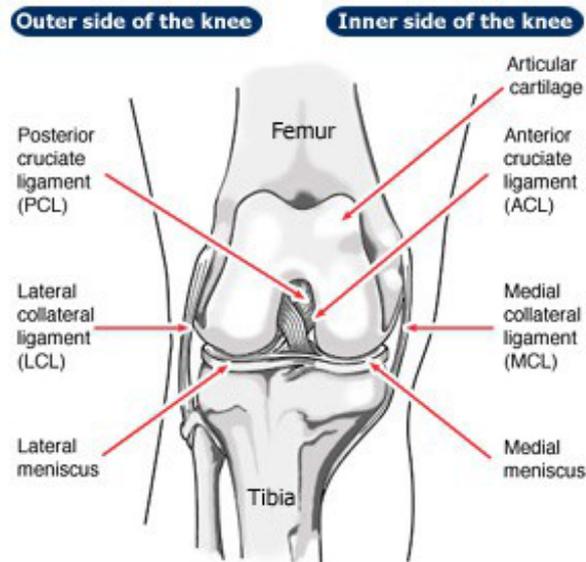


ACL Injury: Does It Require Surgery?

The bone structure of the knee joint is formed by the femur, the tibia, and the patella. The Anterior Cruciate Ligament (“ACL”) is one of the four main ligaments within the knee that connect the femur to the tibia.

Diagram of the knee.



The anterior cruciate ligament (ACL) is one of the most commonly injured ligaments of the knee. Treatment options for ACL injuries include both surgical and nonsurgical treatments.

Diagnosis

When a patient with an ACL injury is initially seen for evaluation in the clinic, the doctor may also order X-rays to look for any possible fractures. He or she may also order an MRI (Magnetic Resonance Imaging) scan to evaluate the ACL and to check for evidence of injury to other knee ligaments, meniscus cartilage or articular cartilage.

Treatment

In nonsurgical treatment, progressive physical therapy and rehabilitation can restore the knee to a condition close to its pre-injury state and educate the patient on how to prevent instability. This may be supplemented with the use of a hinged knee brace.

However, many people who are active, want to continue sports or just have a sense of “giving way” of the knee during every-day activities, are candidates for surgery.

The torn ACL is generally replaced by a substitute graft made of tendon. The grafts commonly used to replace the ACL include:

- Patellar tendon autograft (autograft comes from the patient)
- Hamstring tendon autograft
- Quadriceps tendon autograft
- Allograft (taken from a cadaver)

The goal of the ACL reconstruction surgery is to prevent instability and restore the function of the torn ligament, creating a stable knee.

Before any surgical treatment, the patient is usually sent to physical therapy. Patients who have a stiff, swollen knee lacking full range of motion at the time of ACL surgery may have significant problems regaining their motion after surgery. It usually takes three or more weeks from the time of injury to achieve full range of motion. It is also recommended that some ligament injuries be braced and allowed to heal prior to ACL surgery.

In the most common ACL reconstruction technique, bone tunnels are drilled into the tibia and the femur to place the ACL graft in almost the same position as the torn ACL. . The graft is held under tension as it is fixed in place using interference screws, spiked washers, posts or staples. The devices used to hold the graft in place are generally not removed.



Arthroscopic view of ACL graft [yellow star] in position.

Complications

The incidence of infection after arthroscopic ACL reconstruction has a reported range of 0.2 percent to 0.48 percent.

Rare risks include bleeding from acute injury to the popliteal artery and weakness or paralysis of the leg or foot.

A blood clot in the veins of the calf or thigh is a potentially life-threatening complication. A blood clot may break off in the bloodstream and may obstruct the veins of the leg or even travel to the lungs, causing pulmonary embolism or to the brain, causing stroke. This risk of Deep Vein Thrombosis is reported to be approximately 0.12 percent.

The risk of infection or Deep Vein Thrombosis are both [significantly reduced](#) by antibiotic therapy, physiotherapy and medicines preventing from blood clot formation.

Other possible knee-related complications include: postoperative pain and swelling, pain with kneeling, postoperative stiffness, patella fracture.

Recurrent instability and graft failure are seen in approximately 8 percent of patients.

[Patients treated with surgical reconstruction of the ACL have long-term success rates of 82 percent to 95 percent.](#)

Aftertreatment

[Physical therapy is a crucial part of successful ACL surgery](#), with exercises beginning immediately after the surgery. Much of the success of ACL reconstructive surgery depends on the patient's dedication to rigorous physical therapy. With new surgical techniques and stronger graft fixation, current physical therapy uses an accelerated course of rehabilitation.

The goals for rehabilitation of ACL reconstruction include reducing knee swelling, maintaining mobility of the kneecap to prevent anterior knee pain problems, regaining full range of motion of the knee, as well as strengthening the quadriceps and hamstring muscles. The patient may return to sports when there is no longer pain or swelling, when full knee range of motion has been achieved, and when muscle strength, endurance and functional use of the leg have been fully restored.

The patient's sense of balance and control of the leg must also be restored through exercises designed to improve neuromuscular control. This usually takes 4 to 6 months. The use of a functional brace when returning to sports is ideally not needed after a successful ACL reconstruction, but some patients may feel a greater sense of security by wearing one.