

THE IMPACT OF INJURIES ON STUDENT-ATHLETES' HEALTH AND PERFORMANCE

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Abstract

Sports injuries are a common occurrence in collegiate athletics, and can have a significant impact on athletes' health and performance. This paper reviews the common causes of sports injuries in college athletes, and discusses strategies for prevention. The paper also highlights the importance of comprehensive sports safety promotion programs that involve all stakeholders, including athletes, coaches, trainers, and facility managers.

Keywords: Sports injuries, College athletes, Prevention, Safety promotion, Rehabilitation, Structural measures, Educational measures

Introduction

In collegiate sports today, many athletes every year acquire an injury during participation in athletics. Injuries can occur and reoccur in athletes for multiple reasons such as the use of improper equipment, not putting in full effort in performance drills, improper stretching before engaging in athletic competition or practice, and not participating in necessary treatment to prevent the injury from reoccurring. Sports injuries are the result of severe trauma or repetitive stress when participating in athletic activities and can have an impact on bones or soft tissue such as ligaments, tendons, or muscles. The majority of sports injuries are minor involving soft tissue trauma such as a bruise or sprain. Although most injuries are minor, some that occur can be very severe such as broken bones or torn ligaments or muscles. These injuries may require analysis from an orthopedic surgeon and can result in a need for surgery or extensive rehabilitation.

According to Timpka, Ekstrand, and Svanström (2006), every fifth unintentional injury that was treated at a healthcare facility were associated with sports and physical exercise. To have a successful knowledge of injury prevention, one must understand the interventions in terms of structural or educational measures, and sports safety promotion must be enforced. Comprehensive sports safety promotion programs require that the perspective on the sports injury problem is made broader than the consideration of the individual athlete. Those responsible for the upkeep of sports facilities also should be included and aware of the promotion of sports safety due to them having control over the sporting environment (Timpka et al., 2006).

1.1 Purpose of the Study

The purpose of this study was to investigate and determine the common reasons softball, volleyball, basketball, baseball, and football athletes at Florida A&M University have injuries, why they may reoccur, and what recovery methods (conditioning, warm-up, and flexibility) persist used while injured.

The study investigated three injury sites: Ankle, knee, and shoulder. Before conducting this current study, a hypothesis was made that the most common injury site for these athletes occurs in the ankle. The study also sought to investigate the cause of the injuries in the shoulder, knee, and ankle. If we know the cause, we can find alternative ways to perform exercises and practices or tasks within a game.

1.2 Need for the Study

The need for this study was to find ways to prevent the injuries from reoccurring and to discover methods inadequately treating these injuries. The most common injuries focused on during the research were shoulder, ankle, and knee injuries. The research explored the description of the injury, how flexible the injury site was, how much conditioning was done at the time of the injury, how well the participant recovered, what safety equipment was utilized in the sport, and the cause of the injury will be analyzed.

1.3 Basic Assumptions

In softball, volleyball, basketball, baseball, and football sports the ankle is an important ligament that undergoes much physical activity daily for these athletes. Based on the survey that Florida A&M University student athletes completed, this study identified the most common injury occurred in the ankle, in comparison to the shoulder and knee. It is assumed all participants answered each question honestly.

1.4 Limitations of the Study

The limitations in this research were finding previous research literature that relates to specific injuries in softball, volleyball, baseball, basketball, and football athletes. Also, the athletes surveyed had many responsibilities outside of their sport activities such as academics, and it might have been difficult for them to remember all reasons related to injuries. Also, the research was based on the subject's point of view. If they had anything that factored into the injury that was not a part of the survey, it could be a limitation to the results.

