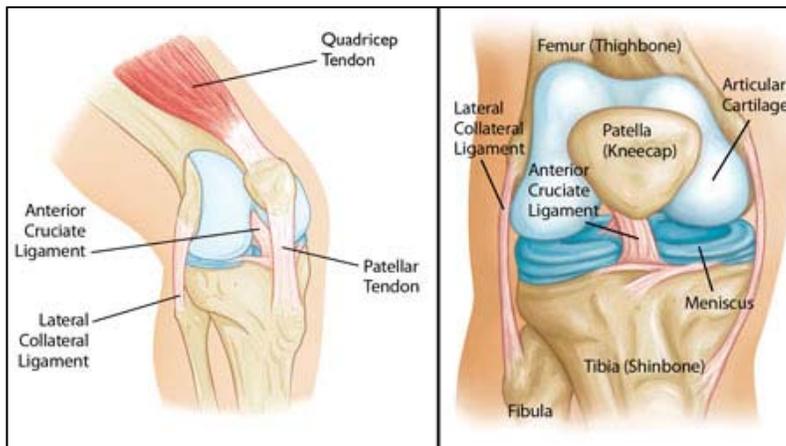


Common Knee Injuries: Prevention, Diagnosis, and Treatment Options

The knee is an intricate joint that is prone to injury. In fact, knee injuries are one of the top reasons that people visit an orthopedist. More than 10 million knee injuries are reported every year, and most are related to bone fractures, dislocation, sprains, and torn ligaments. Fortunately, there are several injury prevention strategies and treatment options.

Knee Anatomy

The knee is the largest joint in the body, and is made up of four main components: bones, cartilage, ligaments, and tendons.



Source: American Academy of Orthopaedic Surgeons

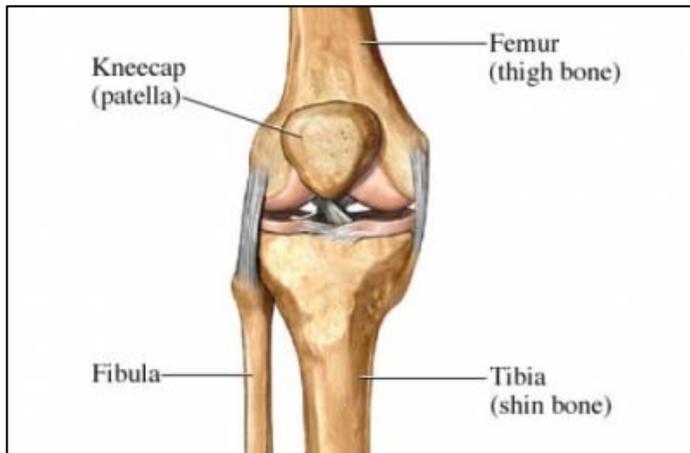
Common Knee Injuries

Your knee is made up of many important structures, any of which can be injured. The most common knee injuries include fractures around the knee, dislocation, and sprains and tears of soft tissues, like ligaments. In many cases, injuries involve more than one structure in the knee. Pain and swelling are the most common signs of knee injury. In addition, your knee may catch or lock up, and cause instability — the feeling that your knee is giving way.

Fractures

The most common broken bone around the knee is the patella, also known as the kneecap. The patella is a large, movable bone at the front of the knee. The ends of the femur and tibia, where they meet to form the knee joint, also can be fractured. Many knee fractures are caused by a sharp blow or excessive force on the kneecap, like falls from significant heights and motor vehicle collisions.

The Kneecap



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If the patella is not badly injured, your doctor will place the knee in a cast, which will be worn for about six weeks. If the patella is in pieces and there is significant fracture displacement, you will likely need surgery. Following a cast or surgery, you will wear a knee brace, do physical therapy, and may need to use a cane or crutches. Your doctor may recommend medication to reduce swelling and pain.

Dislocations

A dislocation occurs when the bones of the knee are out of place, either completely or partially. For example, the femur and tibia can be forced out of alignment, and the patella also can slip out of place. Patellar dislocation is very common. Treatment includes nonsurgical manipulation of the patella, immobilization, medications, and physical therapy. In some cases, surgery may be required to repair damage caused by the dislocation.

