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To Play or Not to Play: D3 Football Injuries

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To Play or Not to Play: D3 Football Injuries

Abstract

Injury in college athletics are a very common occurrence, and can affect the participants very severely. Football has been one such sport that has shown a lot of public health concerns at the elite levels. With this being said research has lacked at the lower levels of collegiate football, even though this is where the vast majority of NCAA football players participate. Many scholarly sources have either focused on the elite levels of football or the youth levels, no research had been specifically done on the Division III level of football in regards to injury. Ultimately this paper hoped to determine to what degree Division III college football players viewed injury as being detrimental to their current development? The data was found through a cross sectional survey design, while the sample consisted of 73 Division III football players who played on the east coast in the 2014-2015 season. The participants were found with the assistance of football coaches who assisted by spreading the survey to their Division III football players. The results did show that there was a degree to which athlete's perceive that their injuries have negatively impacted their long term health. These findings were important because it could assist in finding ways to make football safer for the majority of collegiate football in the long run.

Document Type

Undergraduate Project

Professor's Name

Dr. Katharine Burakowski

Keywords

Division 3 Football Injuries

Subject Categories

Sports Management

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Injury in college athletics are a very common occurrence, and can affect the participants very severely. Football has been one such sport that has shown a lot of public health concerns at the elite levels. With this being said research has lacked at the lower levels of collegiate football, even though this is where the vast majority of NCAA football players participate. Many scholarly sources have either focused on the elite levels of football or the youth levels, no research had been specifically done on the Division III level of football in regards to injury. Ultimately this paper hoped to determine to what degree Division III college football players viewed injury as being detrimental to their current development? The data was found through a cross sectional survey design, while the sample consisted of 73 Division III football players who played on the east coast in the 2014-2015 season. The participants were found with the assistance of football coaches who assisted by spreading the survey to their Division III football players. The results did show that there was a degree to which athlete's perceive that their injuries have negatively impacted their long term health. These findings were important because it could assist in finding ways to make football safer for the majority of collegiate football in the long run.

Introduction

Athlete safety has been under public scrutiny in recent years for many sports. One sport that is a growing concern to American health has been football. In recent year's research had been done on the effects of concussions at the professional levels as well as players in their post career lives. However less research has been done at the lower collegiate levels, and has risen a question for these athletes. To what degree do Division III college football players view physical injury as being detrimental to their current development?

The importance of this research was to find and discuss physical injuries in the sport of football, and then determine if those football related injuries were too taxing on the collegiate athlete. If society could learn what younger athletes are concerned about in terms of injury and social awkwardness from those injuries, plus any other negative side effect that could occur from a football injury. Then more research could be done in order to make the sport safer at the nonprofessional levels. Football injuries had been researched primarily at the professional and Division I level, and should be expanded to assist where the majority of athletes have participated. That being the National Collegiate Athletic Associations (NCAA) Division III level.

The purpose of this study was to find a way to help society realize that not just professional and elite level football players could suffer serious life changing injuries. Then spark future research on nonprofessional levels of sports and how it could be made safer for those who choose to participate. The question that should be answered to fulfill the purpose of this study is to what degree college football players view physical injury as being detrimental to their current development at the Division III level. The research collected discussed injuries in general sports, then transitioned into football specific injuries, as well as information on the effects these injuries had on individuals.

Literature Review

The research collected through scholarly articles have touched upon three main concepts. Concept one looked at more generalized sports injuries in competitions, as well as touching upon multiple sports such as basketball, soccer, rugby, and others. Concept two then discussed what type of injuries occur in football and briefly discusses the similarities and differences with other sports. The third and final concept discussed a topic similar to concept two, however it went

further and explained the impact those injuries had on the athletes both physically and emotionally.

Injuries in Sport

Injuries in sport have been occurring for a long time. One type of injury that was found to be common are hamstring injuries. Research had been done on the history of hamstring injuries in athletes from the mid-18th century to the modern era. This research has studied past information on how people diagnosed and treated hamstring injuries through other scholarly sources. It was found that a hamstring injury both minor and major have been trouble for athletes since the mid-18th century (Hamilton, 2012). The source of common hamstring injuries can occur when an athlete is out of shape physically and or mentally. This meant that due to an athlete being overweight as well as being upset about a result could lead to a hamstring injury (Hamilton, 2012). It was also found that once a hamstring is torn it takes time for the athlete to comeback unless he or she wants to risk reinjuring it which could become more severe than the original hamstring pull. Hamilton's (2012) research also suggests that the involvement of an overanxious coach who wants his or her "good" athletes back from injury will play an important part in an athlete's decision to return prematurely (Hamilton, 2012). Knowing historically what has happened and the causes of hamstring injuries are important because it could give athletes and coaches a better understanding of a modern day athletes hamstring injury.

Another common injury in athletes are Apophyseal syndromes which are growths that grow and cause pain on children from the ages of eight to fifteen, but can occur in young adults as well (Strickland, 2011). Strickland's (2011) study researched young athletes, documentary pictures, and past information from journal articles and other sources. The four most common types of Apophyseal syndromes that impacted different areas of the body include Osgood-

Schlatter syndrome, Sinding-Larsen-Johansson syndrome, Sever syndrome, and Apophysitis.

The Osgood–Schlatter syndrome can occur on the knee and was common within many sports including American football (Strickland, 2011). The Sinding–Larsen–Johansson syndrome can happen in the patella and was the only type not common in football players, but it could still happen (Strickland, 2011). The Sever syndrome was another Apophyseal syndrome and can be found on the heel of the foot (Strickland, 2011). Lastly Apophysitis can take place on the hip and is also common amongst football players (Strickland, 2011). Research had found that these types of injuries occur during the secondary growth spurt which generally takes place in these areas where the disease can be located. The only way an Apophyseal syndrome can go away is with rest and time which means it would cause athletes to have to stop partaking in sports. This in turn could have psychological side effects on these young athletes (Strickland, 2011). Strickland's (2011) research was important because when young people stop playing a sport for a period of time it could turn off the individual from sport participation all together. Even though these injuries occurred more often at the high school levels these injuries could keep athletes from wanting to pursue a collegiate sports career.

Another common sport injury included ankle injuries, and based on research the severity and causes of ankle injuries among athletes in the sports of track and field, rugby, soccer, basketball, cricket, and netball are of concern. The information on ankle injuries from the previously mentioned sports came from what was reported to scientific literature (Mckinney, 2012). It was discovered that of all these sports the top two that caused sport ankle injuries were netball (39.8%) and soccer (21.2%) (Mckinney, 2012). In these two cases there were a lot of acceleration and deceleration which could suggest that there may be a correlation between this and ankle injuries (Mckinney, 2012). The importance of this is that many sports consists of quick

acceleration and deceleration, and if this causes ankle injuries than research should be created to figure a way to limit this.

