An ACL injury is the tearing of the anterior Cruciate Ligament

Orthopedic Condition

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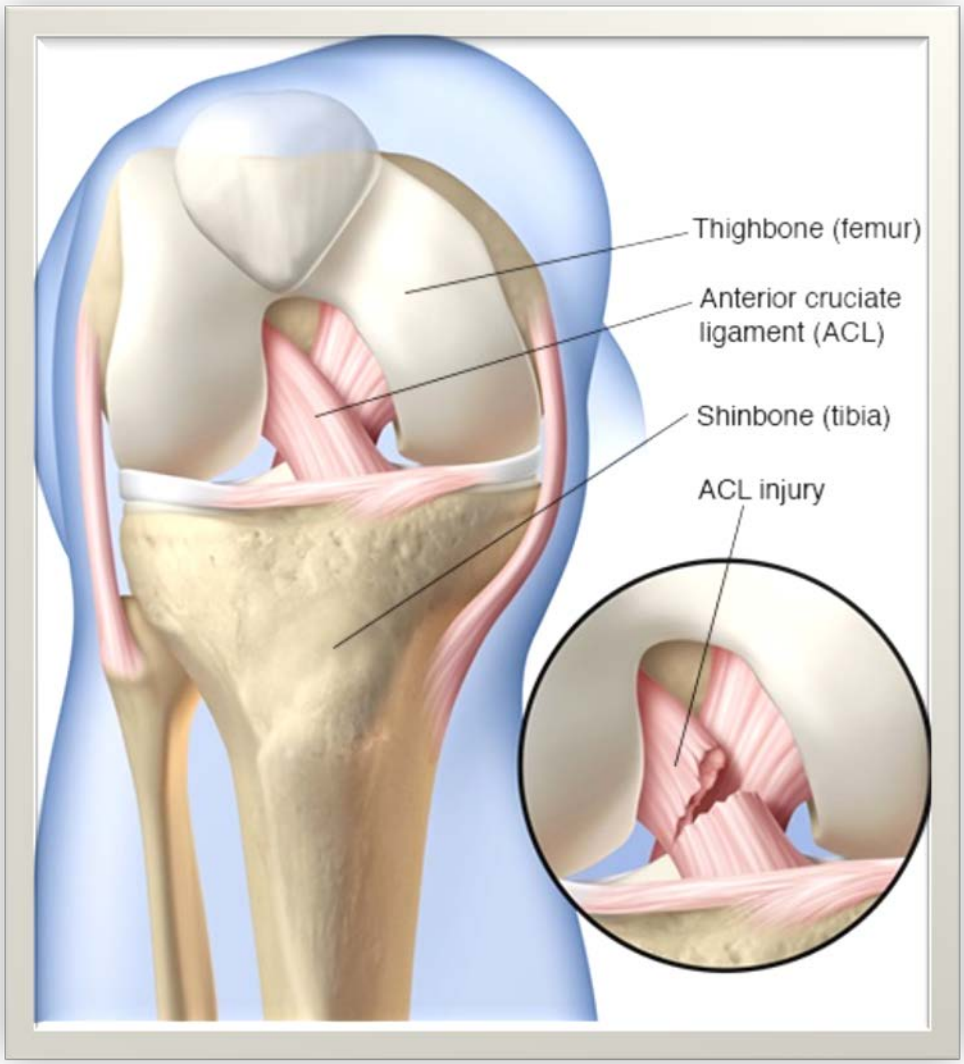
(ACL) — One of the major ligaments in your knee. ACL injuries most commonly occur during sports that involve sudden stops, jumping or changes in direction — such as basketball, soccer, football, tennis, downhill skiing, volleyball and gymnastics.

Many people hear or feel a "pop" in the knee when an ACL injury occurs. Your knee may swell, feel unstable and become too painful to bear weight.

Depending on the severity of your ACL injury, treatment may include rest and rehabilitation exercises to help you regain strength and stability or surgery to replace the torn ligament followed by rehabilitation. A proper training program may help reduce the risk of an ACL injury.



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.

Injured ligaments are considered "sprains" and are graded on a severity scale.

Grade 1 Sprains. The ligament is mildly damaged in a Grade 1 Sprain. It has been slightly stretched, but is still able to help keep the knee joint stable.

Grade 2 Sprains. A Grade 2 Sprain stretches the ligament to the point where it becomes loose. This is often referred to as a partial tear of the ligament.

Grade 3 Sprains. This type of sprain is most commonly referred to as a complete tear of the ligament. The ligament has been split into two pieces, and the knee joint is unstable.

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

Symptoms

Signs and symptoms of an ACL injury usually include:

- A loud "pop" or a "popping" sensation in the knee
- Severe pain and inability to continue activity
- Swelling that begins within a few hours
- Loss of range of motion
- A feeling of instability or "giving way" with weight bearing

Causes

Ligaments are strong bands of tissue that connect one bone to another. The ACL, one of two ligaments that cross in the middle of the knee, connects your thighbone (femur) to your shinbone (tibia) and helps stabilize your knee joint.

Most ACL injuries happen during sports and fitness activities that can put stress on the knee:

- Suddenly slowing down and changing direction (cutting)
- Pivoting with your foot firmly planted
- Landing from a jump incorrectly
- Stopping suddenly
- Receiving a direct blow to the knee or collision, such as a football tackle

When the ligament is damaged, there is usually a partial or complete tear across the tissue. A mild injury may overextend the ligament but leave it intact.

Risk factors

In general, women athletes exhibit a strength imbalance in their thighs with the muscles at the front of the thigh (quadriceps) being stronger than the muscles at the back (hamstrings). The hamstrings help prevent the shinbone from moving too far forward — movement that can overextend the ACL.

People who experience an ACL injury are at higher risk of developing knee osteoarthritis, in which joint cartilage deteriorates and its smooth surface roughens. Arthritis may occur even if you have surgery to reconstruct the ligament.

Multiple factors likely influence the risk of arthritis, such as the severity of the original injury, the presence of related injuries in the knee joint or the level of activity after treatment.

Treatment

Prompt first-aid care can reduce pain and swelling immediately after an injury to your knee. Follow the R.I.C.E. model of self-care at home:

- Rest. General rest is necessary for healing and limits weight bearing on your knee.
- Ice. When you're awake, try to ice your knee at least every two hours for 20 minutes at a time.
- Compression. Wrap an elastic bandage or compression wrap around your knee.
- Elevation. Lie down with your knee propped up on pillows.

Nonsurgical Treatment

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

Bracing. Your doctor may recommend a brace to protect your knee from instability. To further protect your knee, you may be given crutches to keep you from putting weight on your leg.

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

Rehabilitation

Medical treatment for an ACL injury begins with several weeks of rehabilitative therapy. A physical therapist will teach you how to do exercises that you will perform either with continued supervision or at home. You may also wear a brace to stabilize your knee and use crutches for a while to avoid putting weight on your knee.

The goal of rehabilitation is to reduce pain and swelling, restore your knee's full range of motion, and strengthen muscles. This course of physical therapy may successfully treat an ACL injury for individuals who are relatively inactive, engage in moderate exercise and recreational activities, or play sports that put less stress on the knees.