Knee Injuries in the Female Athlete

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Knee injuries are a large problem in our female athlete population. Women are two to eight times more likely than men to sustain an injury to their anterior cruciate ligament (ACL), one of the major ligaments of the knee that helps give stability to the knee. In addition, females suffer an alarming rate of kneecap (patella) dislocations. These injuries can leave an athlete on the sidelines for months at a time, and proper treatment of knee injuries is essential to get back to an active, healthy lifestyle.

ACL injuries are most common in athletes participating in soccer, basketball, and volleyball. This is usually a non-contact, twisting injury of the knee. Athletes will commonly complain that they felt a pop, the knee swelled considerably, and she was unable to continue participation. The consequences of an ACL injury are not limited to the playing field. The psychological effect of missed sports participation has been shown to lead to lowered self-esteem, lower academic performance, and feelings of social isolation.

There are multiple anatomical and biomechanical factors that lead to increased rates of ACL injuries in females compared to their male counterparts. Women have increased joint flexibility, smaller ACLs, wider hips, and higher estrogen levels. All these factors have been shown to increase the risk of injury to the ACL. In addition, women have different patterns of biomechanical movement when jumping, landing, and pivoting compared to men.

If an athlete suffers an ACL tear, there are multiple different treatment options. We can try an ACL

stabilizing knee brace, but studies have shown that no brace can give the same stability as a native ACL. Physical therapy is often implemented to decrease pain and swelling, regain range of motion, and increase strength in the leg. For the athlete looking to go back to sports, surgery is often the treatment chosen by the patient. We know that repairing an ACL by sewing it back together is not successful. Therefore surgical treatment is almost always taking a different tendon and recreating a new ACL. Motivated athletes are usually able to get back to sports as early as 6 months after surgery.

Kneecap dislocations are one of the most common reasons I see a new female patient in my clinic. These present similarly to ACL tears with swelling, sometimes a pop, and sometimes the athlete will tell me she looked down and her kneecap was sitting on the outside of the knee. Many times, a patient will feel the kneecap "slip out" and then come back in immediately. If the kneecap does not go back in on its own, she may require urgent medical attention to get the kneecap back in place. The same reasons that make females more prone to ACL tears make them at risk for kneecap dislocations. Also, females tend to have a higher "Q-Angle," and angle measured from the hip to the kneecap to the bony prominence on the shin where the kneecap attaches to. Females with a higher Q-Angle have a higher force of pull on their kneecap leading to an increased risk of dislocation. Fortunately, most kneecap dislocations are treated nonoperatively. However if the athlete suffers recurrent dislocations, surgery may be warranted. An athlete can expect to get back to sports in 6-8 months after surgery.

Recently, prevention of knee injuries has received much attention in the medical literature. Neuromuscular education programs have shown to decrease the rate of ACL tears by up to 75%. These programs focus on strengthening certain muscle groups in the core, hips, and knees. They also work on landing and pivoting mechanics, creating muscle memory for proper mechanics similar to practicing a golf swing. One of my favorite and most effective training programs can be found here. This program should take about 20 minutes to complete and should be done as a warm-up before athletic events.

Often I am asked, "when should I be worried and see a doctor?" There are three main reasons that I always advise an athlete to seek medical attention: if they had a twisting injury and felt a pop, if they have swelling, or if they are unable to get back to playing the sport they love in an early timeframe. While ACL tears and kneecap dislocations are not the only knee injuries that females face, they are two of the most common and most debilitating for the athlete. However, proper training and conditioning can help prevent these injuries. And if it unfortunately happens, proper treatment can get our athletes back on the field and back to the sports they love.

We are fortunate in our community to have many places to turn for orthopedic care. When seeking medical treatment for knee pain, be sure to select the physician who is most highly qualified through advanced training in the latest techniques and in experience. Take time to ask about medical school education, areas of specialization, residency training, and experience with your particular issue.

About Dr. Michael Nguyen

Dr. Michael Nguyen is a board eligible orthopedic surgeon that is fellowship trained in sports medicine and arthroscopic injuries of the shoulder, knee and hip. Dr. Nguyen is on staff at Texas Health Harris Methodist Hospital Southlake, Baylor Regional Medical Center at Grapevine and Texas Health Harris Methodist Hospital HEB.

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