Thinking with a different frame of mind one could suggest that injuries don't occur due to poor coaching, athlete fatigue, or genetics, but perhaps the type of surface an athlete plays on. Research from Soligard, Bahr, and Anderson (2012) discussed the correlation between third generation turf and athlete injuries. This was found to be more dangerous to play on than natural grass for youth soccer players of both genders (Soligard, Bahr, & Anderson, 2012). Reasoning behind this was due to previous generations of artificial turf having not been safer than grass surfaces which may have caused avoidable injuries. In the 1990's a new type of turf came around that more resembled natural grass than in previous generations of artificial turf (Soligard, Bahr, & Anderson, 2012). Information was found through handing out questionnaires on athletic injuries to officials who handed them to individuals who coached teams at the Norway Cup during soccer matches (Soligard, Bahr, & Anderson, 2012). It was found that playing on turf does have some negative effects on youth due to injury. This was important because if this artificial turf was found to be less safe than grass while in the long run cheaper to maintain, this could cause Division III athletes to grow concerned for any sport that they would play on turf (Soligard, Bahr, & Anderson, 2012).

Injuries in Football

When discussing football in a collegiate athlete's society it becomes necessary to identify how injury affected past and current players. The National Football League (NFL) has had some recent scrutiny from the public eye due to concussions that have arisen in past football players. Information on identifying the signs of a concussion in an athlete has been greatly researched in order to help football players recover more quickly and efficiently (Sports Concussion

Assessment Test 3, 2013). A concussion consists of a disturbance in brain function that was caused by either direct or indirect force to the head, and could result in symptoms like headache, blurred vision, confusion, and change in personality (SCAT3, 2013). Since concussions primarily occur in contact sports like football it's important that the side effects of concussions be identified in order to know whether or not concussions deter Division III college football players from wanting to compete.

Football is a sport that puts athletes directly into the elements for long lengths of time which puts them at a higher risk for heat illnesses. "Heat is also among the top three causes of fatalities among football players" according to Grundsteina, Cooperb, Ferrarac, & Knox (2014). Research found that statistically the most likely occurrence of heat related illnesses or death would occur between the time frame 12:00PM to 3:00PM, while the safest time during the day was found to be 4:00PM to 7:00PM (Grundsteina, Cooperb, Ferrarac, & Knox, 2014). In addition, recent years have seen some states decide to implement laws about practicing in extreme heat and cancelling practice should the temperature become too hot at the high school level (Grundsteina, Cooperb, Ferrarac, & Knox, 2014).

Another negative impact found to go along with football on Division III players was the chance of obesity. This hypothesis stemmed from the belief that being bigger be it muscle or fat is better than being skinny for the sport. In an article through Sage Journals it stated "Obesity has been shown to be a significant problem and to be particularly concentrated in playing positions where larger size is seen as an advantage" (Skinner, Hasty, Turner II, Dreibelbis, & Lohr, 2013). This source also determined that winning was not in correlation with larger size because they used two online sources to find players height and weight (the North Carolina High school Athletic Association and Max Preps), however they also state "Team success was correlated with

size only for skill players.” However this excluded the offensive and defensive line positions which would have been dependent on larger sized individuals (Skinner, Hasty, Turner II, Dreibelbis, & Lohr, 2013).

In research by The American Journal of Cardiology it was found that athletes with the sickle cell trait were at risk for a greater chance of sudden death in competitive athletics (Harris, Haas, Eichner, & Maron, 2012). “Sickle cell trait (SCT), in which a normal hemoglobin gene and an abnormal mutated hemoglobin sickle gene are inherited, occurring in 8% of African Americans in the United States. Although typically a benign condition, SCT had nevertheless been occasionally associated with sudden collapse and death or other life-threatening events on the football field (Harris, Haas, Eichner, & Maron, 2012).”

The connection between sports and how kids act in school are quite positive according to Dr. Eric DeMeulenaere (2010). The article focused on four different high school kids in California, and of those four three of them played football. Mathew, James, and Jamal all had negative attitudes in elementary school, but once they started playing football they gradually started not only acting better, but also received better grades (DeMeulenaere, 2010). Even though these kids were positively influenced by their sport, “we cannot assume that involvement in sports prevents delinquency by building character and conformist attitudes” (DeMeulenaere, 2010). However there are some connections between sport and academic performance. This article may appear irrelevant at the Division III level, but could arguably be quite relevant since these high school athletes eventually would go to college.

Effects of Injuries in Football Players

Very little research was available on how injury could impact a football players emotions. However Rivlin, King, Kruse, and Ilyas (2014) discussed an incident with a young high school football player who needed medical attention for frost bite. The young man had initially sprained his index finger, and had an ice pack wrapped around it by his coach. He was not instructed to remove it and wore it for two hours which resulted in severe frost bite (Rivlin, King, Kruse, & Ilyas, 2014). This injury example was due in part to poor coaching. The coach should have instructed the young athlete on when to remove the ice pack. As a result he young man had to go through a surgery in order to save his finger. He had felt very little pain throughout the whole ordeal, however the effects of his injury lasted 10 weeks before he was back to full participation (Rivlin, King, Kruse, & Ilyas, 2014). Very little information on the athlete's emotions were given throughout this whole ordeal, but had this injury gone untreated for much longer he would have suffered permanent nerve damage to the affected areas (Rivlin, King, Kruse, & Ilyas, 2014).

The article from the journal of athletic training can be extended on by an article written by Podlog and Eklund (2010) which discussed how athletes who get injured suffered emotionally when returning to active participation. In the article they studied Australian Football League players who had suffered an injury, then focused on their reactions once they returned to play, and whether or not they were more susceptible to injury due to fear of re injury (Podlog & Eklund, 2010). The information was gathered through questionnaires, and attending team meetings (Podlog & Eklund, 2010). Their research found that athletes involved in the surveys and questionnaires felt more excited and happier when returning form an injury as opposed to

sustaining one and missing out on team bonding events and game participation (Podlog & Eklund, 2010).

In addition to Podlog and Eklunds (2010) work, an article by the journal of athletic training expanded on the topic of emotions in athletes by looking at the center of the problem. The article focused on the brains activity and how concussions may impact an athlete. In the article written by Register-Mihalik, Guskiewicz, McLeod, Linnan, Mueller, and Marshall (2013) they studied over one hundred high school athletes who continued to participate in games when showing concussion symptoms through a cross sectional study. The article concluded by giving evidence that younger athletes are concerned with giving up playing time even when severely injured (Register-Mihalik, Guskiewicz, McLeod, Linnan, Mueller, & Marshall, 2013). Should these athletes decide to continue their playing careers in college, the Division III level would more than likely see if not already have these similarities to the high school level.

