

What are anterior cruciate ligament (ACL) injuries? Answer: knee injuries

By Augustine H. Conduah, MD

DeKalb Medical Physicians
Stonecrest Orthopedics and
Sports Medicine

As the largest joint in the body, the knee provides mobility and stability of your legs during walking and running activities. However, if the knee is injured, it may not perform these functions very well. As our population has become more focused on health and wellness, more and more people are participating in sports and other fitness activities. As a result, the number of knee injuries has increased. This is especially evident this time of year during football season. Knee injuries can vary from mild strain, which is injury to tendon or muscle, or sprain, which is an injury to a ligament, a cord-like tissue that connects one bone to another. Severe injuries can involve complete ruptures of ligaments and other parts of the knee.

The knee is made up of three bones: the lower end of the femur or thigh bone; the upper end of the tibia or shin bone; and the patella, also known as the knee cap. The knee

slides in a groove at the end of the thigh bone. There are four main ligaments that help stabilize and support the knee. The lateral or outside and medial or inside collateral ligaments help resist side-to-side motion, while the anterior or front and posterior or back cruciate ligaments help resist forward and backward motion. The anterior cruciate ligament (ACL) is a larger ligament on the inside portion of your knee. It's made up of several strands of tissue called collagen, which give it rope-like strength.

Under normal circumstances, the ACL is able to provide flexibility as well as withstand high loads through the knee. However, if the amount of these loads becomes too great, the ACL is at risk for rupture. This can happen in a variety of ways. Most ACL tears occur during a non-contact pivoting motion, such as an abrupt change in running direction during a football game. The ACL also may be torn after slowing down from running, landing after a jump, a slip-and-fall, or a direct blow to the knee.

An ACL tear represents a serious

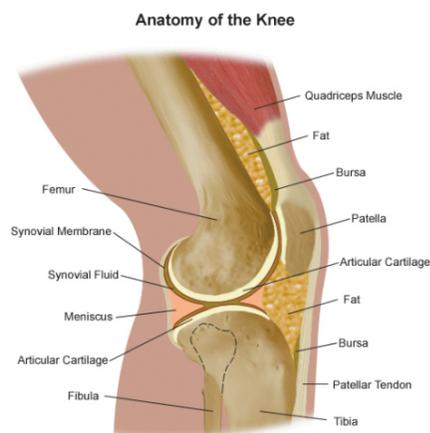
knee injury. Therefore, it is important to recognize signs of an injury. Most people who tear their ACL will report hearing a "pop," followed by almost immediate swelling of their knee. They also report pain and are usually not able to complete their activity.

Treatment

The first line of treatment of an ACL injury is sometimes known as RICE: Rest, Ice, Compression, plus Elevation. The knee should also be immobilized with some sort of brace and you should walk with crutches. It's important to see an orthopedic surgeon as soon as possible to evaluate your condition. He or she can perform a special physical exam

to diagnose an ACL tear. An MRI is also used to help confirm this diagnosis. Your treatment will depend on the amount of instability in your knee. Other factors that are taken into consideration include: your planned activity level, whether or not you have arthritis in your knee, and your functional age, meaning "How old do you feel?"

If your knee is stable enough and you place a lower demand on your injured knee, you may not need surgery. In many cases, successful outcomes can be achieved with the use of bracing and crutches as well as a physical therapy program that focuses on strengthening your thigh muscles. If you're quite active and place a higher demand



on your knee, then you'll probably require surgery. Surgery involves reconstructing the torn ACL with either your own tissue or cadaver tissue, to recreate a stable knee.

Prevention

Injury prevention is just as important as treatment of ACL injuries. Furthermore, some people, such as female athletes, are more prone to ACL injuries. Unfortunately, it's impossible to completely protect your knee against ACL injury. However, you can take certain steps to reduce your risk of injury. As with most things in life, it's best to be prepared for the demands you will face, and your body is no exception. If you're heavily involved in sports or have a job that places heavy demands on your knee, then physical therapy and conditioning programs may be well suited for you. Consult a doctor, athletic trainer, or physical therapist to prepare yourself before you embark in a new vigorous sporting activity. The key to preventing injuries is awareness and preparation.

Healthy Living Tip: Stretch your results

Ideal physical fitness is dependent on cardiovascular endurance, low body fat, muscle strength and endurance, and flexibility. Flexibility is especially important because it directly impacts muscle performance. Flexibility is defined as the ability of a muscle to stretch through a full range of motion without injury. A significant portion of sports-related injuries are due to poor flexibility and a lack of a warm up session.

A good stretching program should include stretches of your neck, shoulders, back, buttocks, hips, thighs, and calves. To achieve maximum flexibility from your exercises:

- Always warm up for 5 to 10 minutes, stretch, perform the activity of choice, then stretch again. In fact, stretching after exercise may be more important than stretching before exercise.
- Be sure to stretch opposing muscle groups like hamstrings and quadriceps. Talk with your personal trainer, coach or doctor to learn more.
- Don't force your muscles to do more than they're ready for or bounce as you perform an exercise.
- Never stretch or work a "cold" muscle. This can lead to injury.