The Cartilage or Menisci

Each knee joint contains a medial and lateral meniscus (inner and outer side of the knee). These are thick 'rubbery' pads of cartilage tissue. They are C shaped and act as 'shock absorbers' to absorb the impact of the upper leg on the lower leg and also help to improve the 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.

Meniscus/Cartilage Injury

The menisci are most often injured in sports, such as rugby, football and skiing; normally by a forceful knee movement whilst weight-bearing on the same leg. The classic injury is to twist the knee whilst the foot is still on the ground. The meniscus may tear fully or partially. How serious the injury is depends on how much is torn and the 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 due to degeneration ('wear and tear') in older people. They may also be damaged in association with a severe injury such as a bad ligament sprain or fracture.

Menisci do not generally heal very well once they are torn as they don’t have a very 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 of a meniscus, are less likely to heal. However this does not mean they will continue to be a problem as the symptoms often settle with time even if the meniscus does not heal.

What are the symptoms of a meniscus 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.

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 or twinges if a torn fragment of meniscus catches in the joint.
Swelling
The knee often swells within a day or two of the injury. Many people notice that slight swelling often persists for several months.

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.

Note: A ‘clicking joint’, especially without pain, does not usually mean you have a meniscal tear.

For many people the symptoms can ease on their own after a few weeks. However, some people have persistent problems until the injury is appropriately treated.

How is a meniscus tear diagnosed?

The history and symptoms are often enough to suggest a meniscal injury, however some features of the clinical examination can assist in the diagnosis. Sometimes a characteristic ‘clunk’ is felt during certain manoeuvres and the joint is often painful when pressed on the side of the tear.

An x-ray can be taken to assess for any bone damage that may have occurred as part of the injury, however this is often not required.

The diagnosis can be confirmed by an MRI scan of the knee or, occasionally, by arthroscopy ('keyhole surgery' - see further down.). These are only needed if symptoms are not improving.

What is the treatment for a meniscus tear?

When you first injure your knee the initial treatment should follow the PRICE principle: Protection, Rest, Ice, Compression and Elevation. This, combined with painkillers, helps to settle the initial pain and swelling. Further treatment may then depend on the size of the tear, the severity of symptoms, how any persisting symptoms are affecting your life, your age and your general health.

Non-operative treatment
Most small tears may heal by themselves in time; however the length of time may vary. Typically this can take from 6 - 12 weeks or up to six months for some people. Physiotherapy is often recommended to help strengthen the supporting muscles around the knee, restore any loss of movement and assist in regaining any lost function.
Physiotherapy

Physiotherapy is aimed at strengthening the supporting structures of the knee such as the quadriceps and hamstring muscles which will help to stabilize the joint. It is vital to restore any loss of movement and the joint must be fully rehabilitated before sporting activity is resumed.

Self Help exercises

The following exercises can be useful for treating a meniscal injury or rehabilitating the knee after surgery if this is needed.

Quadriceps tensing

The quadriceps sits on the front of the thigh and is the main muscle that controls the knee. For normal knee function it is essential that the quadriceps muscle remains strong and well-conditioned. The stability of the knee largely depends on this muscle.

The quadriceps, along with the buttocks, are the main muscles which allow us to go up and down stairs, rise from a chair and walk normally.

Lie with your leg out straight. Tense up the thigh muscles, trying to push the knee down and raise the heel. Hold that for 10-20 seconds.

Try not to tense up the buttock muscles. You should be able to see the muscles on the front of the thigh tensing up and the kneecap move.

Repeat 10 times.

Inner range contractions

Place a small object under your knee such as a rolled up towel, then keep the knee on the roll while you lift the heel. Try and get the knee completely straight without raising the knee from the roll. This will ensure the muscle is contracted properly.

If this is difficult, start with a larger roll so you can get your heel up. As the roll gets smaller the exercise gets harder. You can progress your ability this way.

Repeat 10 times.
**Prone knee bends**

Lie on your front. Keeping your thigh down, bend your knee as far as you easily can. Hold for 5-10 seconds.

This is more difficult because one of the knee muscles is tighter on your front.

**Repeat 10 times.**

**Straight leg raise**

Keep your knee absolutely straight and lift the leg up six inches/18 cm off the surface.

Hold for 5-10 seconds then lower.

**Repeat 10 times.**

**Knee bending**

Knee bending is important for normal life. We need 70 degrees for normal walking and 110 degrees to go up and down stairs.

Bend your knee as far as it can easily go, making sure you get to the end of the movement. Hold for 5-10 seconds then straighten and repeat.

**Try 3 x 10 repetitions.**

**Surgery**

If the injury causes persistent troublesome mechanical symptoms, such as the knee locking, then an operation may be advised. Most operations are done by arthroscopy (keyhole surgery) and are typically day cases. Possible operations include:

- In some cases the torn meniscus may be repaired and stitched back into place
- If repair is not possible a small portion of the meniscus may be trimmed or cut out to even-up the surface
- Occasionally, the entire meniscus is removed

**Post-operative recovery**

Full recovery following meniscal surgery typically takes around six weeks, however this can vary depending on the operation. Initially the aim is to reduce any pain and swelling, and exercises are often provided to help build up muscle strength and regain full range of knee movement. Sometimes physiotherapy is recommended.