Moore, Broglio, and Hillman (2014) continued to discuss the effects concussions had on young adults who partook in sports. Their goal with this study was to show that young people with concussions sustained earlier in life would produce decreased sensory production (Moore, Broglio, & Hillman, 2014). The conclusion was found through a cross sectional study and in fact showed a negative impact on young adults with concussion history on their visual processing, as well as other cognitive functions (Moore, Broglio, & Hillman, 2014).

Conceptual Framework

The question to consider was whether or not football was too dangerous for the young men who play Division III football while competing at a competitive level, and whether or not these injuries discouraged these football players from wanting to participate. Three relevant

concepts included in the research question where injuries that occurred in sport, injuries that were common in football, and the effects on football players when sustaining injuries. An injury that occurs in a sport could be due in part to many causes. It could be from poor coaching, the athlete's genetics, fatigue, misuse of equipment, and much more (Hamilton, 2012). Some common types of injuries on the football field happen around joints and muscles in both the lower and upper body. This could include ACL tears, labrum tears in the shoulder and hips, concussions, and many more (Soligard, Bahr, & Anderson, 2012). Then the next concept consisted of finding the long term negative effects of football players within their health, career, and social life. In order to study these concepts medical research, observations of football players, and even surveys from players who were injured while participating should be conducted and found (Podlog & Eklund, 2010).

An injury for this study was an act or event that caused someone to no longer be fully healthy or in good condition, but within a sports context (Merriam-Webster, 2014). Three variables that strung off the main concept are Injuries, football injuries, and long term and short term effects. For variable one an injury in this case does not count if it was a previous disability or something that was preexisting. Variable two only consisted of athletes who play American football not European style or rugby. The last variable identified a short term effect as overcoming symptoms within a year as opposed to long term which was more than a year. Variable one relates to variable two in that both involve athletes and injuries. Variable one also relates to variable three by the topic of injury and variable three shows the effects of variable one. The same exact relationship between variables one and three was what also relates variables two and three. Moderating and intervening variables related to these three previously stated were death, minor and major injuries not reported, was the injury sports related, where they playing

football or another sport, lies about being injured, and how healthy football players act socially and emotionally when not injured.

Literature Review Summary

The concepts of how an injury occurs, what injuries occur in football, and how do these athletes cope with injury all string off from one question. To what degree do football players view physical injury as detrimental to their current development at the Division III level? With more research like this the sport can be made safer for the Division III athletes and reduce the risk of unnecessary injury.

Methods

Research Question

To what degree do Division III college football players view injury as being detrimental to their current development?

Research Design

In this study the most appropriate research design was the cross sectional survey design due to the fact that this better helped with understanding the relationship between football players and the different types of injuries as well as their role on the team. This type of research design also assisted in excluding non-Division III football players from the research group.

Desired Sample

Most participants of Division III football were primarily men, however there was a small percent of females who participate as well. Unfortunately the amount of woman who play college football was so small that it would not be economical to find these specific young women. The desired sample was any Division III football player who was an active member of a

current roster. The quantity of this sample size should be around 500 participants, but this may change due to future player accessibility.

Procedure

Sampling

The samples were accessed through communications with collegiate athletic programs with Division III football teams located within the United States on the east coast. However this variable may be expanded upon to better reflect Division III football all across the United States should lack of participation arise.

Data Collection

The research data that was collected for this study was primary and quantitative data due to the nature of the research question. The procedure that was done in order to collect this data started with contacting one head football coach who then emailed others at the Division III level (See Appendices A and B for complete proofs). Those coaches then brought awareness to their athletes about the survey. Then permission was asked to conduct the survey to their student athletes along with sending out the survey to the respective college institutes (See Appendices C, Table 1 for complete proofs). The last step needed was reaching the final number of participants. The types of answers that resulted from these questions were primarily nominal based on the grouping of the football players team being irrelevant. Subjects within the sample were asked to strongly consider past injury in the sport of football and determine on a Likert scale whether or not being injured and on a football team has hindered their long term health as well as similar questions on the Likert scale regarding state of mind. Both had answers set up in this format: One; had a strongly disagree, two; somewhat disagree, three; neither agree nor disagree, four;

somewhat agree, five; strongly agree, and six; not applicable. In addition to the Likert scale questions multiple choice questions regarding injury as well as yes or no questions that are related to an athlete's health were also included (See Appendices C for complete proofs).

Analysis

When data had been acquired it was more strongly believed that there could be a point when a Division III college football player views injury as being detrimental to their current development. However more research will need to be done in order to more accurately determine that point.

Results

Data was collected from Division III football players who played on the east coast of the United States. The sample consisted of 73 participants with different race, age, and experience factors. Of the 73 participants 53 had viewed themselves as being injured in their life time, be it due to college football or not. In addition no subject had sickle cell anemia. Also the general population of Division III football players consisted of a high majority of men. Due to the vast amount of Division III football schools the general population consists of many racial backgrounds that unfortunately was not found. Of the 73 participants in the sample population all 73 were men, while there were 60 Caucasian, 10 African American, 1 other, 0 Latino, 0 Asian, and 2 who did not give their racial background (See Appendices G for complete proofs). More data was also collected from two other participants in addition to the 73 subjects, but due to answering none of the questions on the survey their input was rejected. Also 16 individuals answered the survey but did so after the final submission date so their information was also not used.

After the survey was completed and closed the statistical tests used included the descriptive statistics such as the mean, median, mode, rate of frequency, and percentage of the scaled information. Based off of these statistics the most popular answer was picked from each scaled question and shows the most popular responses for the following. Has your coach ever pushed you to return early from injury with 1 having been never, 2 having been some of the time, 3 was most of the time, and 4 was every time. Overall this question had a mean of 1.45, standard deviation of .708, mode of 1, and a median of 1 (n=73). The most frequent response was response 1 with 47 occurrences at 64.4%. The data discovered shows that the majority of Division III football players did not feel pushed to return early by their coaches. On average participants have played a total of 10.42 years of their lives with a standard deviation of 3.292, mode of 7 10 and 12 years, and a median of 10 years, (n=72). The most frequent responses of 7, 10, and 12 years had 10 responses each all at 13.7%. In addition when looking at how old participants were their average age was just over 20 years old with a standard deviation of 1.461, mode of 19 years old, and median of 21 years old (n=73). The most frequent response was 19 years old at 30.1%. These results depicted that most Division III participants are under 20 years old and have been playing for 10 or less years of their lives (See Appendices D, E, and F for complete proofs).