2. Review of Literature

An injury is identified as a bodily harm an athlete has sustained in a sports-related activity that has caused absence from a practice session or competition (Timpka et al., 2006). Sports injuries are continually happening in collegiate sports today and are an obstacle that most athletes have to face, which can have an occupational, economic, physical, psychological, and educational impact on athletes (Almeida, Olmedilla, Rubio & Palou, 2014). According to the National Institute of Health in the U.S., the most common sport injuries are due to accidents, inadequate training practices, or using the wrong gear or equipment (Paddock, 2012). The number of sport injuries is increasing today due to the increase in professionalization, competitiveness, and extension in practice (Almeida et al., 2014). A sports injury involves the dysfunction of an organism which produces pain and limitations or interruption of participation in sport activity (Almeida et al., 2014). The most common sports injuries contain knee injuries, sprains and strains, swollen muscles, Achilles tendon injuries, and fractures (Paddock, 2012).

According to Meeuwisse (1994), there are two different categories of athletic injuries: Acute injuries and overuse injuries. These two types of injuries differ in their etiology. Acute injuries are those associated with a macro traumatic event such as fractures and ligament sprains. These provoking occurrences were characteristically identified by the application of an exterior force with a subsequent tissue disruption. In overuse injuries, the results are due to repetitive microtraumas such as stress fractures and tendinitis. The provoking event in overuse injuries is less apparent, and the resultant tissue damage is due to overstress rather than acute disruption. Overuse injuries have a more significant contribution from intrinsic risk factors. In running-related injuries, the age and biomechanical alignment of individuals may predispose them to injuries. Extrinsic risk factors may include the use of worn shoes in the running on rough terrain, making the athlete susceptible to an injury (Meeuwisse, 1994). Furthermore, Meeuwisse (1994) asserts having an understanding of the cause of an injury is essential to advancing knowledge, particularly regarding prediction and prevention in sports injuries. Many research avenues have attempted to clarify the cause of athletic injuries, but little attention has been provided to which cause may assess casual relationships. The majority of the studies that have examined risk factors in athletic injury have yet to approach the issue of etiology. When data on multiple factors have been available, a univariate which is a single risk factor, an approach to assessing causation has typically been employed. Due to athletic injuries being similar to most diseases in the sense of being multifactorial in etiology, examining each risk factor separately without controlling other risk factors would not yield an accurate picture on how it contributes to the injury.

Although using a univariate has given an inside look at some of the risk factors, it has also limited the progress of determining which factors are casual (Meeuwisse, 1994). Starting in 1982, the National Collegiate Athletic Association (NCAA) began conducting standardized injury, and exposure data for collegiate sports completed its Injury Surveillance System (ISS) (Hootman, Dick, & Agel, 2007). In this review, 182,000 injuries, and more than 1 million exposure records captured over 16 years were used. Game and practice injuries were also included that required medical attention and resulted in at least one day of time loss. The ISS consisted of injury and exposure data from 16 sports activities such as men's fall and spring football, women's softball, women's volleyball, men's soccer, men's wrestling (Hootman et al., 2007). In the report, an overview of the 16 individual sports teams included a general injury trend in college athletics (Hootman et al., 2007). Injury rates that were highlighted included three specific conditions for all sports: ankle ligament sprains, anterior cruciate ligament (ACL) injuries, and concussions. A reportable sports' injury in the ISS had to meet all of the following criteria: the injury happened as a consequence of participation in an organized intercollegiate practice or contest, the injury required medical attention by a certified athletic trainer or physician, and the injury resulted in restriction of the student-athlete's participation or performance in 1 practice or game (Hootman et al., 2007).

Injury trends over the 16 years have been influenced by many factors such as increased athletic participation, changes in NCAA rule, and the continued evolution of sports medicine. The participation in NCAA collegiate sports has increased among both sexes, with an 80% increase in females and a 20 percent increase in males (Hootman et al., 2007). According to Hootman, Dick, and Agel, (2007), medical coverage for collegiate athletics has improved particularly with the creation of the National Athletic Training Association in 2000. The number of certified trainers working in the collegiate setting has increased 86 percent over the last ten years. An increase in

the number of certified trainers allows better medical support for collegiate teams and for athletes to receive the best treatment after an injury has occurred. The field of sports medicine has innovative over the years with regard to evidence-based interventions. These interventions have included bracing, physical conditioning programs, and medical awareness and diagnosis (Hootman et al., 2007).

