

# COLLATERAL LIGAMENT TEAR

Ligaments are those structures within us that connect one bone to another. They are strong bands of tissue that add strength and give stability to a joint.

The collateral ligaments in the knee connect the femur (thighbone) to the tibia (shinbone). They're supposed to limit the side-to-side motion of the knee. But, when they get stretched too far, they can tear.

There are four ligaments in the knee. Two are called collateral ligaments and the other two are cruciate ligaments.

The collateral ligaments, called the MCL for medial collateral ligament and the LCL for lateral collateral ligament are found on the sides of the knees.

The MCL is also known as the tibial collateral ligament. This ligament helps the inner part of our knee to stay stable by connecting the femur to the tibia. The lateral collateral ligament, or LCL, which connects the femur to the fibula, on the other side of the knee can also be torn, but it is less common than the medial collateral ligament. The LCL is also called the fibular collateral ligament.

The two other ligaments, the cruciate ligaments, are crossed over the center of the knee. Often, with a tear of the MCL, the anterior cruciate ligament (or ACL) is also torn.

## Causes of a Collateral Ligament Tear

The cause of an injury to the medial collateral ligament is a blow to the outer side of the knee that pushes the knee inward. This is frequent in contact sports like football or hockey. The blow stretches and most often tears the ligament on the inner side of the knee. Another cause of collateral ligament injury is twisting of a joint in the knee and tearing its ligaments.

To help prevent injuries to collateral ligaments, doctors encourage warming up before participating in sports or exercising. Specifically, one should stretch the quadriceps (muscles in the front of the thigh) and the hamstrings (muscles in the back of the thigh) and work on strengthening the leg muscles. One should also wear properly fitting shoes. In the case a person has flat feet or feet that roll inward, wearing special shoe inserts, called orthotics, is recommended.

The tear may occur in the middle of the ligament, or it may occur where the collateral ligament attaches to the bone, on either end. If the force is great enough other ligaments may also be torn.

Sprains are pulls or partial tears of muscles or ligaments. Ligament sprains vary in severity from minor tears in a few fibers of ligament to complete tears of entire ligaments and loss of the use of a joint. The severity of the tear determines what the injury is graded. When the knee is stressed, a grade I tear is present if the joint space opening is less than 5 millimeters. A grade II sprain is diagnosed if the space is between 5 and 10 millimeters, and a grade III is diagnosed if the space is greater than 10 millimeters. A grade II tear is considered a partial tear, and a grade III is considered a complete tear.

As is often the case with sprains, the pain increases with the seriousness of the sprain. A mild sprain is usually accompanied by minimal pain, tenderness, swelling at the sprain site, and no loss of the use of the joint. With a moderate sprain, the pain may be enough that the patient does not want to use his or her knee. Symptoms of this level sprain also include swelling and some loss of the use of the joint. A severe sprain means severe pain, noticeable loss of the use of the joint and immediate swelling. In some type III injuries the joint capsule and synovia are torn so severely that minimal swelling occurs because the blood leaves through the tear in the capsule and ligament.

## Symptoms of a Collateral Ligament Tear

- Swelling and/or stiffness of the knee
- Pain and tenderness over the ligament
- Instability of the knee when standing or attempting to walk
- May feel “locking” or “popping” of the knee
- May feel knee buckle sideways
- Bruising

In the case of a ligament sprain, the pain increases with the seriousness of the sprain. A mild sprain is usually accompanied by minimal pain, tenderness, swelling at the sprain site, and no loss of the use of the joint. With a moderate sprain, the pain may be enough that the patient does not want to use his or her knee. Symptoms of this level sprain also include swelling and some loss of the use of the joint. A severe sprain means severe pain, noticeable loss of the use of the joint and immediate swelling

### **Treatments of a Collateral Ligament Tear**

X-rays often will show torn ligaments when the knee is stressed. Also, an MRI or magnetic resonance imaging pictures will let physicians look at the soft tissues around the knee to confirm the collateral ligament tear and see if there might be other injuries as well.

An orthopaedic surgeon commonly examines the healthy knee first and then compares it to the injured knee. When diagnosing a collateral ligament injury, the physician puts pressure on the side of the knee to determine the degree of pain and looseness of the joint.