In addition the following was also found on a scale of one to five with one being strongly disagree, two being somewhat disagree, three being neither agree nor disagree, four being somewhat agree, and five being strongly agree (See Appendices H for complete proofs). The average number of participants felt that they somewhat disagreed with having been injury prone with a standard deviation of 1.177, mode of 1, and a median of 1 (n=72). The most frequent response was 1 at 50.7%. Overall this has shown that most Division III football players did not

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view themselves as injury prone. In addition the average participant appeared to be split on the issue of fearing being injured as they averaged out around 2.55. In addition the standard deviation was 1.482, mode was 1, and the median was 2 (n=73). The most frequent response was 1 at 37.0%. In the end most participants do not view themselves as being afraid of injury. Most participants averaged on the high end of the Likert scale for both playing through minor and moderate pain. Minor pain had an average of 4.77 with a standard deviation of .657, mode of 5, and a median of 5 (n=73). The most frequent response was 5 at 83.6%. While playing through moderate pain had an average of 4.38 with a standard deviation of 1.036, mode of 5, and a median of 5 (n=73). The most frequent response was 5 at 64.4%. This data means that when an individual was injured, more than likely they would still have participated if it wasn't a severe injury. A severe injury averaged out near the neither agree nor disagree criteria which means that the individuals were uncertain, but still might play through the injury. The standard deviation was 1.457, mode was 4, and a median was 3 (n=73). The most frequent response was 4 at 27.4%. The average athlete here was split between somewhat disagree and neither agree nor disagree when asked about injury and if it had a negative impact on their long term health. It averaged out at 2.58, standard deviation of 1.490, mode of 1, and a median of 2 (n=71). The most frequent response was 1 at 32.9%. This means that the majority of survey takers did not feel that injury had negatively impacted their long term health. The average participant also averaged out at 4.14 in regards to continuing to play even after being injured with a standard deviation of 1.094, mode of 5, and a median of 4 (n=70). The most frequent response 5 was at 47.1%. This shows that if Division III football players were injured one more time, the next injury would not deter them from wanting to participate. These participants averaged at 4.35 as well when discussing the likelihood that they would get hurt if out of shape. The standard deviation was .795, mode was 5,

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and the median was 5 (n=71). The most frequent response 5 was at 52.1%. This shows that most Division III football players believe that if the state of their condition is subpar than they would more likely sustain an injury. When asked about their injury the average Division III football player did not feel that it was due to poor coaching. In fact when asked “was your injury due to poor coaching” it consisted of a mean of 1.54, standard deviation of .983, mode of 1, and a median of 1 (n=71). The most frequent response 1 was at 70.4%. In addition to poor coaching, players also felt that their injury was not due to the playing surface that they played on averaging with a mean of 1.83, standard deviation of 1.171, mode of 1, and a median of 1 (n=71). The most frequent response was 1 at 57.7%. This meant that the individuals participating in the survey felt that they had just as much a likely hood to get injured on grass then they did on turf while they played football. The last descriptive statistic showed that when injured participants in the survey would take advantage of the athletic training services provided. This averaged at 4.20 with a standard deviation of 1.050, mode of 5, and a median of 5 (n=71). The most frequent response 5 was at 49.3%.

In addition the Pearson correlation, T-tests, oneway ANOVAs, and Chi-square tests were also used to compare different variables and find potential relationships regarding survey questions. Significance should be at 95% confidence. The bonferroni adjusted alpha for all tests ran was 0.002.

There was not a significant relationship between injury negatively impacting long term health and playing through minor pain ($r=.068$, $p=.568$). There was not a significant relationship between injury negatively impacting long term health and playing through moderate pain ($r=.089$, $p=.454$). There was not a significant relationship between injury negatively impacting long term health and playing through severe pain ($r= .062$, $p=.601$). There was not a significant

relationship between still playing football after being injured and ones age ($r = .188$, $p = .120$). There was not a significant relationship between still playing football after being injured and years of experience ($r = .072$, $p = .555$). There was not a significant relationship between taking advantage of athletic training services and years of experience ($r = -.069$, $p = .570$). There was not a significant relationship between taking advantage of athletic training services and age ($r = .128$, $p = .289$). There was not a significant relationship between injury negatively impacting long term health and still playing football after being injured ($r = -.079$, $p = .515$).

When means were compared between individuals who had been injured due to college football ($M = 4.14$, $SD = 1.184$) and those who will still play football if injured ($M = 4.16$, $SD = .834$), the difference was found to not be significant ($t(-.070) = 68$, $p = .945$). When means were compared between individuals who have been injured due to college football ($M = 3.50$, $SD = 1.245$) and age ($M = 2.10$, $SD = 1.338$), the difference appears to be significant ($t(4.273) = 71$, $p < .000$). When means were compared between individuals who have been injured due to college football ($M = 2.15$, $SD = 1.243$) and being injury prone ($M = 1.43$, $SD = .811$), the difference was significant ($t(2.937) = 56.148$, $p = .005$). When means were compared between individuals who have been injured due to college football ($M = 2.71$, $SD = 1.525$) and being afraid of injury ($M = 2.14$, $SD = 1.315$), the difference was not significant ($t(1.497) = 71$, $p = .139$). When means were compared between individuals who have been injured due to college football ($M = 4.83$, $SD = .617$) and those who tend to play through minor pain ($M = 4.62$, $SD = .740$), the difference appeared to not be significant ($t(1.229) = 71$, $p = .223$). When means were compared between individuals who have been injured due to college football ($M = 4.40$, $SD = 1.034$) and those who tend to play through moderate pain ($M = 4.33$, $SD = 1.065$), the difference appeared to not be significant ($t(.262) = 71$, $p = .794$). On average when discussing those who have been injured due

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to college football ($M= 3.00$, $SD= 1.482$) and those who tend to play through severe pain ($M= 2.86$, $SD= 1.424$), the difference appears to not be significant ($t(.377)= 71$, $p=.707$). On average when discussing those who have been injured due to college football ($M=1.57$, $SD=1.082$) and injury be due to poor coaching ($M= 1.45$, $SD= .686$), the difference appears to not be significant ($t(.455)=69$, $p=.651$).

With respect to playing through minor pain and being injured due to college football, there was not a significant difference ($F(1, 71)= 1.510$, $p= .223$). With respect to playing through moderate pain and being injured due to college football there was not a significant difference ($F(1, 71)= .068$, $p= .794$). With respect to playing through severe pain and being injured due to college football, there was not a significant difference ($F(1, 71)= .142$, $p= .707$). With respect to injury negatively impacting long term health and being injured due to college football, there was a significant difference ($F(1, 71)= 6.421$, $p= .013$). With respect to being injured due to poor coaching and being injured due to college football, there was not a significant difference ($F(1, 69)= .207$, $p= .651$). With respect to taking advantage of athletic training options and being injured due to college football, there was not a significant difference ($F(1, 69)= 2.269$, $p= .137$).