Furthermore, Hootman, Dick, and Agel, (2007) assert the higher intensity of game activity is vital to the more significant injury rates in games compared to practices. Many reasons are evident in why injury rates are higher during the preseason than during other parts of the sports season. For example, some athletes may arrive to preseason poorly conditioned and as a result, the stress of the high-intensity preseason training may result in more injuries. On the other hand, preseason practice typically lasts longer than an in-season or postseason practice. Due to the ISS exposure not having a time component, an individual is at a higher risk of injury in a longer practice because of the extended exposure to athletic activity (Hootman et al., 2007).

In preseason practice, student-athletes usually have more than one practice a day. This may limit the recovery of muscles for subsequent activities and pose a higher risk for injury on players. Preseason practice may also have more less-skilled or walk-on athletes trying out for a sport in which these athletes may be more susceptible to injury. Preseason is also a time in which players are competing for a starting position, thus creating a highly competitive atmosphere that might escalate injury rates. These seasonal factors may be modifiable; therefore, the potential for developing injury prevention to address the high rates of preseason injuries is great. The preseason competition injury rates were lower than in-season or postseason competition rates (Hootman et al., 2007). Many injury prevention strategies should be implemented to reduce preseason injury rates. These strategies may include phased-in, multiple day practices, modifying practice times to accommodate environmental conditions, mandating appropriate recovery times, and preparation of medical examinations (Hootman et al., 2007). The traditional model for injury prevention involves four stages including establishing the extent of the sports injury problem, establishing the etiology and mechanisms of injuries, introducing the preventive measures, and assessing the effectiveness of the preventive interventions by repeating the first step (Timpka et al., 2006).

Furthermore, according to Hootman, Dick, and Agel (2007), Player contact is an essential factor in many sports. For practices and games, player contact accounted for the majority of injuries, with 58 percent in games and 41.6 percent in practices. In practice, non-contact injury mechanisms account for 36.8 percent of all injuries, compared to only 17.7 percent in games. Although player contact is a normal part of some sports, the percentages of player contact injuries might be slightly comparable among practices and games. The overall practice injury rate in these contact-sports might be significantly lower than the game. In football, the no-sparring and no-clipping rules were instituted to reduce contact-related injury rates, specifically head and neck injuries and knee injuries.

Protective equipment has been put in to help reduce injury rates such as face guards in men's hockey and protective devices for injured body parts. Athletic trainers play a critical leading role in creating innovative protection for sensitive body parts that allow players to participate with a reduced risk of injury from a direct blow (Hootman et al., 2007).

Sports medicine specialist has begun to use the slogan "Prehab to avoid Rehab." Prehab which is short for Prehabilitation is a new idea in the field of sports medicine and therapy that is a personalized exercise program

that is individually designed for athletes to help them prevent injury in their given sport (Paddock, 2012). Also, Paddock (2012) asserts that prehab is also used to refer to improving an athlete's fitness before undergoing surgery to have a faster recovery and the ability to withstand the inactivity after the procedure. The purpose of rehab is to avoid injury by compensating for the repetitive movements and stresses of regular training every day. Naturally, during a physical activity session, the repetitive use of muscles makes them tight with the body developing imbalances in strength and muscle coordination (Paddock, 2012). With the incorporation of a prehab routine in a daily workout, it allows the body to adjust to the repetitive motions of muscles that will later have a positive effect and result in fewer injuries in athletes. A successful prehab program forms a regular part of an athlete's training routine (Paddock, 2012).

