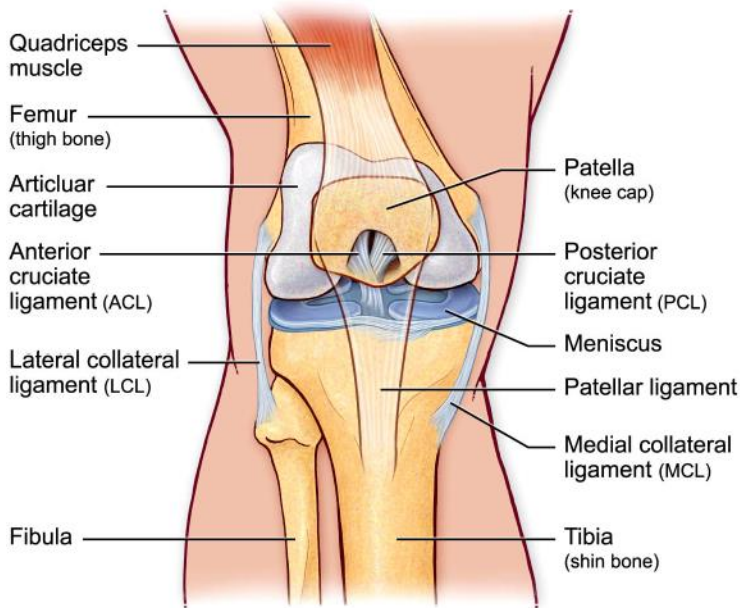
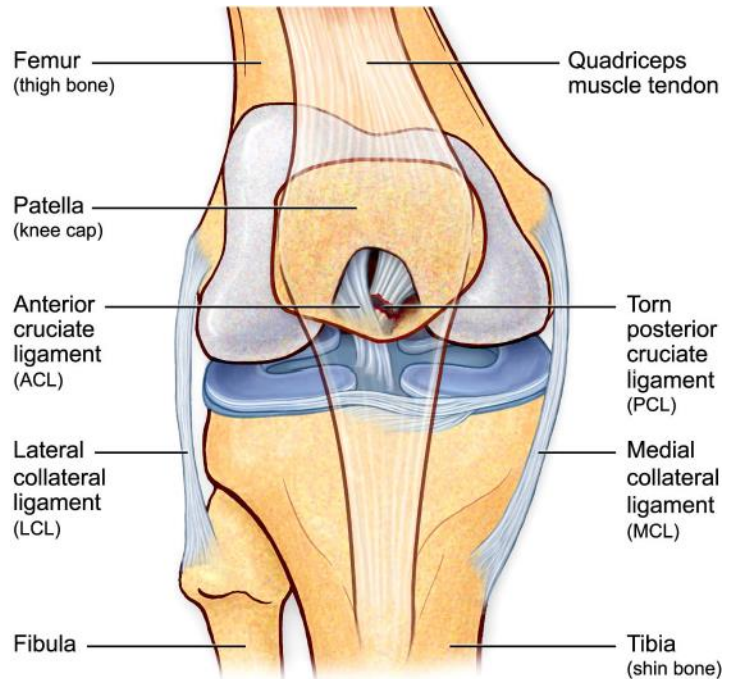


## PATIENT GUIDE TO PCL INJURIES



**FIGURE 1: Anterior (front) view of the knee**



**FIGURE 2: Injured PCL**

### What is the Posterior Cruciate Ligament (PCL)?

The posterior cruciate ligament (PCL) (**Figure 1**) is one of the main ligaments in the center of the knee. It runs from the front of the femur (thigh bone) to the back of the tibia (shin bone). It assists in proper movement of the knee joint and prevents the tibia from slipping backwards on the femur. Abnormal slippage can create knee pain, or a knee that “gives way” during activity.

### How is the PCL injured?

The PCL can be injured (**Figure 2**) from a direct blow to the tibia that forces the bone backward on the femur. This can occur during sports, when the knee hits the ground. It can also occur during a motor vehicle accident, when the knee hits the dashboard. PCL injuries can also occur from hyperextension injuries to the knee.

