ACL Repair

Surgery for Knee Ligament Injuries
Ligaments: Support for Your Knees

Your knees are mobile joints that allow you to walk, climb, sit, and kneel. Ligaments stabilize your knee joints for these movements. When you injure a ligament, it may feel as though your knee won’t even hold you up. Fortunately, you and your healthcare team can work together to return you to an active lifestyle.

Tearing Your ACL

Tearing a knee ligament often happens during a sudden injury. One of the knee ligaments that is commonly torn is the anterior cruciate ligament (ACL). This ligament is in the center of your knee. It is often injured by a twisting motion. Injury to the ACL causes pain and weakens in your knee joint. Without treatment, you may develop other knee and leg problems.

Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your Mobile Knee</td>
<td>4</td>
</tr>
<tr>
<td>Anterior Cruciate Ligament (ACL)</td>
<td>5</td>
</tr>
<tr>
<td>Your Evaluation</td>
<td>6</td>
</tr>
<tr>
<td>Nonsurgical Treatment</td>
<td>7</td>
</tr>
<tr>
<td>Getting Ready for Surgery</td>
<td>8</td>
</tr>
<tr>
<td>Knee Ligament Surgery</td>
<td>9</td>
</tr>
<tr>
<td>Your Recovery</td>
<td>10</td>
</tr>
<tr>
<td>Your Long-Term Recovery</td>
<td>12</td>
</tr>
</tbody>
</table>
A Team Effort
Proper care can make your knee joint stable again. It takes teamwork: you, your doctor, and your physical therapist working together. Before your knee can be treated, you’ll need an evaluation. After treatment, you play a large role in recovery.

Early evaluation
An evaluation helps your doctor know how severe your injury is. It also points to your best treatment options. The sooner you’re evaluated, the sooner you’re treated, and the better your chance for recovery.

Checking for an unstable knee is one way to evaluate a ligament injury.

Treatment for your knees
An ACL injury can be treated in one of two ways: nonsurgically or surgically. Your treatment depends on how severe your injury is and how active you hope to be. Rehabilitation is a major part of your treatment whether or not you have surgery.

Your role in recovery
Your return to an active life depends largely on you. This is true whether you have nonsurgical or surgical treatment. In either case, you need to commit to regaining and maintaining strength in your leg. A physical therapist may help you with exercises.
Your Mobile Knee

Your knee is a mobile, complex joint. It can bend, and it can rotate slightly. Ligaments help control knee motion by connecting bones and supporting the joint. Tendons join muscles to bones. Cartilage cushions the knee joint. It also helps the knee absorb shock during motion.

The lateral collateral ligament (LCL) runs on the outside of the knee. It limits sideways motion.

The anterior cruciate ligament (ACL) connects the femur to the tibia in the center of the knee. It limits rotation and the forward motion of the tibia.

The meniscus pads are cartilage that absorbs shock in the joint.

The medial collateral ligament (MCL) runs down the inside of the knee joint. It connects the femur to the tibia and limits the sideways motion of the knee.

The posterior cruciate ligament (PCL) connects the femur and tibia. It also limits backward motion of the tibia.

Articular cartilage lines the ends of the bones, helping the joint move smoothly.

Ligaments join bones together.

Tendons join muscle to bone.
The ACL crosses from the back of the femur to the front of the tibia. It acts as a strong support for your knee. But the ACL can be injured if you twist your knee too far or change direction too quickly.

**A Sudden Twist**

Your ACL can be injured when you twist your knee beyond its normal range of motion. When you’re on skis, for instance, and “catch an edge,” this causes you to twist your lower leg outward or inward. You might hear or feel a pop, and your knee may give way. Pain and swelling result. A complete tear of the ACL is like rope fibers coming apart. A partial tear can also occur. Other parts of the knee may be injured at the same time that you injure the ACL.
Your Evaluation

An evaluation helps reveal how badly your knee is injured. Your evaluation includes a medical history, an exam, and often diagnostic tests. This helps your doctor diagnose your knee problem and plan your treatment.

Medical History

Your doctor will ask you questions about your symptoms and how you injured your knee. Your goals for returning to your usual lifestyle help the doctor decide which treatment plan might work best for you.

Physical Exam

A hands-on exam comes next. It helps the doctor pinpoint your problem. Checking for abnormal motion in your knee and for swelling or soreness is part of this exam.

Diagnostic Tests

Tests may be needed to confirm your diagnosis and to rule out other problems. X-rays are pictures of bones. They make it possible to see problems such as fractures. MRI (magnetic resonance imaging) gives an inside view of your knee’s soft tissues.
Nonsurgical Treatment

There are two options for treating an injured ACL: nonsurgical and surgical. Nonsurgical treatment may be a good option if only one part of the knee is injured and the injury is not severe. With either nonsurgical options or surgery, rehabilitation will be part of your treatment.

Your Treatment Plan

Nonsurgical treatment starts with rest, icing, and elevation. This relieves swelling and pain. Your doctor may also prescribe medication. In the next stage, you begin exercises. The goal is to restore the normal function of your knee.

Ice and elevate your knee 3 to 5 times a day for 15 to 20 minutes at a time. Be sure to keep a cloth between the cold source and your knee.

Exercises restore the normal function of your joint. They are designed to increase your knee’s range of motion, strength, and flexibility.

Crutches or a brace rest your joint, helping it to heal. Follow your doctor’s advice about how much weight to put on your injured leg.
Getting Ready for Surgery

Your exam and tests may show damage that requires surgery to repair. ACL injuries often require surgery to repair. A person with a very active lifestyle might need surgery to help prevent reinjury. And surgery may be needed if you have damage to more than one part of the knee joint.