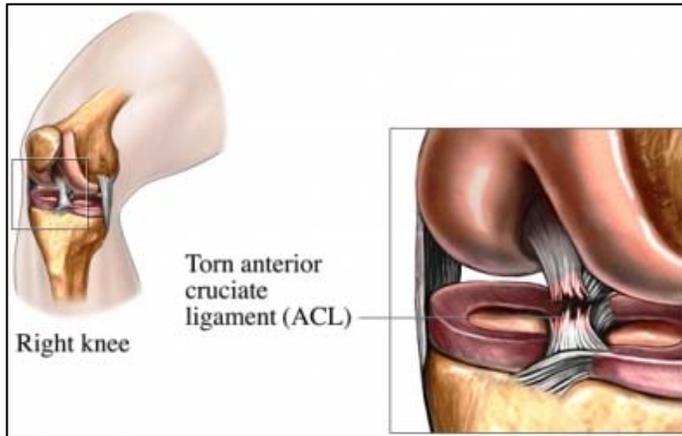
Sometimes dislocations are caused by an abnormality in the structure of a person's knee. Most often, though, trauma or abnormal movement at the knee is the cause. Examples include:

- A direct blow to the knee or from injury resulting from a fall or collision.
- Tension that applies force from side-to-side on the patella.
- Sudden twisting motions, which are sometimes experienced in certain high-impact sports.

Anterior Cruciate Ligament (ACL) Injuries

Ligaments are strong connective tissues that help connect bones at the joints. The ACL is the ligament in the middle of the knee that connects the back of the thigh bone (femur) to the front of the shin bone (tibia). Along with the posterior cruciate ligament (PCL), the ACL helps provide stability for knee rotation and protects the thigh bone from sliding forward and backward on the shin bone.

Anterior Cruciate Ligament Injury



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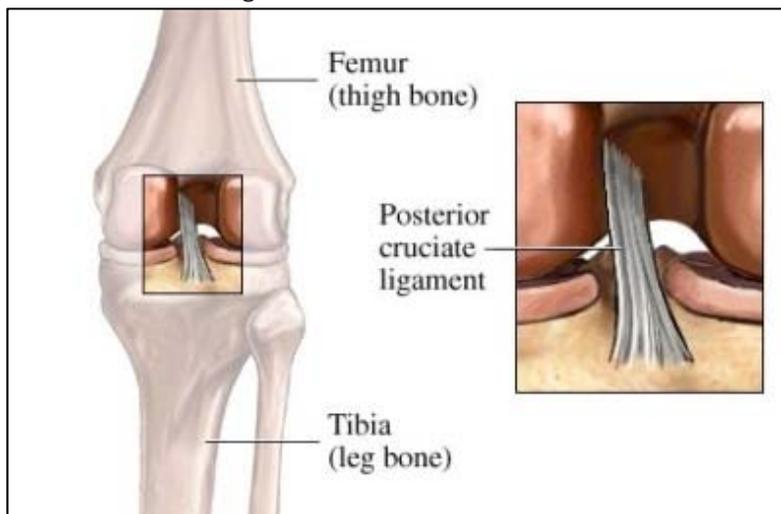
ACL tears often occur when a player forcefully plants his or her foot during a high-speed, high-impact stop and change of direction, or during a routine jump-stop that players do dozens of times in a game.

Posterior Cruciate Ligament (PCL) Injuries

The PCL is one of the ligaments that connect the lower leg bone to the thigh bone. It helps to stabilize the knee during movement. When the posterior cruciate ligament is torn, it is usually when there is a blow to the front of the knee while it is in a bent position. The PCL is most often injured while playing sports or in a motor vehicle dashboard accident. PCL surgery may be considered to repair or replace the torn ligament if:

- The PCL is disconnected from the bone (avulsion).
- The injury affects:
 - The ability to move around or take part in activities, especially in athletes.
 - How well the knee moves.
- The injury affects more than one ligament in the knee.
- Other treatment methods fail.