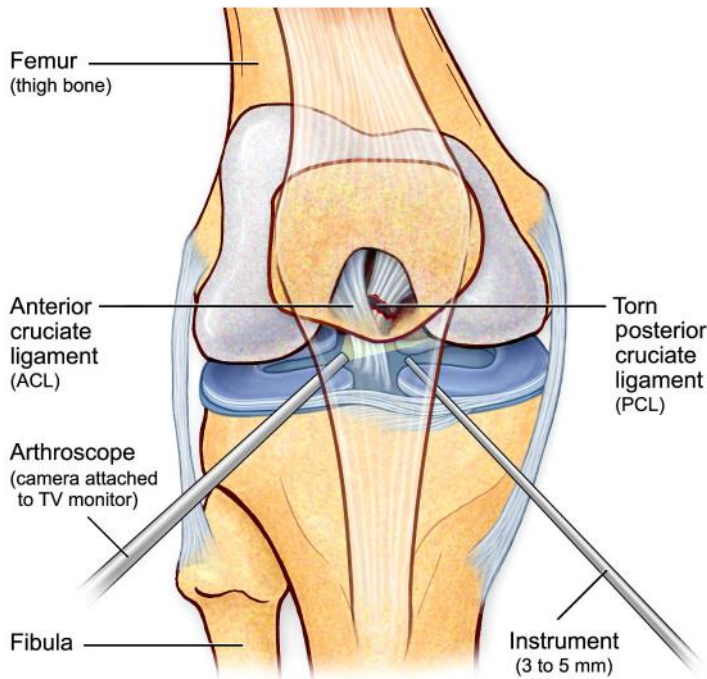
### How do I know my PCL is injured?

Unlike injuries to the anterior cruciate ligament (ACL), which causes giving way, injuries to the PCL most commonly lead to knee pain. This pain can be in the front of the joint around the kneecap (patella), or on the inside of the knee. In some severe cases, injuries to the PCL can cause the knee to give way.

The examination in the office usually can determine when there is a significant PCL injury, by testing the ability of the ligament to prevent the tibia from moving backwards on the femur.

### Do I need x-rays or a MRI?

A set of x-rays is usually ordered to evaluate the bones and cartilage around the knee. The x-rays are primarily used to evaluate for arthritis and to be sure there are no fractures about the knee. A MRI may be ordered to look for damage



**FIGURE 3: Arthroscopic viewing of the injured PCL**

to the PCL and rule out any other injuries to the knee. Other ligament or cartilage injuries can occur in combination with injuries to the PCL, which can be seen on the MRI.

**Is there other damage to the knee when the PCL is injured?**

There is frequently other damage to the knee in cases of PCL injuries, including other ligament injuries. In many cases, there are injuries to the ligament complex on the outside of the knee, called the posterolateral corner. These injuries can be severe, and need to be treated at the time of surgery. The examination in the office, as well as the MRI, can help to determine if these structures are injured.

**What are the treatment options for PCL injuries?**

For patients with an isolated injury to the PCL, many times the injury can be treated without surgery. Initially, a brace is used to help the ligament heal, and then physical therapy is performed to strengthen the muscles around the knee, especially the quadriceps (on the front of the knee), to help stabilize the knee. If patients do not get better with conservative therapy, surgery may be necessary.

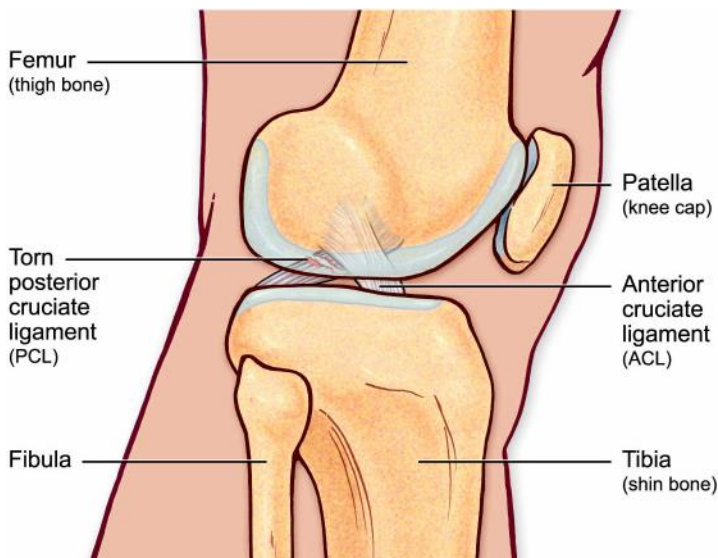
In severe injuries to the PCL, surgery is usually necessary. The PCL does not heal on it's own, so it cannot be fixed. Instead, a new ligament is placed, called a PCL reconstruction.

