



## Meniscal Injuries

In the knee, there are areas of cartilage tissue which act like shock absorbers in the joint - these are called menisci. There are also areas of cartilage covering the ends of the long bones at the knee joint - these are called articular cartilages. Both of these areas of cartilage may become damaged causing significant problems for patients.

Each knee joint contains an inner and outer meniscus (medial and lateral meniscus). These are thick rubber-like pads of cartilage tissue. They are C-shaped and become thinner towards the middle of the joint. The meniscal cartilages sit on top of, and are in addition to, the usual thin layer of cartilage which covers the top of the tibia. The menisci act like shock absorbers to absorb the impact of the upper leg on the lower leg. They also help to improve smooth movement and stability of the knee.

When people talk about a cartilage injury to a knee, they usually mean an injury to one of the menisci. However, the knee also has cartilage covering the ends of the bones in the joint - this is called articular cartilage - and damage can occur here as well. The areas of articular cartilage can be seen in the side view of the knee joint in the diagram above.

### Meniscal cartilage injuries

The knee is commonly injured in sports, especially rugby, football and skiing. You may tear a meniscus by a forceful knee movement whilst you are weight bearing on the same leg. The meniscus may tear fully or partially. How serious the injury is depends on how much is torn and the exact site of the tear.

Meniscal tears may also occur without a sudden severe injury. In some cases a tear develops due to repeated small injuries to the cartilage or to wear and tear (degeneration) of the meniscal cartilage in older people. In severe injuries, other parts of the knee may also be damaged in addition to a meniscal tear. For example, you may also sprain or tear a ligament.

Meniscal cartilage does not heal very well once it is torn. This is mainly because it does not have a good blood supply. The outer edge of each meniscus has some blood vessels, but the area in the centre has no direct blood supply. This means that although some small outer tears may heal in time, larger tears, or a tear in the middle, tend not to heal.

### What are the symptoms of a meniscal tear?

The symptoms of a meniscal injury depend on the type and position of the meniscal tear. Many people have meniscal tears without any knee symptoms, especially if they are due to wear and tear (degeneration).

- **Pain.** The pain is often worse when you straighten the leg. If the pain is mild, you may be able to continue to walk. You may have severe pain if a torn fragment of meniscus catches between the tibia and femur.
- **Swelling.** The knee often swells within a day or two of the injury. Many people notice that their knee is slightly swollen for several months if the tear is due to degeneration.
- **Knee function.** You may be unable to straighten the knee fully. In severe cases you may not be able to walk without a lot of pain. The knee may lock from time to time if the torn fragment interferes with normal knee movement. Some people notice a clicking or catching feeling when they walk. (A locked knee means that it gets stuck when you bend it and you can't straighten it without moving the leg with your hands.) A 'clicking' joint (especially without pain) does not usually mean you have a meniscal tear.

For some people, the symptoms of meniscal injury go away on their own after a few weeks. However, for most people the symptoms persist long-term, or flare up from time to time, until the tear is treated.

### How is a meniscal tear diagnosed?

- Your doctor may sometimes advise an X-ray of the knee - but this is often not necessary. An X-ray will not show cartilage tissue, but it can check for any bone damage which might have also occurred with the injury.
- The diagnosis can be confirmed by an MRI scan of the knee.

### What is the treatment for a meniscal tear?

When you first injure your knee the initial treatment should follow the simple PRICE method:

- **Protect** from further injury.
- **Rest**
- **Ice** (Compression (with a bandage, and use a knee brace or splint if necessary).
- **Elevation** (above the level of the heart).



These actions, combined with painkillers, help to settle the initial pain and swelling. Further treatment will then depend on:

- The size of the tear.
- The severity of symptoms.
- How any persisting symptoms are affecting your life.
- Your age.
- Your general health.

### Non-operative treatment

Small tears may heal by themselves in time, usually over about six weeks. Some tears which do not heal do not cause long-term symptoms once the initial pain and swelling subside, or cause only intermittent or mild symptoms. In these cases, surgery may not be needed. You may be advised to have physiotherapy to strengthen the supporting structures of the knee, such as the quadriceps and hamstring muscles.

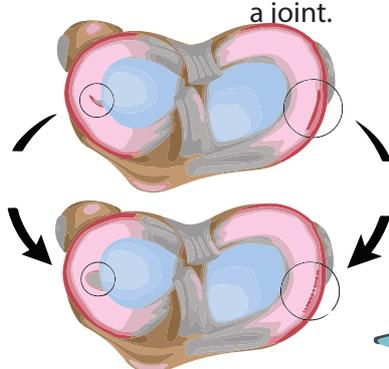
### Surgery

If the tear causes persistent troublesome symptoms then an operation may be advised - although evidence for the benefit of some types of surgery is variable. Most operations are done by arthroscopy (see below). The types of operations which may be considered include the following:

- The torn meniscus may be able to be repaired and stitched back into place. However, in many cases this is not possible.
- In some cases where repair is not possible, a small portion of the meniscus may be trimmed or cut out to even up the surface.
- Sometimes, the entire meniscus is removed.

### Arthroscopy

This is a procedure to look inside a joint by using an arthroscope. An arthroscope is like a thin telescope with a light source. It is used to light up and magnify the structures inside a joint. Two or three small (less than 1 cm) cuts are made at the front of the knee. The knee joint is filled up with fluid and the arthroscope is introduced into the knee. Probes and specially designed tiny tools and instruments can then be introduced into the knee through the other small cuts. These instruments are used to cut, trim, take samples (biopsies), grab, etc, inside the joint. Arthroscopy can be used to diagnose and also to treat meniscal tears.



### Exercises

The aim of these exercises are to:-Reduce pain and swelling, Regain range of motion in your knee, Regain strength (quadriceps and hamstrings) Minimise chance of re-injury

**Passive knee extension:** Do this exercise if you are unable to extend your knee fully. While lying on your back, place a rolled-up towel under the heel of your injured leg so the heel is about 6 inches off the ground. Relax your leg muscles and let gravity slowly straighten your knee. Try to hold this position for 2 minutes. Repeat 3 times. You may feel some discomfort while doing this exercise. Do the exercise several

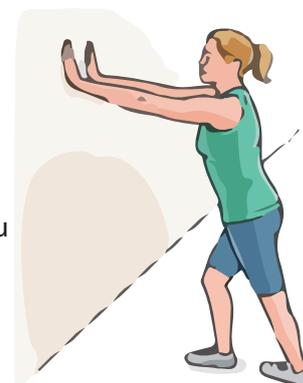


This exercise can also be done while sitting in a chair with your heel on another chair or stool.

**Heel slide:** Sit on a firm surface with your legs straight in front of you. Slowly slide the heel of the foot on your injured side toward your buttock by pulling your knee toward your chest as you slide the heel. Return to the starting position. Do 2 sets of 15.



**Standing calf stretch:** Stand facing a wall with your hands on the wall at about eye level. Keep your injured leg back with your heel on the floor. Keep the other leg forward with the knee bent. Slowly lean into the wall until you feel a stretch in the back of your calf. Hold the stretch for 15 to 30 seconds. Return to the starting position. Repeat 3 times. Do this exercise several times each day.



**Hamstring stretch on wall:** Lie on your back with your buttocks close to a doorway. Stretch your uninjured leg straight out in front of you on the floor through the doorway. Raise your injured leg and rest it against the wall next to the door frame. Keep your leg as straight as possible. You should feel a stretch in the back of your thigh. Hold this position for 15 to 30 seconds. Repeat 3 times.

