

Anterior Cruciate Ligaments

Alexis Jenkins

Abstract

In one year alone there are around 100,000 to 200,000 Anterior Cruciate Ligament. I was the unlucky percent to have torn both of my ACL's, which resulted in the ending of my softball career with playing softball. Once I tore my ACL, I was very unaware why this was such a horrible injury to sustain and always wondered why this ligament was so major to one's everyday life. Even though an ACL tear is very serious and one scariest injures an athlete can succumb to, it is very common and becomes even more common yearly. "Because of this prevalence, it is important to know why, along with how these types of injuries can be prevented"

Throughout the last decade there has been a spike in athletic injuries, specifically in the younger athletes. The main injury that has surfaced are knee injuries, specifically tearing of the anterior cruciate ligament, or ACL. Within the last few years we have heard of many—professional or not—fall hard from this rough injury. Many sports medicine doctors who specialize in helping athletes, athletic trainers, and physical therapists have been wondering why there are so many athletes falling victim to this specific injury. Since it is common, what's strange is there are a greater number of female athletes tearing their ACL compared to males. Falling victim to this injury has motivated me to get in touch with many other young athletes and hear their stories about their recovery, along with why they believe this epidemic spiked so suddenly.

Anterior Cruciate Ligament

The ACL is a small, yet important ligament in the knee that runs through the mid-section of the knee joint. One of four main ligaments in the knee is the ACL, which provides a very important function which is stabilizing the knee for rotational movement. The ACL is the ligament that helps you change direction so easily, so if it becomes damaged it is definitely a problem that has to be taken care of, the question of why do athletes need to change direction so much and once that becomes knowledge it is important to find ways to help eliminate the amount of ACL tears. The most common sports that ACL injuries come out of are soccer, basketball, football and tennis, but more sports are seeing this injury more and more. The reason a knee without an intact ACL gives out occasionally is that it's lost that stabilizer, and although it does not give

out every single time, you never know when it will and when it won't."(Texas Sport Injury) Throughout the last ten years, there has been on average that between 250,000 and 300,000 athletes who tear their ACL per year. The ratio for non-athletes is 1,000-1.

Why Are Females More Susceptible to ACL Tears?

It is true that females are more susceptible to ACL tears than men are, and the reasonings just came about within the last few years. The risk of ACL tears in female athletes are said to be between two and ten times higher than an injury in a male athlete. Female athletes between the ages of fifteen and twenty account for the most ACL injuries to date. The three main reasons females have more of a risk for this injury is their anatomy, biomechanics, and hormones. For anatomy there is an intercondylar notch in the knee, which is a groove at the bottom of the femur that meets the knee that is larger in men than in women. It's possible that this portion restricts the movement of the ACL in females, especially during twisting movements. Another downfall is that females have wider hips than those of man, which affects alignment of the knees and can eventually make your knees go inward (this is where the term "knock knees" comes from.) Biomechanics is another big difference, as movement and reaction differ between gender. In many cases women tend to be more flexible than men which can lead to an array of issues like hyperextension and strain on the knee. Further, when you compare a woman's lower body to a male's there is a great difference. A male's lower body is much stronger than a females, which can have a big difference when it comes to prevention of injuries. Lastly, there has been a correlation found between a women's menstrual cycle and risk of an ACL injury. However, there has been no further support for this correlation found. Landing

positions is another difference in females than in males usually when females land they tend to keep our legs straight instead of slightly bending them which will affect how our knees absorb the shock. There is no concrete evidence, but it is believed that women are more likely to have an injury occur during the first part of their cycle right before ovulation.

Medical Procedures

The past two decades have been a hectic world win for doctors who specialize in treating athletes as they have seen a dramatic increase in ACL injuries in young athletes as expectations for training, which result in tremendous emotional effects. There are many life changing effects that come with the devastation of an ACL injury. The first comes with the fact of not being able to play a sport, which can take you out of the game not only physically but mentally. Athletes with ACL injuries are ten times more likely to develop degenerative arthritis which may lead to limitations in athletics, such as constant pain and even disability. The past few years has been dedicated to finding a better way to attempt ACL surgery for young athletes. A new arthroscopic technique has come into play within the last five years that helps athletes have a 90% better chance of restoring knee stability, along with better patient outcome.

Prevention Care

Prevention care has also been focused on the last few years. Reducing the risk of an ACL injury is very easy and can be performed everyday which can consist of training drills that require balance, power and agility. Jumping as well as balance drills can also help with reactions regarding the ligaments, as it shows a decrease in ACL injury. Doctors, athletic trainers and physical therapists have come up with training programs for athletes to prevent this injury as

well as an array of others: warming up, stretching, strengthening, agility drills and cool downs will help drastically decrease one's chances of injury. Overall, if you take care of your body you will be less likely to fall victim to an injury.

Conclusion

Tearing of the ACL is a scary injury to think about. This is one of the worst injuries to date for athletes, and can take a toll on an athlete especially a young athlete as they are just shy of peaking in their sport. There have

been many cases where athletes have entered into depression and many other emotional stages due to the pain, both physically and mentally, this injury puts on a person. Over time, research was able to figure out ways to help prevent and treat such a drastic injury. It was also discovered it is more likely for a female to tear her ACL rather than a male. Further, it is noted how it has become so common, and it was looked at why it is such an important injury to focus on.

References

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