After the Chi Square tests were completed only one did not have a statistical violation. In regards to being currently injured and being injured outside of football consisted of statistical violations. Being injured due to college football and what surfaces the players played on consisted of statistical violations. Being injured due to college football and the number of concussions consisted of statistical violations. Being injured due to college football and the number of muscle tears consisted of statistical violations. Being injured due to college football and the number of broken bones consisted of statistical violations. Being injured due to college football and the number of games missed consisted of statistical violations. Being injured due to

college football and eligibility status consisted of statistical violations. As well as being injured due to college football and the players' positions consisted of statistical violations. The only Chi-Square Test ran that had no violations was in regards to being injured outside of football and being injured due to college football. However there was not a significant relationship between these two variables $\chi^2(1) = .522, p > .05$. This has shown that there was not a significant relationship between having been injured because of college football and having been injured outside of college football (See Appendices I for complete proofs).

Discussion

What the Players Think

The research question for this study was to what degree do Division III football players view injury as being detrimental to their current development? Unfortunately the data collected from the sample size did not conclusively determine an answer to this question. However some key elements were found that will help future researchers in finding the answer. What was discovered was that not many college football players felt pushed to return early from their coaching staff. Also the majority did not view themselves as being injury prone, injured due to poor coaching, or injured due to the playing surface. Division III football players did feel that they would play through both minor and moderate pain, be more susceptible to injury if out of shape, take advantage of athletic training services, and would continue to play if injured. These same athletes also found that they were uncertain about if they were afraid of injury, would play through severe pain, or if their injury negatively impacted their long term health. Also on average these athletes have had just over 10 years' experience playing football.

A relationship existed between one's age and having been injured due to college football. Another correlation found was that the few individuals who viewed themselves as being injury prone were more likely to be injured due to their college football playing experience. A relationship was also found between muscle and ligament tears and being injured in college football. Also a relationship was established in regards to missing games and being injured due to college football. This has shown that there is a limit to how much these players will play before temporarily leaving football, but more information would be needed to find out if this can be related to Division III burnout rates. A final relationship found shows that if one was injured due to college football one is more likely to be an upper classman than a under classman. It was also noteworthy to mention that even though a relationship was found between college football injuries and muscle and ligament tears, there was no relationship between concussions and broken bones according to the survey participants.

When asked about whether their injuries negatively impacted their long term health or not the answers varied, but the majority felt that their injuries did not negatively impact their long term health. 54.8% felt this while the rest felt that this was true or were either uncertain or not applicable to the situation. Ultimately a little over half of the players who participated felt that their long term development was not affected while a little under half felt differently.

The Research and the Question

In the past research has been done on sports injuries quite in depth. For instance Division III football players confirmed within the current study that they believed if they were out of shape then they will more likely be injured. This extended from Hamilton's (2012) research on hamstring injuries confirming that athletes are more likely to become injured if they were physically out of shape (Hamilton, 2012). In this same article he also stated that over anxious

coaching can also push an athlete to return prematurely, and risk re injury (Hamilton, 2012). This did not disprove this, but it did show that not many Division III football players felt that their coach pushed them to return early. This was shown when just over 90% of participants believed that their coach either never or rarely pushes them to return prematurely from injury. Past research done with youth soccer players found that if one had played on turf then it increased the chance of injury (Soligard, Bahr, & Anderson, 2012). Even though this past research has found a correlation between artificial turf and being more susceptible to injury, the current research found that there was not a significant relationship with this belief in Division III football players.

In recent history football has gone hand in hand with specific injury types, one has been the concussion. However based off of research from the survey, a strong correlation between Division III football players and concussions was not found. Sickle cell trait also has been found to be very deadly to football players if left undiagnosed in accordance to the American Journal of Cardiology (Harris, Haas, Eichner, & Maron, 2012). The survey taken by Division III football players did not make any strides in finding a relationship with this due to zero percent of participants having been diagnosed with SCT.

Very little past research on the effects of injuries on football players existed prior to the survey. However an incident did occur that showed how poor coaching even if the individual is on the sideline can negatively affect health. The player required surgery due to his coach not instructing him to remove an icepack from a sprained area (Rivlin, King, Kruse, & Ilyas, 2014). However this young man's incident appears to not be the rule, but the exception as the current research showed that only 5.6% of Division III athletes feel that poor coach was the reason for an injury. Register-Mihalik, Guskiewicz, McLeod, Linnan, Mueller, and Marshall (2013) had found a correlation between high school football players and playing through minor, moderate, and

severe pain. They also went on to conclude that should these athletes continue college football would see similar traits (Register-Mihalik, Guskiewicz, McLeod, Linnan, Mueller, & Marshall, 2013). However as the current research showed this is only true of minor and moderate pain, while those who suffered with severe pain or injury tended to be more uncertain about continuous participation. Moore, Broglio, and Hillman (2014) found that individuals who sustained concussions early in life will have produced more health problems later in life. The survey conducted could neither prove nor disprove this research, but extend on the topic. For instance very few Division III football players felt that even though they had sustained a concussion that it has affected their long term health.

As previously stated a question to consider was not is football too dangerous, but whether or not these injuries discourage these players from wanting to participate. As a result from the survey one can speculate that there was a moment when Division III football players are discouraged from wanting to participate. However more research is needed to find what that degree is exactly.

Limitations

Variables that occurred from the study included those athletes who did not report injury or did not try to answer the questions truthfully for some reason. In addition some survey participants neglected to answer every question, but did answer the majority and were included in the final data. The research was also limited due to zero percent of Division III survey participants having SCT. Lastly the survey did lack in achieving the desired amount of participants which was established at 500 individuals, but only received 73.

Delimitations

These limitations were decided before the survey in order to better increase focus on a specific group. Due to the vast majority if not all participants were men, so the sex of participants were excluded. The desired sample was confined to the North-Eastern continental United States. This had to be done due to lack of Division III contacts within football organization across the country.

Future Research

This research had just started the discussion on how Division III football players perceive an injury as well as acknowledging that these athletes did have a moment in were injury will more than likely stop their want to participate. However this research was unable to find what that specific degree or moment was. In the future research should be done on a broader spectrum and include all areas of the United States where Division III football exists. This would not only retrieve better research, but would produce more racial differentials between participants. In addition, making more contacts with multiple Division III head football coaches across the country would help in expanding research to include other parts of the country.

Summary

The purpose of this study was to find a way to help society realize that not just professional football players suffer life altering injuries, and spark future research on the NCAA's most populated level Division III. This is where the majority of high school athletes decided to participate after graduation from high school. Once research was collected, it was then split into three criteria, injuries in sport, injuries in football, and the effects of injury on football players. The methods behind finding research was based off the question to what degree do Division III college football players view injury as well as how they felt those injuries effected

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their long term health. Data was ultimately collected through a cross sectional survey which was taken by 73 Division III football players who played for teams on the east coast. Division III football players did decide that there was a moment that they felt injury effected their long term health, but more research would be required to identify what the specific moment is.

