athletes commonly receive injuries, and that the most common area in the body to receive injuries is to the lower body. While all groups received injuries, only athletic participants

received regular care, while dance participants, program and team, had less consistent care.

Dance program participants were rarely offered care at all, which was consistent with circumstances described in the chapter two literature review.

Almost all participants sustained injuries while participating in their activities, and most of the injured participants also continued participating while injured. Few participants claimed they felt pressure to continue participation while they were injured.

## REFERENCES

- Ambegaonkar, Jatin, and Shane Caswell. "Dance program administrators' perceptions of Athletic Training Services." *Athletic Therapy Today*, vol. 14, no. 3, May 2009, pp. 17–19, <https://doi.org/10.1123/att.14.3.17>.
- Andrake, Carly. *What Are Stated Gaps in Injury Prevention and Treatment Available on College Campuses for Dancers?*
- Arms, Alyssa. Interview. By Megan E. Chiles. 28 July 2023.
- Berardi, Gigi M. *Finding Balance: Fitness, Training, and Health for a Lifetime in Dance*. Routledge, 2005.
- Berens, Katelyn R. "Injured Athletes' Perceptions of Social Support Received from Their Athletic Trainer at Division III College." *College of St. Scholastica*, 2016.
- Brown, Sydney, and Eric E. Hall. "Evaluating the effectiveness of applying grief-response models to sport injury in collegiate student-athletes." *Medicine & Science in Sports & Exercise*, vol. 50, no. 5S, May 2018, p. 325, <https://doi.org/10.1249/01.mss.0000536150.79507.64>.
- Cahalan, Roisin, et al. "Dance exposure, wellbeing and injury in Collegiate Irish and contemporary dancers: A prospective study." *Physical Therapy in Sport*, vol. 34, Nov. 2018, pp. 77–83, <https://doi.org/10.1016/j.ptsp.2018.09.006>.
- Campbell, RitaSue Morgan, and James Busser. "Financial Benefits of On-Site Athletic Training Services for a Performing Arts Show." *University of Nevada, Las Vegas*, 2007.

Coogan, Sarah M., et al. "Functional Movement Screen™ (FMSTM) scores do not predict overall or lower extremity injury risk in collegiate dancers." *International Journal of Sports Physical Therapy*, vol. 15, no. 6, 2020, pp. 1029–1035, <https://doi.org/10.26603/ijspt20201029>.

"Dance: Major." *Cornish*, 17 Oct. 2022, [www.cornish.edu/cornish-programs/dance/](http://www.cornish.edu/cornish-programs/dance/).  
Accessed 26 Sept 2023.

Daniel, Catherine. Interview. By Megan E. Chiles. 28 Aug. 2023.

Dirickson, AJ. "Walking the tightrope: Effective treatment for dancer Burnout." *Dance Major Journal*, vol. 5, 2017, <https://doi.org/10.5070.d551036276>.

Francesconi, Trevor. "The Importance of Athletic Trainers in College Sports." *University Wire*, Feb 21, 2017. *ProQuest*, <https://unco.idm.oclc.org/login?url=https://www.proquest.com/wire-feeds/importance-athletic-trainers-college-sports/docview/1870205400/se-2>.

Greene, Amanda, and Andrea Lasner. "Common Dance Injuries and Prevention Tips." *Johns Hopkins Medicine*, 7 July 2022, [www.hopkinsmedicine.org/health/conditions-and-diseases/sports-injuries/common-dance-injuries-and-prevention-tips](http://www.hopkinsmedicine.org/health/conditions-and-diseases/sports-injuries/common-dance-injuries-and-prevention-tips).

Haas, Jacqui Greene. "Chapter 8: Pelvis and Hips." *Dance Anatomy 2nd Edition*, Human Kinetics Publishers, Champaign, IL, 2018, pp. 143–168.

Henn, Erica D. "A Study of Injury and Its Prevention in First-Year University Dance Students." *Temple University*, Temple University Libraries, 2016.

Kime, Zack. "Pushing through." *University Wire*, Nov 14, 2022. *ProQuest*, <https://unco.idm.oclc.org/login?url=https://www.proquest.com/wire-feeds/pushing-through/docview/2736062422/se-2>.