In the Weeks Before Surgery

You and your doctor will discuss how you need to prepare for surgery. Be sure to tell your doctor about all the medications you take. This includes over-the-counter drugs, vitamins, herbs, and supplements. To make your recovery at home safer and easier, you’ll need to plan ahead. You may need to arrange to get crutches. You may also want to arrange for help around the house.

On the Day of Surgery

Do not eat or drink anything for 8 hours before surgery, or as directed by your doctor. If you take medications daily, check with your doctor about how to handle them on the day of your procedure. Be sure to arrange for an adult to drive you home after your surgery. You may need to have someone stay with you overnight.

Risks and Complications

As with other surgeries, ACL surgery involves a risk of infection, blood clots, and blood vessel or nerve injury. Also, scar tissue may form, requiring future treatment. If surgery includes a graft, this graft may tear or stretch over time.

Do not eat or drink before surgery, as directed by your doctor.
Knee Ligament Surgery

ACL surgery may be done using **arthroscopy**. This technique uses small incisions. It usually means a faster recovery and less scarring than with open surgery.

### ACL Reconstruction

The most common type of surgery for an ACL injury is **reconstruction**. This involves replacing the torn ligament with new tissue (a **graft**). This graft may be a ligament or tendon from your own knee (an **autograft**) or from a donor (an **allograft**). To rebuild your ACL, your doctor may combine open surgery with arthroscopy. With arthroscopy, a tiny camera lets your doctor see inside the joint. Tools inserted through small incisions are used to repair the joint.

Your doctor first uses an arthroscope and surgical tools to treat any other injuries. Then small holes are drilled in your bone.

The graft is passed through the drilled holes to replace the torn ligament. Then the graft is fixed in place.

### After Surgery

Right after surgery, you’ll spend a few hours in a recovery unit. Your knee will be bandaged and your leg elevated. Your knee will also be iced and put in a brace to keep it from bending. Depending on the procedure, your physical therapy may begin shortly after surgery. This may include light exercises.
Your Recovery

Right after surgery, the focus is on your comfort and on speeding healing. Later on, you’ll progress to more active physical therapy. Your doctor will prescribe a rehabilitation program. You may meet with a physical therapist. Your program depends on your injury, the type of surgery, and your goals for returning to activity.

For Comfort While You Heal

To help reduce pain and swelling, raise your leg above heart level when possible. Also, put ice on your knee for 15 to 20 minutes, as often as directed. Moving your knee from time to time aids healing. Pain medications may also be prescribed.

Gait Training with Crutches

Before you go home, you’ll be shown how to use crutches. Use them for as long as directed. Don’t put more weight on the injured leg than your healthcare provider advises.

Step 1
- Move the crutches and injured leg forward. Rest your foot lightly on the floor, between the crutches.
- Squeeze the crutches against your ribs. Support your weight with your hands and arms, not your armpits.

Step 2
- Straighten your elbows, lift your good leg, and swing your body through the crutches.
- Land on the heel of your good leg, about 12 inches in front of the crutches.
Improving Range of Motion
After surgery, scar tissue can cause your knee to stiffen. Special exercises can help keep your knee flexible. Your physical therapist may start you on these exercises. Then you’ll be given others to do at home.

Patellar motion, done by your physical therapist, helps prevent scar tissue around your kneecap.

Heel slide is an exercise that improves your joint’s mobility. Sit with your leg extended and place a towel around your heel. Pull the towel with both hands and slowly slide your heel toward your buttock.

Follow-Up
You will have follow-up visits with your doctor. He or she will change your dressings and check for any problems, such as infection. Your doctor will also use this time to chart your progress.

Call your doctor if you have redness or drainage at the incision, extreme swelling, fever, shortness of breath, or increased pain. These may be signs of problems that require urgent medical help.
Your Long-Term Recovery

As your ligament heals, you’ll begin the next phase of recovery: preparing yourself for return to active living. For the first few months, a physical therapist may guide you through your exercise program. In the end, though, it’s up to you to maintain good leg strength and flexibility all your life.

Increasing Strength
Your ligament can be repaired or rebuilt. But it won’t be like new again. Exercises can strengthen your hamstrings, quadriceps, and calf muscles. This helps support your knee joint and helps prevent reinjury.

Improving Flexibility
Stretching the muscles improves flexibility. This allows your knee to move better. Use slow, sustained movements without bouncing. You should feel a slight pull in your muscles, but not pain.
Returning to Activity
Near the end of your rehabilitation, you may start a different kind of exercise. Instead of working on a certain group of muscles, you’ll practice a movement you may need to use. This prepares you to return to your chosen sport, work, or pastime. For instance, a skier needs to prepare for sideways motion. A football player can benefit from running patterns such as figure 8’s.

Lifelong Protection
There’s a beginning and an end to your formal rehabilitation. But you must protect your knee and maintain strength all your life. You may need to wear a brace for high-risk movements, such as the twisting and turning motions common in sports. Ask your healthcare provider about good ways to keep strengthening the muscles that support your knees.

Working out is a good way to maintain strength in your legs.

Hopping sideways, using rubber tubing, can help prepare you for sideways motion.
Your Surgical Checklist

The list below outlines what to do before and after knee ligament surgery. If you have questions, be sure to get them answered before the surgery.

**Before Surgery**
- See your surgeon. Have any tests that your surgeon orders.
- Stop taking aspirin and other medications as advised by your surgeon before surgery.
- If you will need crutches during your recovery, arrange to get them before surgery.
- If you smoke, now is a good time to stop. This will reduce the risk of surgical complications.
- Do not eat or drink anything as instructed before surgery.
- Arrange for someone to drive you home from surgery.

**After Surgery**
- Schedule your first follow-up visit as instructed after surgery.
- Take care of your incisions as directed.
- Complete your physical therapy program if one is prescribed.
- Ask your surgeon which activities you can do right away and which you should avoid.