Football is a common sport played by many people at different levels, starting as early as age 5 (Levine & Owens, 2016). Injuries in football are beginning to start at an early age now due to the high competitiveness and deep physical contact in the sport. In 2007, over 920,000 athletes under the age of 18 were treated in emergency rooms, doctors' offices, and clinics due to football-related injuries (Levine & Owens, 2016). Injuries are occurring during practices and games in football due to the high speeds and full contact involved in the sport (Levine & Owens, 2016). Overuse injuries occur in football, but most injuries sustained are traumatic injuries (Levine & Owens, 2016). Traumatic injuries can include concussions, fractures, sprains, and strains and usually happen after the physical contact has taken place in a sporting event.

Knee injuries in football are the most mutual, particularly when directed toward the anterior and posterior cruciate ligament (ACL and PCL) and the menisci. Knee injuries can have an adverse affect an athlete's long term career in the sport of football (Levine & Owens, 2016). Football players also have a great chance of acquiring ankle injuries due to the various surfaces played on and the quick cutting motions used in techniques (Levine & Owens, 2016). Shoulder injuries are prevalent for football athletes with the labrum being most susceptible to injury (Levine & Owens, 2016). The labrum is the cartilage bumper surrounding the socket part of the shoulder. These injuries are typically occurring in athletes who are offensive or defensive linemen (Levine & Owens, 2016).

Football injuries can be prevented in many ways. Having a pre-season health and wellness evaluation is a great way to reduce injuries. This educates athletes on injuries and parts of their body that needs rehabilitation to prevent injuries from occurring in the season. Performing warm-up and cool-down routines are essential in programming the body in preparing for a workout and for a cool down after the workout to begin the recovery mode of the muscles. Hydration is a crucial factor when participating in athletic competitions or practices. Hydrating the body adequately maintains a healthy workout and helps to minimize cramping in the body (Levine & Owens, 2016). Wearing properly fitted protective equipment such as a helmet, pads, mouth guards, and braces will help in the reduction of injuries sustained in physical activity.

Over 16 years, data collection using the NCAA injury surveillance system was collected to take a closer look at softball injuries at the collegiate level. In the data analysis, the rate of injury was 1.6 times higher in games than in practices (Shaginaw, 2014). The preseason injury rates were more than double the regular season injury rates, and the postseason injury rates were much lower than both the preseason and in-season injury rates (Shaginaw, 2014). Most of the injuries acquired were to the lower extremity of the body at 43% compared to the 33% of

injuries to the upper extremity of the body, and most of the injuries sustained were to the ankle and knee (Shaginaw, 2014).

Upper extremity injuries are more common in baseball rather than softball due to the underhand pitching motion used in softball, and this pitching technique places less stress on the shoulder and elbow (Shaginaw, 2014). Most upper extremity injuries that may occur in softball include traumatic injuries to the wrist and hand, such as fractures or dislocations (Shaginaw, 2014). When examining shoulder injuries, it is not clear how to prevent them completely, but proper stretching and conditioning are vital to improving throwing and pitching biomechanics (Reinberg, 2010). Shaginaw (2014) asserts the most common softball injuries are ankle sprains and knee internal derangements which are classified under lower extremity. Ankle and knee injuries combined account for 22% of all injuries acquired while participating in softball and typically took ten days or more of not participating in softball activities.

Devries (2015) asserts ankle injuries are tending to occur due to quick stops and starts of base running and sliding into a base. Ways to prevent these injuries from occurring include educating and training softball athletes on the proper sliding techniques and how to judge when it is appropriate (DeVries, 2015). With the majority of ankle sprains being minor injuries, treatment can involve a short time off from playing on the injured site (Shaginaw, 2014). Rehabilitation consisting of regaining range of motion or flexibility, strength, and balance may be used if needed (Shaginaw, 2014). Knee injuries are the second most common injuries in softball. These injuries usually consist of meniscal tears and ACL tears (Shaginaw, 2014). When acquiring an ACL injury, the athlete is required to consult with a surgical professional in which the result is usually the end of the season for the athlete (Shaginaw, 2014). Athletes are sometimes able to finish their season with mildly symptomatic meniscal tears, but consultation with an orthopedic surgeon is needed to determine (Shaginaw, 2014).