For patients who have injuries to multiple ligaments of the knee, such as the PCL and the posterolateral corner, or the PCL and the ACL, surgery is generally advised. In many cases, however, the surgery is delayed several weeks until the motion in the knee returns to normal.

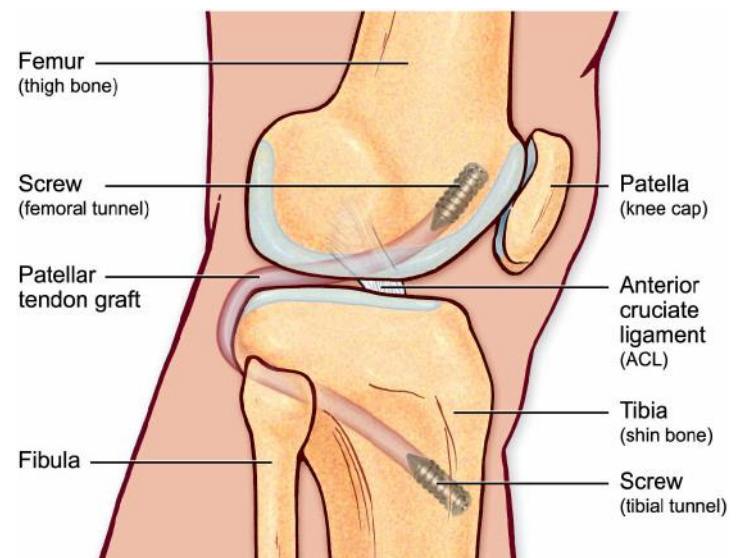
**How are PCL injuries treated with surgery?**

The PCL is reconstructed using arthroscopic techniques (**Figure 3**). The arthroscope is a small fiber optic instrument which is put into the knee joint through a small incision. A camera is attached to the arthroscope to view the image on a TV monitor and take pictures. The arthroscope allows a complete evaluation of the entire knee joint, including the knee cap (patella), the cartilage surfaces, the meniscus, the ligaments (ACL & PCL), and the joint lining. Small instruments ranging from 3-5 millimeters in size are inserted through an additional incision so that any injury can be diagnosed, and damaged tissue can be repaired, reconstructed, or removed.

In PCL reconstruction, a replacement graft (ligament) (**Figure 5**) is positioned in the joint at the site of the former PCL and then fixed to the thigh and lower leg using metal screws. In some cases, bioabsorbable screws (screws that dissolve in the



**FIGURE 4: Lateral (side) view of the injured PCL**



**FIGURE 5: Lateral (side) view of PCL reconstruction**

body with time) are used. Usually, an allograft tendon (donor graft from a cadaver) is used. The most common allograft for PCL reconstruction is an Achilles allograft. Although the technique is primarily performed arthroscopically, there are a few small incisions needed around the knee in order to place the graft and fix the graft with the screws.

If additional ligaments need to be fixed, that surgery is performed at the same time as the PCL reconstruction. An injury to the posterolateral corner (the structures on the outside of the knee) is reconstructed with an open incision on the outside of the knee. An allograft tendon (usually hamstring or Achilles tendon) is used to reconstruct the ligament. If the ACL needs to be reconstructed, that surgery is also performed at the same time (See **Patient Guide to ACL Injuries**)

#### **What are the risks of using allograft (cadaver) tissue?**

Most surgeons in the United States use allograft tissue when performing PCL reconstruction. This is unlike ACL reconstruction, where your own tissues are used most commonly. Because the tissue is not taken from your body, the surgical time and operative pain is less. This allows for easier rehabilitation. The tissue is rigorously screened for infections, such as bacteria and viruses, including HIV and Hepatitis. The risk of contracting an infectious disease from an allograft is extremely small. The grafts are extremely strong with excellent results.

#### **What are some of the possible complications of surgery?**

Possible complications of surgery include stiffness of the knee after surgery or continued pain. The use of arthroscopic techniques attempts to limit these complications. In addition, there is a risk of continued instability or rupture of the PCL graft. Other complications include an infection, bleeding, nerve or artery damage, blood clots, or problems with the anesthesia.

#### **What kind of anesthesia is used?**

PCL reconstruction is usually performed with general anesthesia (going to sleep). This may also be supplemented with a nerve block, to help with post-operative pain.

#### **What do I need to do to prepare for surgery?**

Our staff will help to set up the surgery through your insurance company and will instruct you on any paperwork that may be necessary.

Prior to your surgery, you may be asked to get several medical tests, done on an outpatient basis. Most patients need some minor blood tests and a urinalysis. If you are over age 50, you may require an EKG and chest x-ray. Some patients need to see an internist or their family doctor to obtain clearance for surgery.

