

Knee Meniscal Cartilage 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. The meniscal cartilage may become damaged or torn causing significant problems for patients.

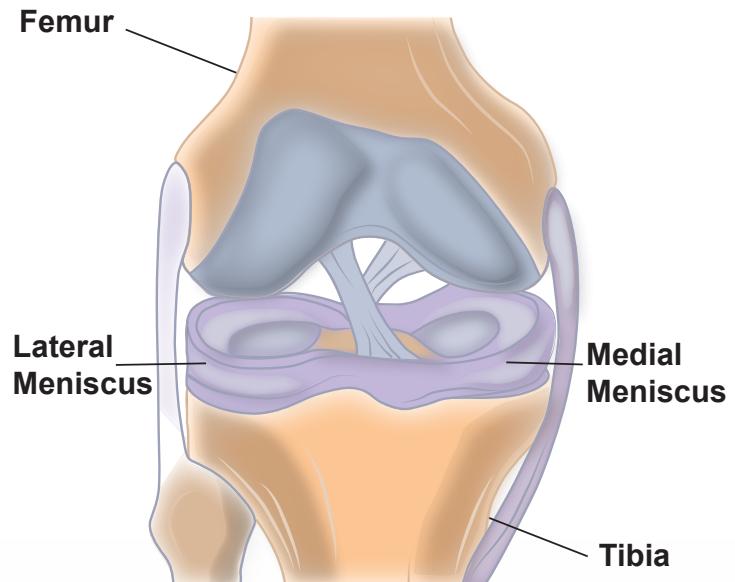
The knee joint

The diagram right illustrates the knee joint.

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 between the thin layer of articular cartilage which covers the bottom of the femur and 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 meniscal cartilages.



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 classical injury is for a footballer to twist (rotate) the knee whilst the foot is still on the ground - for example, whilst dribbling round a defender.

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 from a minor twisting injury, for example when walking, or it may even occur without any injury at all due to wear and tear (degeneration). This is particularly the case as you get older, from age 40 upwards.

In more 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 such as the Anterior Cruciate Ligament.

What are the symptoms of a meniscal tear?

The symptoms of a meniscal tear depend on the type and position of the meniscal tear. Many people have meniscal tears with only mild or even no 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, especially if the tear is due to wear and tear (degeneration).

Knee function. You may be unable to straighten the knee fully (locking). 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.)

Note: a 'clicking' joint (especially without pain) does not usually mean you have a meniscal tear.

For most people, the symptoms of meniscal tear go away on their own after a few weeks, especially in older patients when there has been no injury or the tear happened after a minor twist. For some people the symptoms persist long-term, or flare up from time to time, until the tear is treated.

How is a meniscal tear diagnosed?

The story and symptoms often suggest a meniscal tear. A trained healthcare professional will examine the knee. Certain features of the examination may point towards a meniscal tear.

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. It can also be useful to diagnose arthritis. 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 (crutches for the initial 24-48 hours).

Ice (apply ice (wrapped in a towel, for example) to the injured area for 20 minutes of each waking hour during the first 48 hours after the injury).

Compression (with a bandage, and use a knee brace or splint if necessary).

Elevation (raise your leg above the level of the heart).

These actions, combined with painkillers will 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-surgical treatment

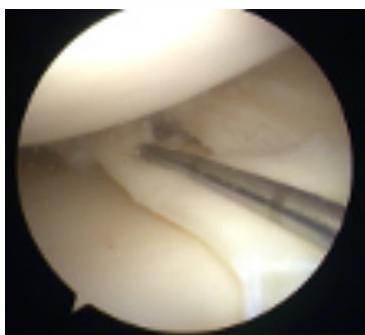
The vast majority of patients with meniscal tears do not need surgery. Small tears usually heal by themselves in time, usually over about six weeks. Some tears which have not healed do not cause long-term symptoms once the initial pain and swelling have gone down, or cause only intermittent (now and again) or mild symptoms. In these cases, you will not need surgery. We may advise you to have physiotherapy to strengthen the supporting structures of the knee, such as the quadriceps and hamstring muscles. It is important to exercise and to encourage a normal walking pattern.

In general, tears in patients over the age of 40, which happen with either no injury or only a minor injury are small and will usually heal and not cause long-term symptoms. However, many will take longer than the 6 week average healing time.

Recent studies have shown that there is no benefit in having surgery for patients with meniscal tears over the age of 40, and there are of course some risks with surgery.

Surgery

If the tear causes persistent troublesome symptoms then an operation may be advised – although, as noted above, there is no evidence for the benefit of surgery in some patients. 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.

Rarely, the entire meniscus is removed.

Meniscus cartilage at the time of arthroscopic knee surgery

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. You will be given a general (or sometimes a spinal) anaesthetic. 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 placed 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, or repair the meniscus inside the joint.

Following surgery, you will have physiotherapy to keep the knee joint active (which encourages healing) and to strengthen up the surrounding muscles to give support and strength to the knee.