- Kneavel, Meredith, et al. "Collegiate athletes' perceptions of the culture of concussion reporting." *Journal of American College Health*, vol. 69, no. 4, 2019, pp. 435–443, <https://doi.org/10.1080/07448481.2019.1679816>.
- Mainwaring, Lynda M., and Caitlin Finney. "Psychological risk factors and outcomes of Dance Injury: A systematic review." *Journal of Dance Medicine & Science*, vol. 21, no. 3, 2017, pp. 87–96, <https://doi.org/10.12678/1089-313x.21.3.87>.
- Nickols, Philip R. "Underreporting of Concussions in a NCAA Divisions I Men's Soccer Team." *Western Illinois University*, 2016.
- Prakash, Akilesh Anand. "Medical attention seeking dance injuries: Systematic review of case reports." *The Physician and Sportsmedicine*, vol. 45, no. 1, 17 Dec. 2016, pp. 64–74, <https://doi.org/10.1080/00913847.2017.1270700>.
- Rosa, Bruno Berbert, et al. "Epidemiology of sports injuries on collegiate athletes at a single center." *Acta Ortopédica Brasileira*, vol. 22, no. 6, 2014, pp. 321–324, <https://doi.org/10.1590/1413-78522014220601007>.
- "Setting the Stage: Career-Ending Injury Leads Dancer to New Twu." *TWU Home*, 4 Nov. 2021, [twu.edu/institute-womens-leadership/women-who-lead/setting-the-stage-career-ending-injury-leads-dancer-to-new-passion-at-twu/](https://twu.edu/institute-womens-leadership/women-who-lead/setting-the-stage-career-ending-injury-leads-dancer-to-new-passion-at-twu/).
- Solomon, Ruth, and Jeffrey A Russell. "Orthopaedics & Physical Performance." *Dance Injuries - Sports Medicine Program - UR Medicine, University of Rochester Medical Center - Rochester, NY*, [www.urmc.rochester.edu/orthopaedics/sports-medicine.dance-injuries.shtml](http://www.urmc.rochester.edu/orthopaedics/sports-medicine.dance-injuries.shtml).
- Student-Athlete Time Demands April 2015*, Penn Schoen Berland, [sports.cbsimg.net/images/Pac-12-Student-Athlete-Time-Demands-Obtained-by-CBS-Sports.pdf](https://sports.cbsimg.net/images/Pac-12-Student-Athlete-Time-Demands-Obtained-by-CBS-Sports.pdf). Accessed 26 Sept 2023.

Sun, Wenying. "Injuries in contemporary dance." *Advances in Physical Education*, vol. 10, no. 03, 24 Aug. 2020, pp. 282–292, <https://doi.org/10.4236/ape.2020.103023>.

"Top 5 Most Common Sport Injuries." *University of Utah Health | University of Utah Health*, 12 Apr. 2023, [healthcare.utah.edu/healthfeed/2021/11/top-5-most-common-sport-injuries](https://healthcare.utah.edu/healthfeed/2021/11/top-5-most-common-sport-injuries).

Wang, Tina J, and Jeffrey A Russell. "A tenuous pas de deux: Examining university dancers' access to and satisfaction with healthcare delivery." *Medical Problems of Performing Artists*, vol. 33, no. 2, 2018, pp. 111–117, <https://doi.org/10.21091/mppa.2018.2018>.

Wolverton, Brad. "Coach Makes the Call - The Chronicle of Higher Education." *The Chronicle of Higher Education*, 2 Sept. 2013, [www.chronicle.com/article/coach-makes-the-call/](http://www.chronicle.com/article/coach-makes-the-call/).



APPENDIX A  
INSTITUTIONAL REVIEW BOARD



Date: 11/11/2022  
 Principal Investigator: Megan Chiles  
 Committee Action: **IRB EXEMPT DETERMINATION – New Protocol**  
 Action Date: 11/11/2022  
 Protocol Number: [2210044659](#)  
 Protocol Title: Dancers Versus Athletes: A Comparison of Physical and Mental Effects Caused by Injuries  
 Expiration Date:

The University of Northern Colorado Institutional Review Board has reviewed your protocol and determined your project to be exempt under 45 CFR 46.104(d)(702) for research involving

Category 2 (2018): EDUCATIONAL TESTS, SURVEYS, INTERVIEWS, OR OBSERVATIONS OF PUBLIC BEHAVIOR. Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7).