When playing a sport, precautions must be made to prevent injuries. In volleyball, players usually wear ankle braces to prevent ankle sprains. There are also pads on each pole in case a player collides with a pole. Kneepads are worn to protect the skin on knees from breaking open. If there has been a previous injury, the player will wear an ace wrap or get the injury taped with athletic tape. The volleyball court is kept clean of hazards and free balls that could cause trips or falls (Seaton, 1948). There are many ways an injury can occur. If two players collide with a large force, they can injure each other. If a player has incorrect form, such as hitting the ball or setting the ball, they can injure themselves. Players could also be injured during conditioning, where they are pushing their bodies to do strenuous activities. No matter how the injury occurs, it should always be taken seriously and treated correctly. According to the National Athletic Trainers Association (NATA) (2010), the most volleyball injuries occur in the ankles. The NATA performed a three-year study with 87 high school players. The study took place in 1995 by certified athletic trainers throughout the country and found that 50 percent of injuries were sprains. The setting position was found to be the position with the most injuries. NATA also found that 80 percent of injuries occurred during practices. Only less than two percent required surgery (National Athletic Trainers Association, 2010).

3. Methodology

3.1 Research Design

This study focused on Florida A&M University women's softball, volleyball, and basketball teams; and men's football, baseball, and basketball teams, ages 18-24. The study used a 16-item researcher-designed survey to investigate the causes of student-athletes injuries to their knee, ankle, and shoulder. Each participant completed one survey per injury type experienced in their lifetime (ankle, knee, and shoulder). The survey required participants to identify demographic information: Gender, sport, classification, major, and state of residence. Then, the survey required responses to questions specific to their injury in the following categories: Description of the injury, flexibility during injury, warm-up process while injured, conditioning process while injured, recovery period, safety equipment used to prevent injury, and the cause of the injury. Each category required a Likert scale response to either identify a rate on a scale of one to five; yes, or no; easy, moderate, or intense; or to select from a list of options.

3.2 Selection of Participants

Research participants were Florida A&M University women's softball, volleyball, and basketball team members; and men's football, baseball, and basketball team members. They were 49 student-athletes ranging between the ages of 18 to 24 years old, who were actively enrolled and eligible according to NCAA regulations and acted on their corresponding teams.

3.3 Data Collection Procedures

Approval to conduct research was acquired through Ph.D. Review Board (IRB), a committee recognized to review and approve research involving human subjects. Participants were identified using the university's athletic student roster. Permission was sought from coaches to provide the questionnaire to team members. Potential participants received the general recruitment letter, an informed consent, the questionnaire, debriefing statement, and a letter-sized envelope. If the student-athlete decided to participate, the participant's hand-delivered their responses within 48 hours to the researcher after their lunch break in the sealed envelope provided, in efforts to maintain confidentiality. Each participant was notified that information would be kept confidential according to the IRB policies and procedures and that no self-identifying information would be needed or recorded. Each student was informed of available services provided by the university in the debriefing statement in case assistance was needed due to an injury.

3.4 Data Analysis

A quantitative analysis was used in this study. Descriptive statistics were used to examine demographic data. The study used a one-way analysis of variance (ANOVA), and basic computations. The one-way ANOVA was used to determine a correlation between student athlete's injuries, sport types, and recovery methods in college sports. The dependent variables were the student-athletes responses on the researcher-designed survey (conditioning time, warmup time, and flexibility), and the independent variables were the types of injuries experienced (ankle, knee, and shoulder). After the surveys were conducted, data were examined using the Statistical Package for the Social Sciences (SPSS) program to approach the research results. The study used an alpha level of .05 for the analysis.

