

# AthletiHINTS



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## ACL Injuries

### Introduction

The anterior cruciate ligament (ACL) is an important stabilizer of the knee. The knee is the largest and one of the most complex joints in the body. It depends on ligaments, tendons and muscles to function properly.

There are two crossed ligaments in the center of the knee, the ACL and the posterior cruciate ligament (PCL). The ACL connects the back of the femur to the front of the tibia, prevents the tibia from sliding forward and controls rotation. Also important are the two ligaments on either side of the knee, the medial collateral ligament (MCL) and lateral collateral ligament (LCL), which prevent excessive side-to-side motion.

### Mechanism of Injury

Many knee injuries occur when the knee is twisted, forcing the bones of the joint to separate. Most ACL tears happen when an athlete is running fast and changes direction or cuts, rapidly decelerates, or makes an abrupt stop.

These non-contact injuries are common in basketball, football, volleyball and soccer. A twist may also occur in contact sports when there is a direct blow to the knee, such as in football, or when the foot is planted and the thighbone is forced in another direction. Most ACL injuries, however, happen without contact.

The ACL may be stretched or torn completely. ACL injuries are classified as sprains because they are ligament injuries. Sprains are classified as first, second, or third degree according to severity, but ACL sprains are almost always complete ruptures.

### Diagnosis

When an athlete sustains a torn ACL, he or she often remembers a distinct, audible “pop” followed by immediate pain. There is usually a sensation that the knee gave way or “came apart,” and continued activity is not possible. There generally is also a large amount of swelling within a few hours after the injury.

A physician will diagnose an ACL tear after taking a thorough history of the injury and examining the instability. By doing special tests, the physician can usually identify which ligaments are injured. An MRI is not necessary to confirm this injury, although it may be needed to evaluate cartilage injury.

### Treatment

A torn ACL may be repaired with surgery, or the injury may be managed non-operatively. The decision to proceed with surgery must take into account many factors and requires input from the patient and physician. The more active the patient, the more likely that surgery will be performed. If an athlete participates in vigorous twisting sports, there is a greater likelihood the knee will repeatedly “give way” and may cause further injury. In this case, surgery is performed to prevent recurrent instability and hopefully to prevent a degenerative process.

On the other hand, a less active person, or an athlete who participates in sports with less twisting activity (such as jogging, biking or swimming) may not require surgery.

Surgical repair of an ACL involves replacing the ligament. One option is to use tissue from the athlete's own body, usually the patellar tendon (below the knee cap) or a hamstring tendon. Another option, especially for older athletes, is to use a cadaver tendon.

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## **Rehabilitation**

For individuals who decide against surgery, physical therapy is used for strengthening and the use of a brace is necessary for some activities. For individuals who undergo surgery, rehabilitation is very structured. The athlete cannot return to vigorous, full sporting activity for about six months following surgery. This is necessary to allow the graft tissue adequate time to regain strength. In the meantime, cross-training with cycling, jogging and stair climbing, as well as strength training, are utilized for conditioning and rehabilitation.