Posterior Cruciate Ligament



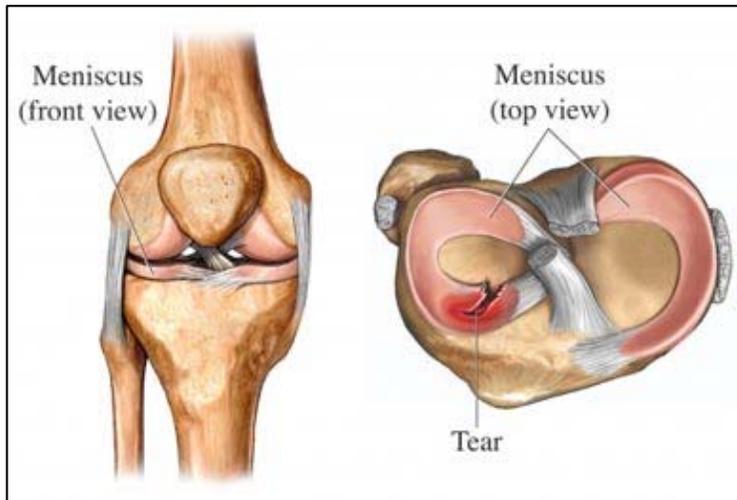
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Meniscal Tears

A meniscal tear is a tear in the meniscus, which is the cartilage that acts as a shock-absorbing structure

in the knee. There are two menisci in each knee, a medial one on the inside, and a lateral one on the outside. Tears in the meniscus most often occur in athletes as a result of twisting, cutting, pivoting, or being tackled. Meniscal tears also may occur as a result of arthritis or aging. There are different types of tears depending on the location and how they look. Treatment depends on the severity of the tear.

Torn Meniscus



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Symptoms of a meniscal tear are:

- A popping sound at the time of the injury.
- Pain and swelling in the knee.
- Tightness in the knee.
- Locking up, catching, or giving way of the knee.
- Tenderness in the joint.

Tendon Tears

A tendon attaches muscle to bone. If a tendon tears, the muscle is no longer able to work properly, resulting in weakness or loss of function. The quadriceps and patellar tendons can be stretched and torn. Tears are most common among middle-aged people who play running or jumping sports. Falls, direct force to the front of the knee, and landing awkwardly from a jump are common causes of knee tendon injuries. Reattaching the tendon can fix the weakness and improve function.

Treatment Options for Knee Injuries

Talk with your doctor about the best treatment plan for you. The type of treatment your doctor recommends will depend on several factors, including the severity of your injury, your age, general health, and activity level. Recovery time will depend on the severity of your injury. Treatment steps may include:

Supportive Care

The knee will need time to heal. Supportive care may include the R.I.C.E method, elevation, and medical devices to help stabilize the knee:

- **Rest**—Activities may need to be restricted at first. Normal activities will gradually resume as the injury heals.
- **Ice**—Ice therapy may help relieve swelling. You may be advised to use heat as you begin to

return to normal activities.

- **Compression**—Compression bandages provide gentle pressure to move fluids out of the area.
- **Elevation**—Keeping the knee elevated helps fluids drain out or prevent fluids from building up
- A knee brace to immobilize the knee and crutches to keep extra weight off of the leg also may be used.
- Over-the-counter or prescription anti-inflammatory medication may be given to reduce pain.

Physical Therapy

A physical therapist will assess the knee. An exercise program will be created to help recovery and to stretch and strengthen the muscles.

Surgery

Many fractures and injuries around the knee require surgery to fully restore function to your leg. In some cases, as in ACL tears, surgery is often done arthroscopically using miniature instruments and small incisions. Some injuries require open surgery with a larger incision that provides your surgeon with a more direct view and easier access to the injured structures.

Prevention

To help reduce knee injuries:

- Do weight-bearing exercises that strengthen both the quadriceps and the hamstrings.
- Maintain proper technique when exercising or playing sports.
- Wear appropriate footwear, padding, and safety equipment for your sport and playing surface.
- Consider wearing a knee brace when playing sports.
- Do not put yourself at high risk for trauma to the knee joint.

Sources:

American Academy of Orthopaedic Surgeons: www.aaos.org