The night before the surgery, a member of our staff will contact you about what time to arrive for surgery. You may not eat or drink anything after midnight the night before your surgery.

#### **Can I continue to take my medications?**

You should STOP taking any aspirin or anti-inflammatory medication (Motrin, Advil, Relafen, Naprosyn, etc.) at least seven days prior to your surgery. However, you may CONTINUE to take Celebrex or Bextra if you are on these medications. You may also take Tylenol as needed.

Continue to take any other prescribed medications, such as blood pressure pills, up until the day of surgery. You may also take these medications the morning of surgery with a sip of water.

#### **How long will I be in the hospital?**

Almost all patients are able to have surgery and go home the same day. If you require multiple ligaments to be reconstructed, you may need to stay overnight in the hospital.

#### **What happens the day of surgery?**

The day before surgery you will be told what time to report to the hospital. You will be admitted and taken to a pre-operative holding area where you are prepared for surgery.

**You will be asked several times which knee is being operated on, and the surgical site will be initialed. Please note that you are asked several times which side is the correct side on purpose.**

After the operation, you will be taken to the recovery room to be monitored. Once the effects of anesthesia have worn off and your pain is under good control, you will be taken to another area where you can see your family and finish recovering. You will be given all of your post-operative instructions and pain medication before leaving.

Please be aware that the process of getting checked in, prepared for surgery, undergoing the operation, and recovering from anesthesia takes the majority of the day. I would recommend that you and your family members bring along some reading material to make the process easier for all.

#### **How should I care for my knee after surgery?**

Prior to your discharge, you will be given specific instructions on how to care for your knee. In general, you can expect the following:

##### ***Diet:***

Resume your regular diet as soon as tolerated. It is best to start with clear liquids before advancing to solid food.

##### ***Medication:***

You will be given a prescription for pain medication.

##### ***Bandage:***

You will have a thick dressing on the knee. You will be instructed on when it can be removed, usually in 3 days. After your dressing is removed, you should cover your sutures with a Band-Aid to protect the area from irritation.

***Showering:***

You may shower after your dressing is removed, after 2 – 3 days. You cannot take a bath until the wounds are completely sealed, usually 2 – 3 weeks after surgery.

***Crutches:***

You will have crutches after surgery, and will be instructed on how to use them. For PCL reconstruction, weight bearing can lead to early stress on the graft. Therefore, you will not be allowed to bear weight on the knee for the first 6 weeks. You will then progress your weight bearing over the following four weeks.

***Brace:***

You will receive a brace for your knee. For the first 3 weeks, you will keep the brace straight to allow the ligament to begin healing. After this, you will start to bend the knee in the brace.

***Ice:***

You may receive an ice machine that continually surrounds your knee with cold water. If not, you may apply ice over the dressings for 30 minutes every hour for several days. Do not use heat.

***Suture removal:***

Your stitches will be removed at your office visit 7-10 days after surgery. Occasionally, sutures are used which absorb and do not need to be removed.

***Follow-up office visit:***

You will be instructed on when to follow-up in the office. This is usually 7-10 days after surgery.

***Exercise:***

You will be instructed on exercises you can do immediately after surgery. You will start physical therapy within 1 to 2 weeks after surgery.

***Return to work or school:***

You can return to school or work within 3 – 5 days using the crutches. If your job involves more extended walking or heavy activity, you may be out of work or school for a longer period of time.

**What will rehabilitation involve?**

The rehabilitation is based on several goals: 1) allowing the tissue to heal; 2) regaining motion; 3) regaining strength; and 4) return to sports. The rehabilitation program for PCL reconstruction is slower than for many other knee surgeries. As mentioned, for the first 6 weeks, you will not be allowed to bear weight on the knee, in order to allow the ligament to heal. The protocol for the physical therapist is enclosed, showing the progression of therapy for the first six months after surgery.

**When can I return to sports?**

In general, you will be allowed to return to sports in six to nine months after surgery. You must have good motion, strength, and control of your knee. How quickly you return to sports depends on several factors, including: 1) your own rate of healing; 2) the damage found at surgery; 3) if you have any complications; 4) how well you follow the post-operative instructions; 5) how hard you work in rehabilitation.

**Questions?**

If you have any questions about your injury or the possible need for surgery, please do not hesitate to contact our staff.

© Rothman Institute. Philadelphia, PA. May not be reproduced without the author's permission