You may begin conducting your research as outlined in your protocol. Your study does not require further review from the IRB, unless changes need to be made to your approved protocol.

**As the Principal Investigator (PI), you are still responsible for contacting the UNC IRB office if and when:**



- You wish to deviate from the described protocol and would like to formally submit a modification request. Prior IRB approval must be obtained before any changes can be implemented (except to eliminate an immediate hazard to research participants).
- You make changes to the research personnel working on this study (add or drop research staff on this protocol).
- At the end of the study or before you leave The University of Northern Colorado and are no longer a student or employee, to request your protocol be closed. \*You cannot continue to reference UNC on any documents (including the informed consent form) or conduct the study under the auspices of UNC if you are no longer a student/employee of this university.
- You have received or have been made aware of any complaints, problems, or adverse events that are related or possibly related to participation in the research.

If you have any questions, please contact the Research Compliance Manager, Nicole Morse, at 970-351-1910 or via e-mail at [nicole.morse@unco.edu](mailto:nicole.morse@unco.edu). Additional information concerning the requirements for the protection of human subjects may be found at the Office of Human Research Protection website - <http://hhs.gov/ohrp/> and <https://www.unco.edu/research/research-integrity-and-compliance/institutional-review-board/>.

Sincerely,

Nicole Morse  
Research Compliance Manager

University of Northern Colorado: FWA00000784

APPENDIX B  
RESEARCH INSTRUMENTATION

### Survey for Current Collegiate Dancers and Athletes

- Q1. What is your expected graduation year from college?
- Q2. Are you currently participating in a collegiate sport or dance?  
Sport  
Dance
- Q3. What sport are you participating in while in college?  
Football  
Basketball  
Baseball/Softball  
Volleyball  
Track/Cross Country  
Soccer  
Wrestling  
Lacrosse  
Other  
Not Applicable
- Q4. Are you a part of your university's/college's dance team or dance major program?  
Dance Team  
Dance Major Program  
Both  
Not Applicable
- Q5. On average, how many hours a week are you in practice/rehearsal?
- Q6. On average, how many hours a week are you in conditioning/technique?
- Q7. Do you have access to athletic trainers/doctors through the college?  
Yes  
No
- Q8. Do athletic trainers/doctors attend your practices/rehearsals?  
Yes  
Occasionally  
No
- Q9. Have you gotten any injuries while dancing or playing your sport during college?  
Yes  
No

Q10. If so, what type of injury?

Upper Body

Lower Body

Brain

Q11. If comfortable, please name the injuries you incurred.

Q12. Did you ever participate in practice/rehearsal even though you were injured?

Yes

No

Q13. If yes, what injuries were you participating through?

Q14. Did you ever hide an injury from a coach or athletic trainer?

Yes

No

Q15. Did you ever fake/exaggerate an injury in order to get out of a performance, practice, game, or conditioning?

Yes

No

Q16. I look forward to going to practice.

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

Q17. I get nervous going to practice.

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

Q18. I am afraid of getting injured while participating in practice.

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

Q19. I feel pressure to practice when I am injured.

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

Q20. Are you willing to participate in a follow-up phone/zoom interview?

No

Yes

Q21. If yes, please list your name and current email.

**Survey for Former Collegiate Dancers and Athletes**

- Q1. What year did you graduate from college?
- Q2. While in college, did you participate in a collegiate sport or dance?  
Sport  
Dance
- Q3. What sport did you participate in while in college?  
Football  
Basketball  
Baseball/Softball  
Volleyball  
Track/Cross Country  
Soccer  
Wrestling  
Lacrosse  
Other  
Not Applicable
- Q4. Were you a part of your university's/college's dance team or dance major program?  
Dance Team  
Dance Major Program  
Both  
Not Applicable
- Q5. On average, how many hours a week were you in practice/rehearsal?
- Q6. On average, how many hours a week were you in conditioning/technique?
- Q7. Did you have access to athletic trainers/doctors through the college?  
Yes  
No
- Q8. Did athletic trainers/doctors attend your practices/rehearsals?  
Yes  
Occasionally  
No
- Q9. Did you get any injuries while dancing or playing your sport during college?  
Yes  
No



Q10. If so, what type of injury?