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Appendix A

Hello Coach

I am a student and former football player at St. John Fisher College in the sports management department. I would like to invite you and your student athletes to take part in a survey that will help further understand the way Division III football players perceive injury. The Data I will be collecting is confidential, and all individuals will remain anonymous. However once all data is compiled those coaches who wish to know the overall results of my findings can simply email me at tjd08594@sjfc.edu and I will be glad to send the information to you. At the bottom of this email you can find a link that will bring you to the survey. Thank you for your time and good luck with spring ball practices.

From Tyler Darby

https://sjfc.co1.qualtrics.com/SE/?SID=SV_bBJAao8oNozxD7

Appendix B

Hello Coach

In regards to the survey sent earlier this month, the survey is about to come to a close on March 30th. If your players wish to be a part of the survey that will help further understand the way Division III football players perceive injury, please have them click on the link bellow. I hope spring ball is going well for you and your team, and I thank you in advance for your participation.

Appendix C

Table 1

Injury in Division III Football

Q31 Purpose and Description: The purpose of this study is to understand to what degree Division III football players view injury as detrimental to their current development. As a research participant, you are being asked to complete a survey that will ask you about the severity and frequency of certain types of football related injury. For example, one question is, "how many concussions have you had during your college career." This survey will take 15-20 minutes to complete. The information after your completion will remain anonymous, but will help the future better understand how the largest level of college football views injury. Risks associated with taking the survey are that your teammates and coaches could be aware of your participation through their observation within your team. In addition questions of medical history may be asked, which might make you uncomfortable. As previously stated, any response to this survey will be kept anonymous and results will be presented as a collection of responses. Any names or contact information will not be included in the presentation of the results. The football staff of your school is also being contacted. Coaches are being asked to encourage your participation in this survey. Any follow up from a coach or any other member of your athletic department should not be considered as further pressure to participate, but is just a reminder. There is no incentive being offered for participation. Participation is voluntary. You may decide not to participate in this study and if you begin participating you may decide to stop at any time. After completion and submission of the survey you will have given me permission of your participation. You are encouraged to print this consent letter out for future reference. If any concerns arise about your selection or treatment as a research participant, please contact Doctor Burakowski, Saint John Fisher College, NY 14618; 585-385-7389.

Q21 Do you agree to participate?

- Yes (1)
- No (2)

If Yes Is Selected, Then Skip To Are you currently injured? If No Is Selected, Then Skip To End of Survey

Table 2

Q1 Are you currently injured?

- Yes (1)
- No (2)

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Q2 Have you ever been injured outside of football?

- Yes (1)
- No (2)

Q3 Have you ever been injured due to college football?

- Yes (1)
- No (2)

Q4 Do you have sickle cell anemia?

- Yes (1)
- No (2)

Q6 Has your coach ever pushed you to return early from injury?

- Never (1)
- Some of the time (2)
- Most of the time (3)
- Every time (4)

Q7 What surfaces do you play on most?

- Exclusively grass (1)
- Exclusively turf (2)
- Practice on grass but play games on turf (3)
- Practice on turf but play games on grass (4)

Q8 How many concussions have you had while playing football?

- 0 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5+ (6)

To Play or Not to Play: D3 Football Injuries

Q9 How many muscle and or ligament tears have you had while playing football?

- 0 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5+ (6)

Q10 How many broken bones have you had while playing football?

- 0 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5+ (6)

Q11 How many games have you missed while playing football?

- 0 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5+ (6)

Table 3

Q12 Please rate the degree to which you agree with the following statements.

	strongly disagree (1)	somewhat disagree (2)	neither agree nor disagree (3)	somewhat agree (4)	strongly agree (5)	N/A (6)
I am injury prone. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am afraid of injury. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to play through minor pain. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to play through moderate pain. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to play through severe pain. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Due to my injury my long term health has been negatively impacted. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Table 4

Q13 Please rate the degree to which you agree with the following statement.

	strongly disagree (1)	somewhat disagree (2)	neither agree nor disagree (3)	somewhat agree (4)	strongly agree (5)
I will still play football if injured. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more likely to get hurt when out of shape. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was injured due to poor coaching. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The playing surface I play on caused my injury. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I'm injured I take advantage of my school's athletic training services. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Table 5

Q14 Based on playing status, what year of eligibility are you? Freshman (1)

- Sophomore (2)
- Junior (3)
- Senior (4)
- Fifth Year Senior (5)
- Redshirt Freshman (6)
- Redshirt Sophomore (7)
- Redshirt Junior (8)
- Redshirt Senior (9)

Q16 How many years have you played in your life?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)
- 11 (11)
- 12 (12)
- 13 (13)
- 14 (14)
- 15 (15)
- 16 (16)
- 17 (17)
- 18 (18)
- 19 (19)
- 20+ (20)

To Play or Not to Play: D3 Football Injuries

Q17 What position do you play?

- Offensive Line (1)
- Quarter Back (2)
- Running Back (3)
- Tight End (4)
- Wide Receiver (5)
- Defensive Line (6)
- Linebacker (7)
- Corner Back (8)
- Safety (9)
- Kicker (10)
- Punter (11)
- Long Snapper (12)

Q18 How old are you?

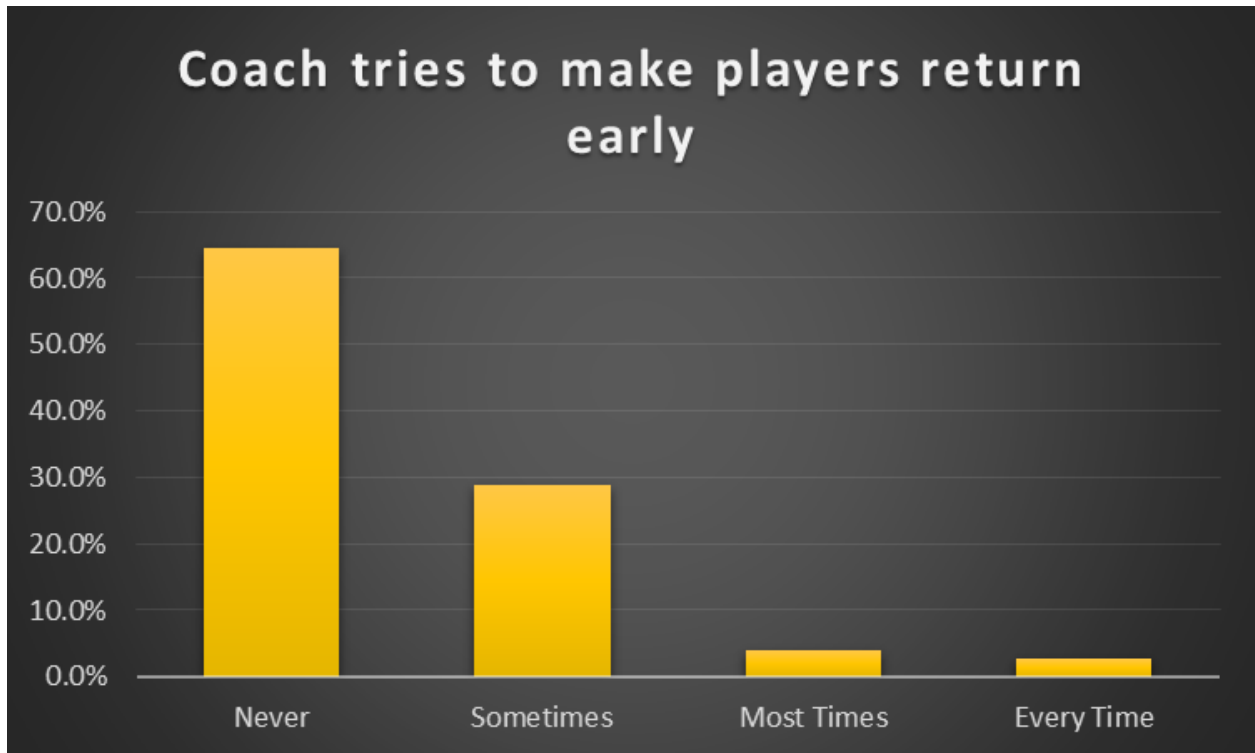
- 18 (1)
- 19 (2)
- 20 (3)
- 21 (4)
- 22 (5)
- 23 (6)
- 24 (7)
- 25+ (8)