An orthopedic surgeon may also choose arthroscopy, a surgical procedure where the surgeon makes a small incision in the skin. The surgeon then inserts a tiny instrument, an arthroscope, which contains a small lens and lighting system to magnify the structures inside the joint. A miniature television camera is attached to the arthroscope to display the image of the joint on a television screen. This allows the surgeon to determine the type of injury and repair the problem.

All MCL injuries are likely to heal so treatment is usually conservative. The average healing time for a grade I sprain is two weeks if the patient sticks to a program of resting, icing, using compression and elevating. A patient should ice for twenty to thirty minutes, three to four times per day for one week or until his or her symptoms are gone. A doctor may prescribe anti-inflammatory medicine and may even order the patient to use crutches. Treatment for grade II and III sprains is similar to that for a grade I sprain, with the addition of a hinged brace and some weightbearing if the patient can tolerate the pain associated with it. With a grade III sprain, healing may take up to four weeks. The physician may recommend a rehabilitation program.

In the case of a grade I or II collateral ligament tear, doctors are likely to brace the knee for four to six weeks. A grade III tear may require surgery and then three months of bracing. Physical therapy may be necessary before resuming full activity.

Instability of the knee following a collateral ligament injury is uncommon. However, chronic pain and a proneness to re-injure the knee may occur.

When the sprain is also a tear, most likely, you'll need a brace. In the case of a grade I or II collateral ligament tear, the brace will be worn for four to six weeks. Physical therapy may be necessary before resuming full activity. At the beginning the therapy will work on range of motion and as your healing progresses, you'll do more, including bicycling to restore the full range of motion. Quadriceps exercises are also important. The quad muscles, located in your thigh, can be used to strengthen the knee joint.

If the knee is still sore when therapy begins, the exercises need to be done slowly and carefully so as not to irritate the injury even more. Once you learn the exercises, you can do them at home and this will help improve the motion. As the pain decreases, you can begin more exercises, including lots of stretching.

For severe grade III tears, or when other injuries are also present, surgery and then three months of bracing may be needed.

### **Surgery for Collateral Ligament Tear**

One reason knee surgery is recommended is to avoid later problems with knee instability. We use our knees to help stand, sit, walk - just about everything. And instability leads not only to inconvenience, but also to falls that could then cause other injuries.

Surgery to repair a torn collateral ligament is not overly complex. Usually, the orthopaedic surgeon makes a small incision over the area where the tear is. Then, either stitches or staples are used to fix the tear. For instance, if the ligament has completely torn away from the bone, it needs to be reattached. Staples are pretty useful for that. On the other hand, if the ligament is still attached to the bones but has tears in the middle, stitching it back together is usually all that is required.

The rehabilitation process is a bit longer after surgery of course. But, it still begins with strengthening exercises. A set of exercises called closed kinetic exercises may be used. These exercises require that your foot stay firmly on the floor while you move your body in various ways to use the muscles around the knee. This builds those muscles up, but doesn't put stress on any of the ligaments in the area. Stepping and squatting are some examples. Again, range of motion exercises will also be important. And bicycling is one of the best. And the quadriceps exercises will also be done.

Instability of the knee following a collateral ligament injury is uncommon. However, chronic pain and a proneness to re-injure the knee may occur. If chronic instability does become a problem, the surgical reconstruction might be necessary. This procedure works to tighten or replace loose ligaments. Most often this is done with a tendon graft.

### **Possible Complications of Collateral Ligament Tear Surgery**

As with any surgery, you must weigh the risks and potential benefits, and decide whether or not to have the surgery performed. Because this is not a life or death decision, it is solely your decision to make.

Some of the potential complications include:

- Injury to nerves and blood vessels
- Chronic pain

In addition, surgery to repair a torn ligament carries with it the normal risks of any elective surgery, including:

- Risks of anesthesia, including death
- Excessive bleeding
- Blood clots
- Infection

You should carefully consider these risks along with the possible advantages of the surgery, and weigh them carefully. Because the rehabilitation process requires so much effort on your part, it is important that you have a positive attitude if you decide to have the surgery.

A successful repair of a torn ligament can mean a return to activity that you may have given up because of pain, but only after a long recovery process that will require a great deal of work and rehabilitation.

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