What is the ACL?

There are numerous soft tissue injuries that can occur to the knee. The knee injury we hear about most frequently is the ACL (Anterior Cruciate Ligament) injury. Athletes have been injuring their knees since sporting events began, but it was not until 1985 that the ACL was even recognized as a structure by the medical community. Prior to that an athlete may end up with “a bum knee” after getting hurt playing sports but never really know what happened. Until recently an ACL injury may have ended an athlete’s career or at least severely affected it. The term ‘football knee’ was coined for the arthritic knee that resulted from such an injury.

Ligaments connect bone-to-bone and function like checkreins to stabilize the knee and prevent abnormal motion. There are four major ligaments in the knee: one on each side (collateral ligaments) to prevent excessive side-to-side motion and two that cross in the center of the knee (cruciate ligaments) that prevent excessive forward or backward motion. The anterior cruciate ligament (ACL) connects the front of the shin bone to the back of the thigh bone and keeps the shin bone from sliding forward too far.

How is the ACL injured?

Injuries to the ACL occur in two basic ways. The first mechanism is by a direct blow to the knee, which commonly happens in football or during a fall while skiing, when the knee is forced into an abnormal position that results in the tearing of one or more ligaments. However, most ACL tears happen without contact to the knee. These non-contact injuries occur when the athlete is planting the foot to make a cut, making a quick stop or landing with the leg straight causing the knee to hyperextend. These movements are common in basketball, soccer, volleyball and football.

What are the signs of an ACL tear?

Injury is usually associated with the knee giving way and an audible “pop.” The athlete usually is unable to continue playing. Swelling develops over the next few hours and may make walking difficult. The pain and swelling are the worst the first two or three days then begin to subside.

Some athletes will try to resume playing when the swelling goes down without seeking medical attention. Another injury usually occurs when the knee gives way a second time. This happens because of the instability or looseness of the knee, resulting from the ACL tear. The athlete usually reports that the knee feels unstable and that they are having a hard time playing at the previous level of competition.

Associated injuries to other ligaments, the menisci (cartilage) or the joint surface are not unusual. These other injuries can make the diagnosis of an ACL tear more difficult and more important for the person to end up with a good outcome.

How is an ACL tear diagnosed?
ACL injuries are usually uncomfortable enough to cause the person to seek medical attention. The physician will examine the knee and in most cases identify what structures are damaged. Swelling and pain may be severe enough that diagnosis is difficult. X-rays will be done to rule out fractures. Further evaluation with an MRI study or arthroscope may be needed to completely evaluate the injury. An MRI can often determine injuries to other structures in the knee and help plan the best treatment.

Will I need surgery?

There are many factors that must be considered when determining the appropriate treatment for each person. These factors include age, activity level desired, the person’s expectations, other associated injuries and the amount of abnormal knee looseness. A young patient that wants to return to competitive or even recreational sports that involve jumping, pivoting or cutting and is unwilling to modify their activities is more likely to need surgery for a satisfactory outcome than an older patient whose recreational activities are more limited. The persons desired activity level or independence is more important than their age when deciding whether to recommend surgery. If left untreated, an ACL tear can lead to recurrent episodes of giving way, causing further damage to the knee and eventual arthritis. When surgery is not indicated, rehabilitation is begun to help restore motion and strength to the muscles around the knee. Functional bracing can be used the give added stability to the knee.

When surgery is indicated, the ACL is reconstructed by building a new ligament out of tissue harvested from one of the tendons around the knee or from a cadaver (tissue donor). ACL reconstructions require approximately 6 months for complete healing and return to unrestricted activity, but frequently people may return to modified duties much sooner, especially with a protective brace. Time off from work depends on the type of job, with people who work at desks returning in one to two weeks, and construction workers usually not able to return to work for six months (sometimes three to four months with adequate return of strength and using a brace).

The overall success rate for ACL surgery is very good with over 90% of people returning to sports and workplace activities.

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