Q19 What is your race/ ethnicity?

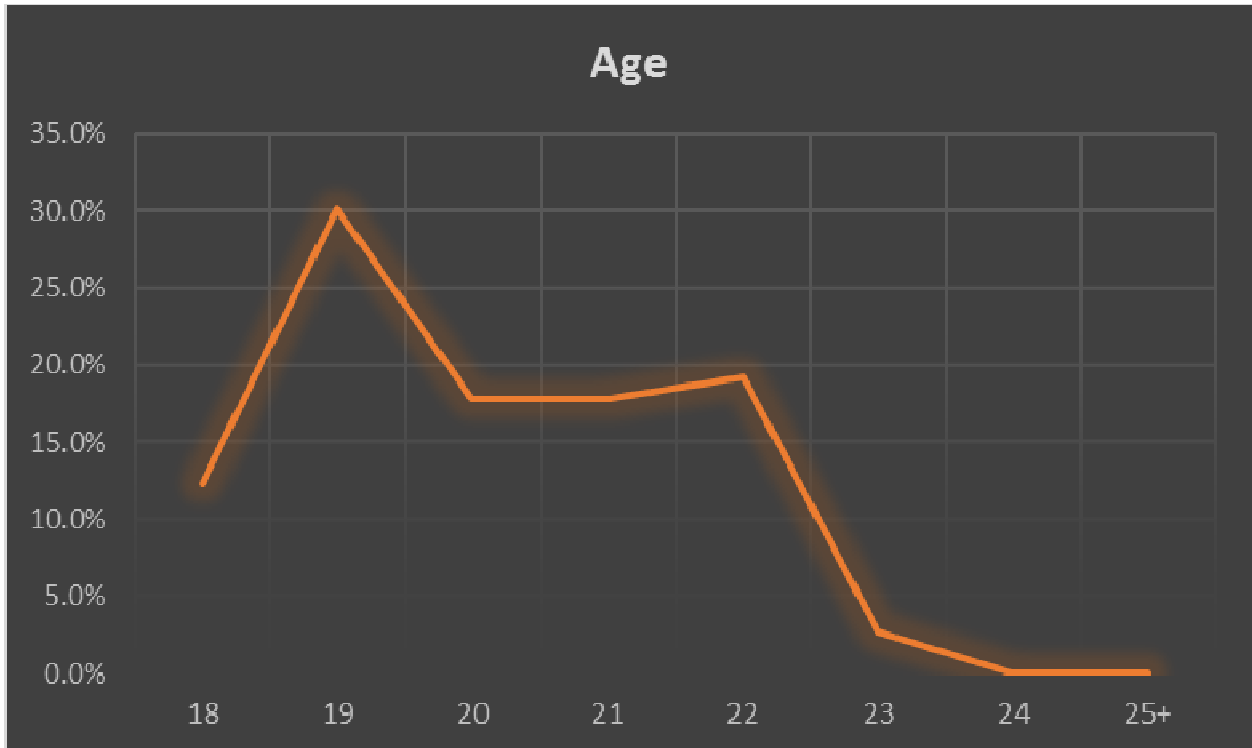
- Caucasian (1)
- African American (2)
- Asian (3)
- Latino (4)
- Other (5)

Q20 Additional comments you wish to make that this survey failed to mention?

