

The Anterior Cruciate Ligament (or ACL)

The anterior cruciate ligament has been getting a lot of press over the last several years. Injury to the ACL is common, with an estimated 80,000 tears occurring annually. The highest incidence occurs in the 15 to 25 year age group, but it can happen to athletes of any age.

The ACL is located in the middle of the knee joint. Ligaments in general attach one bone to another, and the ACL is one of the ligaments that attaches the femur (thigh bone) to the tibia (shin bone). The ACL is important for twisting, pivoting, and deceleration activities that are performed during sports such as soccer.

The ACL is typically torn when pivoting abruptly or decelerating, particularly when the move is unexpected, or with an awkward or out of control landing. It is also usually the first ligament to go with a hyperextension injury (when the knee bends backwards). Seventy percent of ACL tears are non-contact. More males tear their ACL than females overall, simply because there are more males playing sports. However, females are two to eight times more likely to tear their ACL if you compare incidence. There are several theories as to why this is the case. Females have wider hips and the angle the thigh makes with the lower leg is higher, the notch in the bone where the ligament is located is smaller in females, and estrogen may play a role, as estrogen increases laxity in ligaments.

When a player tears his or her ACL, there is usually a perceived and sometimes audible “pop”. In most cases there is significant swelling within a few hours because of bleeding in the joint. After the initial pain, which is usually significant, the pain subsides and may go completely away in a few days in some cases. However, in about 50 percent of the time, there is another structure (joint surface, cartilage, or another ligament) injured at the same time as the ACL tear and this may cause some residual pain after the initial pain lets up. When someone with an ACL tear tries to go back to play, they will usually experience a “giving way” sensation when trying to change direction or cut. This can be problematic because any time you have a giving way episode, you may injure other structures in the knee which were not injured initially.

Treatment for an ACL tear is individualized. For the most part, those under 25 years of age have surgery to reconstruct the ligament. Those over 45 tend to rehab and possibly use a functional brace, although there are exceptions. I recently reconstructed a gentleman who was 55 and still playing in a competitive soccer league! In general, one can do normal day to day activities without an ACL, ie walking, biking, jogging or any so-called “straight-ahead” activities. If a person with an ACL tear is sedentary or is willing to give up activities involving pivoting, it is not unreasonable to try rehab and bracing. Otherwise, reconstruction is the way to go.

The surgery to reconstruct the ACL involves using a graft, either one harvested from the individual or an “allograft” which is taken from a cadaver. Repairing, or suturing the ligament together, doesn’t work. The rehab after surgery is protracted and very important. It is usually at least 6 months after surgery before a patient is ready to get back on the field. The good news is that with today’s techniques, most who have their ACL reconstructed are able to get back to their previous level of activity.

Prevention of ACL injuries has been a hot topic recently. There have been several studies that have shown amazing results when athletes participate in a program designed to emphasize quadriceps strength, proprioception (position sense), and proper landing technique. After participating in a program such as this, ACL injuries are decreased up to 89 percent! The CAP (Center for Athletic Performance) program is a resource locally that can help an athlete learn a preventative program.