Upper Body

Lower Body

Brain

Q11. If comfortable, please name the injuries you incurred.

Q12. Did you ever participate in practice/rehearsal even though you were injured?

Yes

No

Q13. If yes, what injuries were you participating through?

Q14. Did you ever hide an injury from a coach or athletic trainer?

Yes

No

Q15. Did you ever fake/exaggerate an injury in order to get out of a performance, practice, game, or conditioning?

Yes

No

Q16. I look forward to going to practice.

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

Q17. I was nervous going to practice.

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

Q18. I was afraid to get injured while participating in practice.

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

Q19. I felt pressured to practice when I was injured.

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

Q20. Are you willing to participate in a follow-up phone/zoom interview?

No

Yes

Q21. If yes, please list your name and current email.

APPENDIX C  
CONSENT FORMS

CONSENT FOR CURRENT COLLEGIATE DANCERS AND ATHLETES  
UNIVERSITY OF NORTHERN COLORADO

Project Title: Dancers Versus Athletes: A Comparison of Physical and  
Mental Effects Caused by Injuries

Researcher: Megan E. Chiles

Phone: [REDACTED]

Email: [REDACTED]

Advisor: Toni Duncan

Email: [REDACTED]

The primary purpose of this study is to compare the physical and mental effects caused by injuries in collegiate dancers and athletes. You will complete a ten-minute survey consisting of questions about your time and experiences while dancing/playing a sport in college. You will have the option of participating in a fifteen-minute follow-up zoom interview to elaborate on your experiences.

The researcher will take every precaution to protect your confidentiality. The researcher will assign a subject number to you. Data collected and analyzed for this study will be stored on a password protected computer as well as delivered via FedEx and stored in Crabbe Hall, room 308, the office of Christy O'Connell-Black, Dance Education MA co-coordinator. All data collected for this study will be destroyed after three years.

Participation is voluntary. You may decide not to participate in this study and if you begin participation, you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in a loss of benefits to which you are otherwise entitled. Having taken your time to read the above terms and agree to participate in the study, please click "continue" to be taken to the survey. Your completion of the survey indicates your consent to participate. Please keep a copy of this form for your records. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639, [REDACTED]

By clicking "continue" you are agreeing to the above terms.

CONSENT FORM FOR FORMER COLLEGIATE DANCERS AND ATHLETES  
UNIVERSITY OF NORTHERN COLORADO

Project Title: Dancers Versus Athletes: A Comparison of Physical and  
Mental Effects Caused by Injuries

Researcher: Megan E. Chiles

Phone: [REDACTED]

Email: [REDACTED]

Advisor: Toni Duncan

Email: [REDACTED]

The primary purpose of this study is to compare the physical and mental effects caused by injuries in collegiate dancers and athletes. You will complete a ten-minute survey consisting of questions about your time and experiences while dancing/playing a sport during your time in college. You will have the option of participating in a fifteen-minute follow-up Zoom interview to elaborate on your experiences.

The researcher will take every precaution to protect your confidentiality. The researcher will assign a subject number to you. Data collected and analyzed for this study will be stored on a password protected computer as well as delivered via FedEx and stored in Crabbe Hall, room 308, the office of Christy O'Connell-Black, Dance Education MA co-coordinator. All data collected for this study will be destroyed after three years.

Participation is voluntary. You may decide not to participate in this study and if you begin participation, you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in a loss of benefits to which you are otherwise entitled. Having taken your time to read the above terms and agree to participate in the study, please click "continue" to be taken to the survey. Your completion of the survey indicates your consent to participate. Please keep a copy of this form for your records. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639, [REDACTED].

By clicking "continue" you are agreeing to the above terms.