Risks

In general arthroscopic keyhole knee surgery is very safe, but as with all surgeries, there is a small risk of complications or problems occurring:

- Deep vein thrombosis and pulmonary embolus:
Although blood clots are rare following arthroscopic surgery, the risks are increased with obesity, immobilisation of the limb, smoking and the oral contraceptive pill or hormonal replacement therapy

You should tell your surgeon about any past history of thrombosis before your surgery. If applicable, you should stop the oral contraceptive pill, hormonal replacement therapy and smoking one week before your surgery to reduce the risks.
- Excessive bleeding resulting in a haematoma is known to occur especially with patients taking non steroidal anti-inflammatory drugs. You should stop non steroidal anti inflammatory drugs at least one week before your surgery.
- Infection: Surgery is carried out under strict germ free conditions in an operating theatre. There is a less than 1 in 200 chance of developing an infection within the joint. This may need treatment with antibiotics or being admitted to hospital and further surgery to wash out the joint. You may need ongoing antibiotics and your healing may be delayed. The risk of infection is increased in patients with diabetes, who are obese and smokers.
- Pain and swelling: In rare cases your knee may become more painful and swollen after the surgery. This usually settles with rest, ice, and anti-inflammatory medications.
- Wound tenderness: commonly the small scars at the front of the knee where the camera and instruments are inserted are irritable and slightly swollen. This often makes kneeling uncomfortable. This normally settles after a few months.
- Complications related to a General anaesthetic. These are very rare following knee arthroscopy surgery. The anaesthetist will discuss this with you before your surgery.

Advice about managing your painful knee

You should do these exercises little and often (e.g. 3 times a day, perhaps 5-10 repeats) and gradually increase as able. The aim is to feel tried as though you have worked your knee joint without a large increase in pain. It may take some time before you feel they get easier.

Early mobilisation exercises:

Over the side of bed or chair:

1. In a sitting position with heel on the floor (using socks on a shiny floor or a plastic bag on foot on carpet can be helpful to make the surface slippery), gently try to bend and straighten your knee. By pushing the heel gently into the floor you will feel your muscles working more. In time your knee will move further. Try to do these 5 times a day, perhaps 5-10 repeats).

Try and straighten your knee with your heel on the ground.



Gently push your heel into ground and bend your knee



Keep bending as able, then straighten again



Lying on bed

2. Place a rolled up towel under your knee so it is comfortable. Contract your thigh muscle and push into the towel, attempting to straighten your knee by lifting your heel off the bed. Hold for 5-15 seconds. Fully relax in between repetitions. Try to do this 5 times a day, perhaps 5-10 repeats). As this improves it will be easier for your heel to raise up off the bed.

Lift your heel off the bed



Try and straighten your knee



3. Sit with your feet securely on the floor then stand up. Initially it is easier from a higher chair. As pain allows take more weight on the painful side during the exercise. When standing, try and straighten knee. Then slowly sit down again being conscious to bed knee as you return to sitting. Try to do these 5 times a day, perhaps 5-10 repeats.

Slowly stand up



Straighten your knee



More advanced exercises when your knee becomes more comfortable:

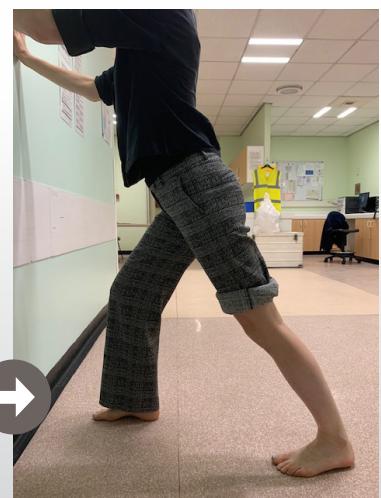


Standing with one foot on a step slowly step up using the muscles around your knee then slowly return to starting position.
Repeat until your leg is tired and repeat on the other side. Use a banister for support if required.



Using a wall for support. With knees as straight as possible gently lift heels off the ground. Lift up for a count of 3 then gently lower for a count of 3. Repeat until tired. After a short rest try again.

Using wall for support place one foot behind with knee straight and heel on the floor until you feel a stretch at the back of your leg. Hold for 15 and repeat 5 times. Repeat on the other side.





Lying on your back on the bed or floor. Support one thigh with your hands and try and straighten your knee. Also flex your foot as in the picture. Once you feel the stretch in the back of your leg hold for 15 seconds and repeat 5 times. Repeat on the other side



Lying on your back push up through your heels and squeeze buttocks. Relax your arms. Hold for 5 to 10 seconds then relax back to starting position. Repeat until tired.

To watch exercise videos please click links:

https://www.youtube.com/playlist?list=PL2ImFPTW5XjyPuDJTPjeqC_Qj9qeZHbs2

<https://www.nhs.uk/conditions/sprains-and-strains/>