4. Results

The purposes of this study were to explore the relationship between student athlete’s injuries, sport types, and recovery methods in college sports. The data below in tables one through three suggests there is a significant difference between the type of sport and the extent of conditioning at the time of an ankle injury, but there is no evidence to support a correlation between the type of sport and the extent of conditioning for the knee or shoulder injuries. The data suggests on average athletes who experienced ankle injuries believed conditioning to be between easy and moderate (1.63).

Table 1. Ankle Conditioning for Student-Athletes After Injury

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	17.499	3	5.833	4.241	.010
Within Groups	61.889	45	1.375		
Total	79.388	48			

Table 2. Knee Conditioning for Student-Athletes After Injury

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	2.821	3	.940	.671	.575
Within Groups	63.097	45	1.402		
Total	65.918	48			

Table 3. Shoulder Conditioning for Student-Athletes After Injury

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	.180	3	.060	.048	.986
Within Groups	56.514	45	1.256		
Total	56.694	48			

The data below in tables four through six suggests there is no evidence to support a correlation between the type of sport and the length of time of warm-up time for shoulder, knee or ankle injuries. Although there was no evidence of significance, the data suggests, on average, athletes who experienced any of the three injuries performed at least five to 10 minutes of warm-ups at the time of their injury.

Table 4. Ankle Warm-up Time for Student-Athletes After Injury

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	6.750	3	2.250	1.506	.226
Within Groups	67.250	45	1.494		
Total	74.000	48			

Table 5. Knee Warmup Time for Student-Athletes After Injury

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	9.082	3	3.027	1.884	.146
Within Groups	72.306	45	1.607		
Total	81.388	48			

Table 6. Shoulder Warmup Time for Student-Athletes After Injury

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	1.392	3	.464	.219	.882
Within Groups	95.139	45	2.114		
Total	96.531	48			

The data below in table seven through nine suggest there is a significant difference between the type of sport and the level of flexibility after a knee injury, but there is no evidence to suggest a correlation between the type of sport and the level of flexibility after shoulder or ankle injuries. The data suggests, on average, athletes who experienced knee injuries believed their flexibility to be low (1.65) at the time of injury. On average, football participants who experienced knee injuries believed their flexibility to be midrange (2.9) at the time of injury, and volleyball participants who experienced knee injuries believed their flexibility to be low (.89) at the time of injury.

Table 7. Ankle Flexibility for Student-Athletes After Injury

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	15.947	3	5.316	2.378	.082
Within Groups	100.583	45	2.235		
Total	116.531	48			

Table 8. Knee Warm-up Time for Student-Athletes After Injury

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	26.921	3	8.974	3.360	.027
Within Groups	120.181	45	2.671		
Total	147.102	48			

Table 9. Shoulder Warm-up Time for Student-Athletes After Injury

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	5.273	3	1.758	.577	.633
Within Groups	136.972	45	3.044		
Total	142.245	48			

5. Conclusion

Although sports injuries can not be eliminated, many prevention methods can be implemented to help reduce and prevent injuries in athletes at the collegiate level (Paddock, 2012). This research was conducted to learn the

common injuries for the student-athletes at Florida A&M University and why these injuries may be occurring. Through the literature reviewed, in both sports, the ankle is a cite in which injury occurs the most. Ankle ligament sprains are a common injury area in all levels of college athletics (Hootman et al., 2007). Injuries in the lower extremity area accounted for more than half of all injuries in the sample report conducted justifying the particular emphasis on this region in athletic training education, clinical practice, and prevention efforts (Hootman et al., 2007). Many prevention measures have been researched to help this epidemic of injuries in these athletes. Having basic knowledge of the specific injury and why it may be occurring can help determine what preventative methods should be taken to prevent injuries from re-occurring.

