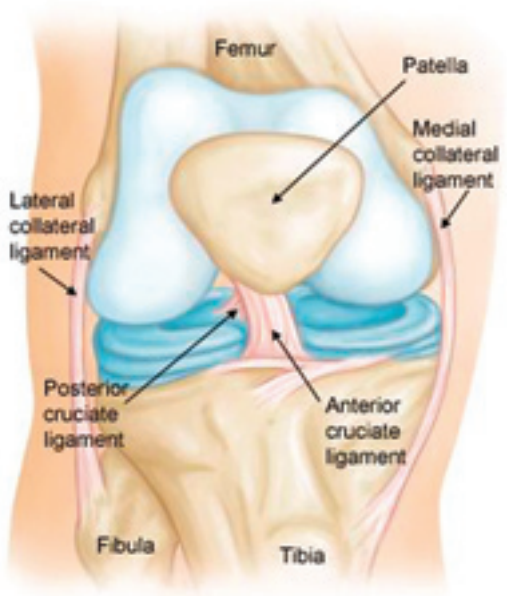
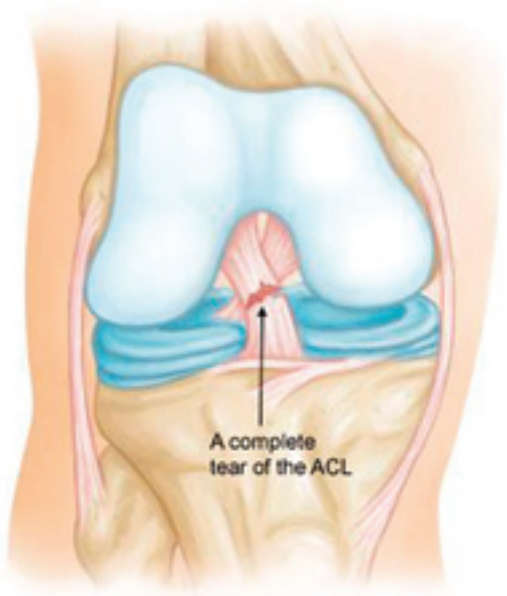
Anterior Cruciate Ligament (ACL) Tear





One of the most common knee injuries is an anterior cruciate ligament sprain or tear.

Athletes who participate in high demand sports like soccer, football, and basketball are more likely to injure their anterior cruciate ligaments.

If you have injured your anterior cruciate ligament, you may require surgery to regain full function of your knee. This will depend on several factors, such as the severity of your injury and your activity level.

Collateral Ligaments

The medial collateral ligament is on the inside and the lateral collateral ligament is on the outside. They control the side-to-side motion of your knee.

Cruciate Ligaments

These are found inside your knee joint. The cruciate ligaments control the back and forth mo-tion of your knee. The anterior cruciate ligament runs diagonally in the middle of the knee. It prevents the tibia from sliding out in front of the femur, as well as provides rotational stability to the knee.

Description

About half of all injuries to the anterior cruciate ligament occur along with damage to other structures in the knee, such as articular cartilage, meniscus, or other ligaments.

Partial tears of the anterior cruciate ligament are rare; most ACL injuries are complete or near complete tears.

Cause

The anterior cruciate ligament can be injured in several ways:

- Changing direction rapidly
- Stopping or slowing down suddenly
- Hyperextension of the knee
- Landing from a jump incorrectly
- Direct contact or collision, such as a football tackle

Several studies have shown that female athletes have a higher incidence of ACL injury than males in certain sports. It has been proposed that this is due to differences in physical conditioning, muscular strength, neuromuscular control, and anatomy.

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Symptoms

When you injure your anterior cruciate ligament, you might hear a "popping" noise and you may feel your knee give out from under you. Other symptoms include:

- Pain and swelling
- Loss of full range of motion
- Tenderness along the joint line
- Discomfort while walking
- Inability to return to sports; instability

Physical Examination and History

During the physical examination, your doctor will check all the structures of your injured knee, and compare them to your non-injured knee. Most ligament injuries can be diagnosed with a thorough physical examination of the knee.

Imaging Tests

Other tests which may help your doctor confirm your diagnosis include:

X-rays. Although they will not show any injury to your anterior cruciate ligament, X-rays can show whether the injury is associated with a broken bone.

MRI. This study creates better images of soft tissues like the anterior cruciate ligament. How-ever, an MRI is usually not required to make the diagnosis of a torn ACL unless the examination is limited secondary to pain / swelling.

Treatment

Treatment for an ACL tear will vary depending upon the patient's individual needs. For ex-ample, the young athlete involved in agility sports will most likely require surgery to safely re-turn to sports. The less active, usually older, individual may be able to return to a quieter life-style without surgery.

Nonsurgical Treatment

A torn ACL will not heal without surgery. But nonsurgical treatment may be effective for patients who are older or have a very low activity level. If the overall stability of the knee is in-tact, your doctor may recommend simple, nonsurgical options.

Physical therapy. As the swelling goes down, a rehabilitation program is started. Specific exercises will restore function to your knee and strengthen the leg muscles that support it.

Surgical Treatment

Reconstructing the ligament. Most ACL tears cannot be sutured (stitched) back together. To surgically repair the ACL and restore knee stability, the ligament must be reconstructed. Your doctor will replace your torn ligament with a tissue graft. This graft acts as a scaffolding for a new ligament to grow on.

Grafts can be obtained from several sources. Usually they are taken from the patellar ten-don, hamstring tendons at the back of the thigh, quadriceps tendon, or a cadaver graft (allo-graft) can be used.

There are advantages and disadvantages to all graft sources. You should discuss graft choices with your orthopaedic surgeon to help determine which is best for you.

Because the regrowth takes time, it may be six months or more before an athlete can return to sports after surgery.

Procedure. Surgery to rebuild an anterior cruciate ligament is done with an arthroscope us-ing small incisions. The benefits of less invasive techniques include less pain from surgery, less time spent in the hospital, and quicker recovery times.

ACL reconstruction is usually not done right away. This delay gives the inflammation a chance to resolve, and allows a return of motion before surgery. Performing an ACL reconstruction too early greatly increases the risk of arthrofibrosis, or scar forming in the joint, which would risk a loss of knee motion.

Rehabilitation

Whether your treatment involves surgery or not, rehabilitation plays a vital role in getting you back to your daily activities. A physical therapy program will help you regain knee strength and motion.

If you have surgery, physical therapy first focuses on returning motion to the joint. This is fol-lowed by a strengthening program designed to protect the new ligament. This strengthening gradually increases the stress across the ligament. The final phase of rehabilitation is aimed at a functional return tailored for the athlete's sport.

Adapted from American Academy of Orthopaedic Surgeons. For more information, see orthoinfo.aaos.org

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