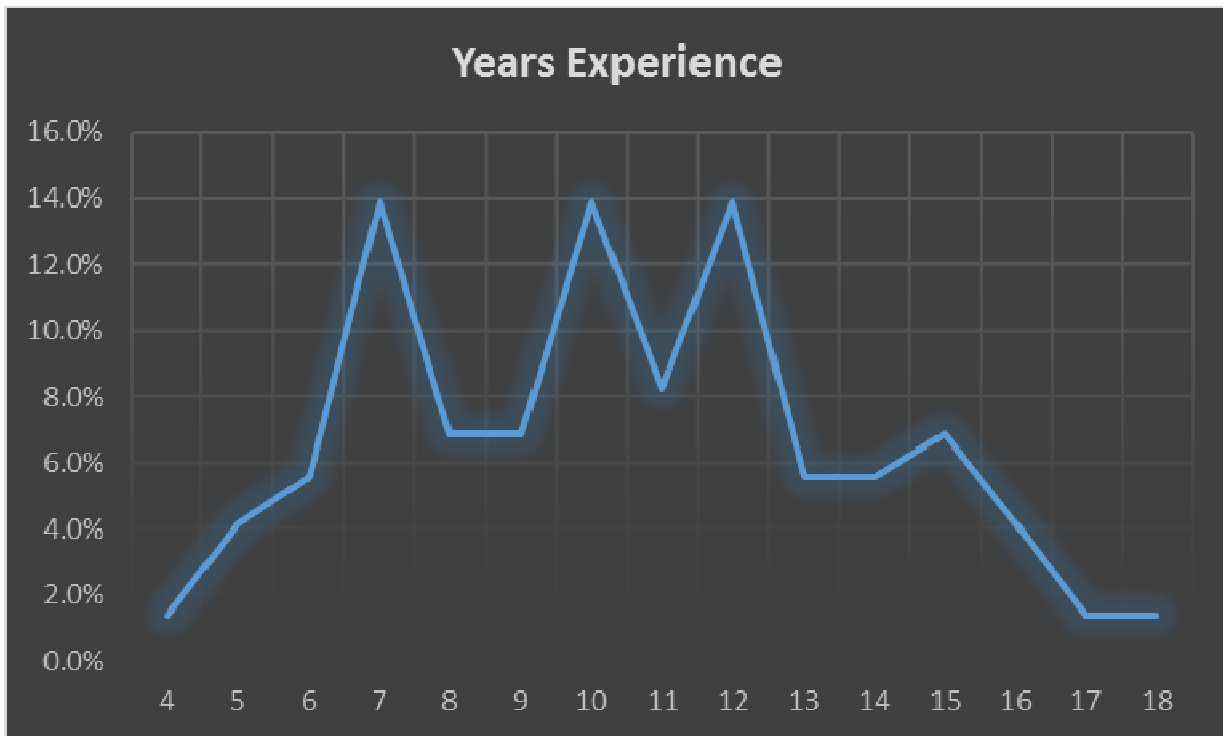
Appendix D



Appendix E



Appendix F



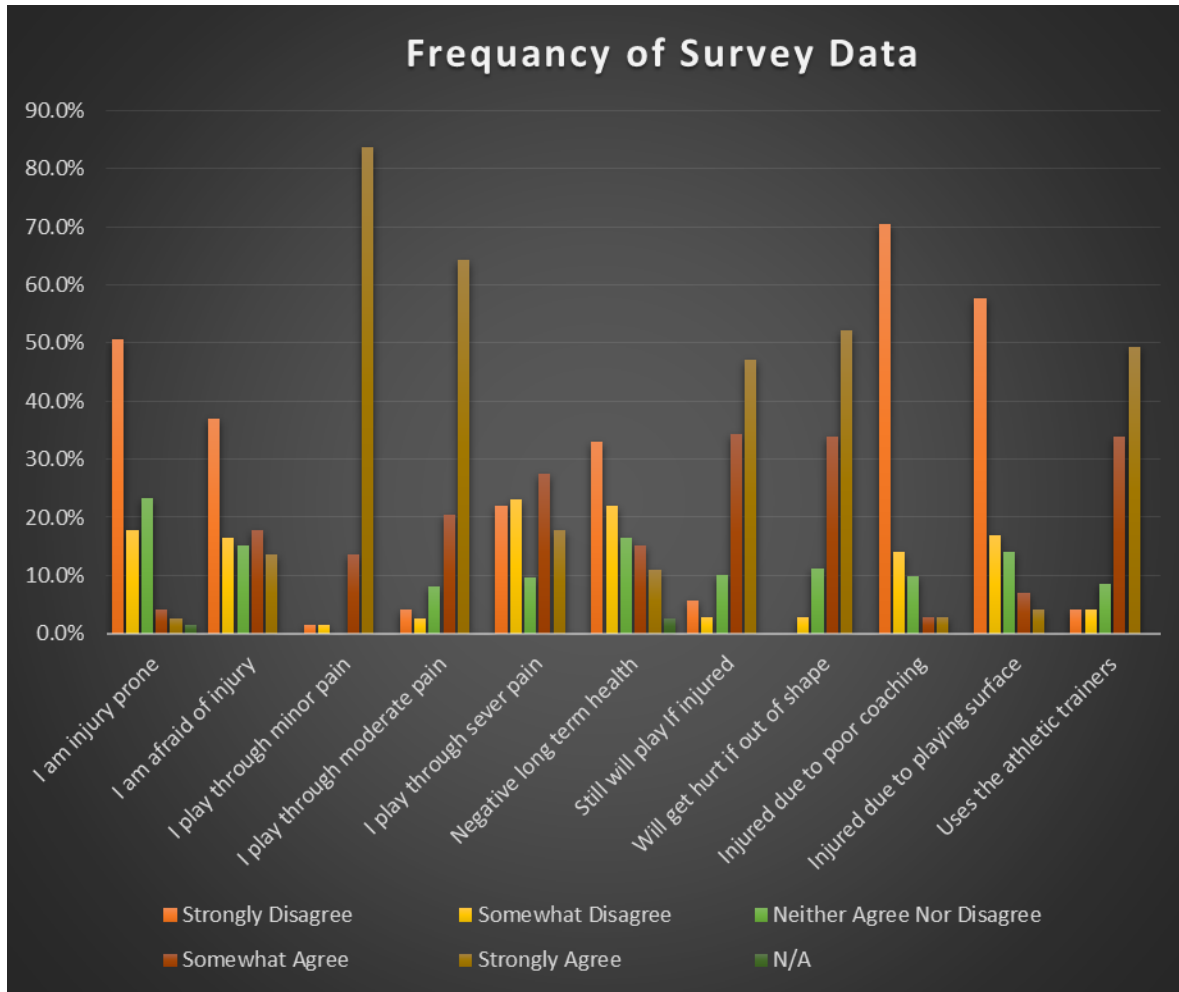
Appendix G
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Has your coach ever pushed you to return early from injury?	73	1	4	1.45	.708
Please rate the degree to which you agree with the following / statements. -I am injury prone.	73	1	6	1.95	1.177
Please rate the degree to which you agree with the following / statements. -I am afraid of injury.	73	1	5	2.55	1.482
Please rate the degree to which you agree with the following / statements. -I tend to play through minor pain.	73	1	5	4.77	.657
Please rate the degree to which you agree with the following / statements. -I tend to play through moderate pain.	73	1	5	4.38	1.036
Please rate the degree to which you agree with the following / statements. -I tend to play through severe pain.	73	1	5	2.96	1.457
Please rate the degree to which you agree with the following / statements. -Due to my injury my long term health has been negatively impacted.	73	1	6	2.58	1.490
Please rate the degree to which you agree with the following / statement. -I will still play football If injured.	70	1	5	4.14	1.094

To Play or Not to Play: D3 Football Injuries

Please rate the degree to which you agree with the following / statement. -I am more likely to get hurt when out of shape.	71	2	5	4.35	.795
Please rate the degree to which you agree with the following / statement. -I was injured due to poor coaching.	71	1	5	1.54	.983
Please rate the degree to which you agree with the following / statement. -The playing surface I play on caused my injury.	71	1	5	1.83	1.171
Please rate the degree to which you agree with the following / statement. -When I'm injured I take advantage of my school's athletic training services.	71	1	5	4.20	1.050
How many years have you played in your life?	72	4	18	10.42	3.292
How old are you?	73	1	6	3.10	1.416
Valid N (list wise)	70				

Appendix H



Appendix I

Table 1

Have you ever been injured outside of football? * Have you ever been injured due to college football? Cross tabulation

Count

		Have you ever been injured due to college football?		Total
		1	2	
Have you ever been injured outside of football?	1	39	14	53
	2	13	7	20
Total		52	21	73

Table 2

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.522 ^a	1	.470		
Continuity Correction ^b	.187	1	.665		
Likelihood Ratio	.510	1	.475		
Fisher's Exact Test				.564	.327
Linear-by-Linear Association	.515	1	.473		
N of Valid Cases	73				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.75.

b. Computed only for a 2x2 table