When participating in softball, ankle injuries are tending to occur due to quick stops and starts of base running and sliding into a base (DeVries, 2015). Ankle injuries account for about 10% of injuries in practices and games for female softball players (DeVries, 2015). As in most collegiate institutions, athletic trainers typically use the Rest, Ice, Compression, and Elevation (R.I.C.E) method in treating ankle sprains. During the resting stage, the athlete is recommended to rest the injured site by applying minimum to no activity on it in the first 24 to 48 hours after the injury to avoid any extra pain. In the first 48-hours post-injury, apply ice to the injured site for no more than 20 minutes at a time every four hours. The ice does not have to be an ice bag necessarily; it can be a frozen bag of vegetables that can be re-used. Ice cups can also be used and rubbed on the injury in a circular motion until it melts. It is essential not to ice the injured site for more than 20 minutes at a time. Extending the amount of time icing will not speed up the healing process; instead, it may cause tissue damage. Compressing the injury involves using an ace bandage or wrap to snug the injury without cutting off the circulation and elevating your injured sites as high as possible by placing a pillow under the injury.

After analyzing the data collected, the hypothesis of the ankle being the most common injury in softball and football athletes at Florida A&M University was accurate. Most of the injuries were mild or reasonable in relation to severity and only left athletes out from participation for a couple of weeks or less. Only a few of the ankle injuries surveyed from athletes were severe in which the athletes were out from participation in their sport for two to four months. The leading cause of the injuries in the ankle, knee, and shoulder for the football team was due to a collision in the sport.

The leading cause of injury in the ankle, shoulder, and knee for the softball team was due to overuse of the ligaments over a while. The study supported the hypothesized that there was a relationship between student athlete's injuries, sport types, and recovery methods in ankle injuries. It showed that 50 percent of the softball athletes surveyed were given on ankle injuries, 30 percent of shoulder injuries, and 20 percent of knee injuries. The football athletes reported 50 percent having ankle injuries also, 40 percent shoulder injuries, and 10 percent knee injuries. The results also showed that the most common cause of injury was from the incorrect form when performing drills and in athletic competitions. The results were significant and showed that injuries in the ankle are common in softball and football. It also showed that the correct form is crucial to maintaining a healthy body. Results from this study showed that having the correct form is crucial to maintaining an injury-free body. The form should be monitored at all times, including practices, games, or conditioning. The study from the National Athletic Training Association (2010) found that 80 percent of all volleyball injuries occur at practice, which is

where players spend most of their time. This is also the time that is supervised the least. An article in the Sports Medicine Journal stated that it is easy to land incorrectly on the feet after jumping and twisting during certain movements in volleyball (Ferreti, 1990). Teaching volleyball players the correct form of each movement is essential when training a team.

Overuse of the body is likely when the sport is competitive and demanding. It is essential to give the body rest in between conditioning sessions and practices. “Jumper’s Knee” is a common injury in volleyball, caused by overuse of the knee ligaments (Ferreti, 1990). Strengthening ligaments are also significant. Overuse and weak ligaments were both the second-highest causes of injuries from this study. The conditioning sessions should contain exercises to strengthen the ligaments specifically. The third-highest causes of injury were from the collision and lack of strength. Running into another player can be simple because the movements are very quick and in a small area. The athletes need to be aware of their surroundings at all times because of this. They also need to condition regularly, so their bodies are strong enough to support themselves.

The study showed details of the athlete at the time of the injury. It showed how flexible, reliable, and advanced they were at the time of the injury. There was no apparent relationship found between the flexibility of the subject and the severity of the injury. There had also been no connection between the amount of conditioning done at the time and the severity of the injury. Only 50 percent of the surveys showed that the athlete had a proper warm-up at the time. Having a proper warm-up and cool-down helps the body prevent injuries by using a gradual transition. This study supported the hypothesis. It showed that the most common injury found in collegiate female volleyball players was the ankle. The National Athletic Training Association (2010) also completed a study that showed the same results. Shoulder and knee injuries were also common, but not as common as ankle injuries. This shows that ankle braces should be highly suggested to players to prevent ankle injuries. There are various types of braces and equipment offered to help prevent injuries (Seaton, 1948). Teams should take many precautions, as well as monitor the players to attempt keeping the team injury-free.

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