

# Anterior Cruciate Ligament Sprain

## What is a knee sprain?

There are several major ligaments in your knee, which provide stability to your knee. Injury to the major ligaments that are on either side of your knee is called a ligament sprain. The four major ligaments of the knee are the Anterior cruciate ligament (ACL), the posterior cruciate ligament (PCL), the medial collateral ligament (MCL) and the lateral collateral ligament (LCL). Here we discuss the treatment and rehabilitation of ACL injuries. There are different levels of knee sprain from a mild stretching of these ligaments to a full tearing of these ligaments.



## What are the symptoms of an ACL tear?

Patients with partial tears generally have swelling and pain especially with twisting movements. Patients with full ACL tears frequently describe a feeling of a “giving out” sensation even with light activities including walking. ACL injuries usually occur because of a twisting injury, where the foot is planted and the body pivots, a hyperextension where the knee straightens out too much, slowing down suddenly or a hard hit during a contact sport with a twisting motion.

## Do I need an MRI?

The initial diagnosis can be made based on the history and physical exam of the patient, however if a complete ACL tear is suspected a MRI may be ordered. A MRI is a picture, almost like an xray, that uses magnets instead of radiation. This test takes 20-40 minutes. Your provider will ask that you bring a CD of the images to your return visit for review. If your provider has ordered an MRI, it is recommended that you avoid any contact sports and movements that require twisting or pivoting.

## Do I need surgery?

For patients who would like to participate in sports or be active, surgical reconstruction of the ACL is generally recommended when there is a full tear of the ACL. For partial tears, surgery is generally not required or recommended. Patients with partial tears tend to do very well with physical therapy and home exercise programs.

# Anterior Cruciate Ligament Sprain

## Treatment

<b>R</b> <b>REST</b> Rest from all activities that cause pain or limping. If necessary, use crutches until you can walk without pain or limping.	<b>I</b> <b>ICE</b> Place an ice bag on the ankle for 15 to 20 minutes, or use an ice bucket 3 to 5 times a day for the first 24 to 72 hours and/or after activities.	<b>C</b> <b>COMPRESSION</b> Wrap an elastic bandage from the toes to mid calf, using even pressure. Wear this until swelling decreases. Loosen the wrap if your toes start to turn blue or feel cold.	<b>E</b> <b>ELEVATION</b> Elevate the ankle above heart level until swelling subsides.
--	---	---	--

Initial treatment includes the following easy to remember acronym, RICE. Once you are able to walk without pain or a limp, your provider may refer you for formal physical therapy and/or you may begin the following exercises at home:

1. **Standing Calf Stretch** - Facing a wall, put your hands against the wall at about eye level. Keep the uninjured leg forward and your injured leg back about 12-18 inches behind your uninjured leg. Keep your injured leg straight and your heel on the floor and keep your toes pointed towards the wall. Next, do a slight lunge by bending the knee of the forward leg. Lean into the wall until you feel a stretch in your calf muscle. Hold this position for 30-60 seconds, and repeat 3 times.



2. **Standing Soleus Stretch** - Facing a wall, put your hands against the wall at about eye level. Keep the uninjured leg forward and your injured leg back about 4-6 inches behind your uninjured leg. Keep both heels on the ground and gently bend your knees until you feel a stretch in your calf muscle. Hold this position for 30-60 seconds, and repeat 3 times.



3. **Hamstring Stretch** - Lie on your back and bring affected leg towards your chest. Grab the back of your thigh and try to extend your leg. Hold this position for 30 to 60 seconds, feeling a stretch in the back of your thigh. Repeat three times. You may also try this with a towel around your foot if it



# Anterior Cruciate Ligament Sprain

is more comfortable.

4. **Quadriceps Stretch** - Stand sideways to a wall, about an arm's length away from the wall, with your injured leg towards the outside. Facing straight ahead, keep the hand nearest the wall against the wall for support. With your other hand, grasp the ankle of your injured leg and pull your heel up toward your buttocks. Do not arch or twist your back. Hold this position for 30 seconds. Repeat three times.



This may also be done while laying on the opposite side and grasping the ankle of the affected leg. Do not arch or twist your back. Hold this position for 30 seconds. Repeat three times.

**Alternative Quadriceps Stretch** - Place affected leg on a sturdy chair or low stool, and place opposite hand on a wall to the side of you. Slowly bend front leg, hold for 30 seconds, repeat 3 times.



5. **Vastus Medialis Oblique Quadriceps Sets** -

Sit on the floor with your injured leg straight in front of you. Press the back of your knee down while tightening the muscles on the top of your thigh. Concentrate on tightening the muscles on the inner side of your kneecap. Hold this position for 5 seconds. Complete 3 sets of 10.



6. **Straight Leg Raise** - Sit on the floor with the injured leg straight and the other leg bent, foot flat on the floor. Pull the toes of your injured leg toward you as far as you can, while pressing the back of your knee down and tightening the muscles on the top of your thigh. Raise your leg six toeight inches off the floor and hold for 5 seconds. Slowly lower it back to the floor. Complete 3 sets of 10.



# Anterior Cruciate Ligament Sprain

7. **Leg Lifts: Abduction** - Lie on your uninjured side and place leaning on the elbow of your uninjured side and using the arm of the injured side in front of you to stabilize your body. Slowly with the injured leg up, hold for 5 seconds then lower slowly. Be sure to keep your hips steady and don't roll forwards or backwards. Complete 3 sets of 10.



8. **Abduction** - Lie on your injured side with your top leg bent and flat foot placed in front of the injured leg, which is kept straight. Raise your injured leg as far as you can comfortably and hold it there for 5 seconds. Keep your hips still while you are lifting your leg. Hold this position for 5 seconds, and then slowly lower your leg. Complete 3 sets of 10.



9. **Prone Hip Extension** - Lie on your stomach. Squeeze your buttocks together and raise your injured leg 5-8 inches off the floor. Keep your back straight. And the hip of the leg you are lifting on the ground. Hold your leg up for 5 seconds, and then lower it. Repeat 10 times. Do 3 sets of 10.



**Do not let your hip roll open as you lift your leg.**



10. **Clamshells** - Lie on your side with your knees slightly bent, keeping your legs and ankles together. Open and close your knees like a clam by lifting your top knee up until its parallel with your hip. Keep your feet together throughout the exercise, move slowly and controlled as if someone is pushing against your knee while you are pressing it up. Complete 3 sets of 10.



# Anterior Cruciate Ligament Sprain

11. **Sidesteps with Theraband** - Place theraband around your ankles and lower down into a half squat with knees bent and toes pointing forwards. Step to the right with your right foot while staying low in your squat position, then bring your left foot in. Repeat 10 times in each direction. Do 3 sets.



## When can I return to my sport or activity?

This depends on whether or not you have a complete tear of your ACL which requires surgery, or a partial tear of the ACL. If surgery is recommended, please refer to the surgical recovery guidelines.

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon, you may worsen your injury, which could lead longer healing times. Everyone recovers at a different rate. Returning to your sport or activity will be determined by how soon your knee recovers, not by how many days or weeks it has been since pain began. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured knee, compared to the uninjured knee
- You have full strength of the injured knee and hip compared to the uninjured knee and hip and are able to complete the above exercises without pain
- You can jog straight ahead without pain or limping
- You can sprint straight ahead without pain or limping
- You can jump on both legs without pain, and you can jump on the injured leg without pain

Return to your sport at about 50% effort, and increase by about 10% each week. Patients should progress slowly with cutting movements. If there is a feeling of your knee giving out on you during these movements, you should make an appointment with your provider. If you begin with pain, you may need to rest for a few days before returning to activities.