



DISEASES & CONDITIONS

Posterior Cruciate Ligament Injuries

The posterior cruciate ligament is located in the back of the knee. It is one of several ligaments that connect the femur (thighbone) to the tibia (shinbone). The posterior cruciate ligament keeps the tibia from moving backwards too far.

An injury to the posterior cruciate ligament requires a powerful force. A common cause of injury is a bent knee hitting a dashboard in a car accident or a football player falling on a knee that is bent.

Anatomy

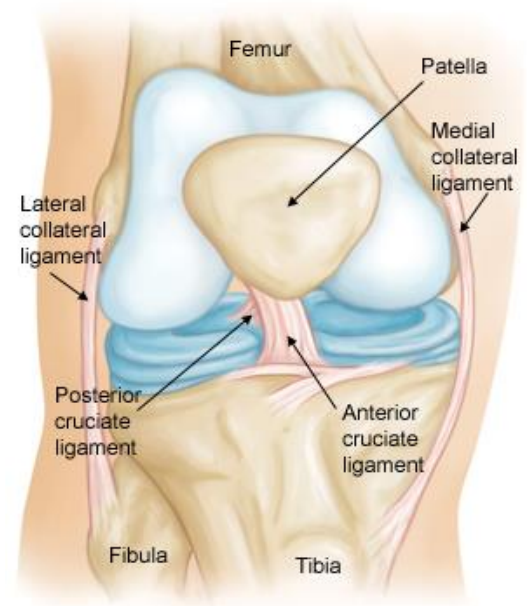
Two bones meet to form your knee joint: your thighbone (femur) and shinbone (tibia). Your kneecap sits in front of the joint to provide some protection.

Bones are connected to other bones by ligaments. There are four primary ligaments in your knee. They act like strong ropes to hold the bones together and keep your knee stable.

Collateral ligaments. These are found on the sides of your knee. The medial collateral ligament is on the inside and the lateral collateral ligament is on the outside. They control the sideways motion of your knee and brace it against unusual movement.

Cruciate ligaments. These are found inside your knee joint. They cross each other to form an "X" with the anterior cruciate ligament in front and the posterior cruciate ligament in back. The cruciate ligaments control the back and forth motion of your knee.

Normal knee anatomy. The posterior cruciate ligament, located in the back of the knee, is one of several ligaments that connect the femur (thighbone) to the tibia (shinbone).



The posterior cruciate ligament keeps the shinbone from moving backwards too far. It is stronger than the anterior cruciate ligament and is injured less often. The posterior cruciate ligament has two parts that blend into one structure that is about the size of a person's little finger.

Description

Injuries to the posterior cruciate ligament are not as common as other knee ligament injuries. In fact, they are often subtle and more difficult to evaluate than other ligament injuries in the knee.

Many times a posterior cruciate ligament injury occurs along with injuries to other structures in the knee such as cartilage, other ligaments, and bone.

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.



A complete tear of the posterior cruciate ligament, back view.

Posterior cruciate ligament tears tend to be partial tears with the potential to heal on their own. People who have injured just their posterior cruciate ligaments are usually able to return to sports without knee stability problems.

Cause

An injury to the posterior cruciate ligament can happen many ways. It typically requires a powerful force.

- A direct blow to the front of the knee (such as a bent knee hitting a dashboard in a car crash, or a fall onto a bent knee in sports)
- Pulling or stretching the ligament (such as in a twisting or hyperextension injury)
- Simple misstep

Symptoms

The typical symptoms of a posterior cruciate ligament injury are:

- Pain with swelling that occurs steadily and quickly after the injury
- Swelling that makes the knee stiff and may cause a limp
- Difficulty walking
- The knee feels unstable, like it may "give out"

Doctor Examination

During your first visit, your doctor will talk to you about your symptoms and medical history.

During the physical examination, your doctor will check all the structures of your injured knee, and compare them to your non-injured knee. Your injured knee may appear to sag backwards when bent. It might slide backwards too far, particularly when it is bent beyond a 90° angle. Other tests which may help your doctor confirm your diagnosis include X-rays and magnetic resonance imaging (MRI). It is possible, however, for these pictures to appear normal, especially if the injury occurred more than 3 months before the tests.

X-rays. Although they will not show any injury to your posterior cruciate ligament, X-rays can show whether the ligament tore off a piece of bone when it was injured. This is called an avulsion fracture.

MRI. This study creates better images of soft tissues like the posterior cruciate ligament.

Treatment

Nonsurgical Treatment

If you have injured just your posterior cruciate ligament, your injury may heal quite well without surgery. Your doctor may recommend simple, nonsurgical options.

RICE. When you are first injured, the RICE method - rest, ice, gentle compression and elevation – can help speed your recovery.

Immobilization. Your doctor may recommend a brace to prevent your knee from moving. 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. Strengthening the muscles in the front of your thigh (quadriceps) has been shown to be a key factor in a successful recovery.

Surgical Treatment

Your doctor may recommend surgery if you have combined injuries. For example, if you have dislocated your knee and torn multiple ligaments including the posterior cruciate ligament, surgery is almost always necessary.

Rebuilding the ligament. Because sewing the ligament ends back together does not usually heal, a torn posterior cruciate ligament must be rebuilt. Your doctor will replace your torn ligament with a tissue graft. This graft is taken from another part of your body, or from another human donor (cadaver). It can take several months for the graft to heal into your bone.

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

Surgical procedures to repair posterior cruciate ligaments continue to improve. More advanced techniques help patients resume a wider range of activities after rehabilitation.

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 had surgery, physical therapy will begin 1 to 4 weeks after your procedure.

How long it takes you to recover from a posterior cruciate ligament injury will depend on the severity of your injury. Combined injuries often have a slow recovery, but most patients do well over time.

If your injury requires surgery, it may be several weeks before you return to a desk job - perhaps months if your job requires a lot of activity. Full recovery typically requires 6 to 12 months.

Although it is a slow process, your commitment to therapy is the most important factor in returning to all the activities you enjoy.

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