

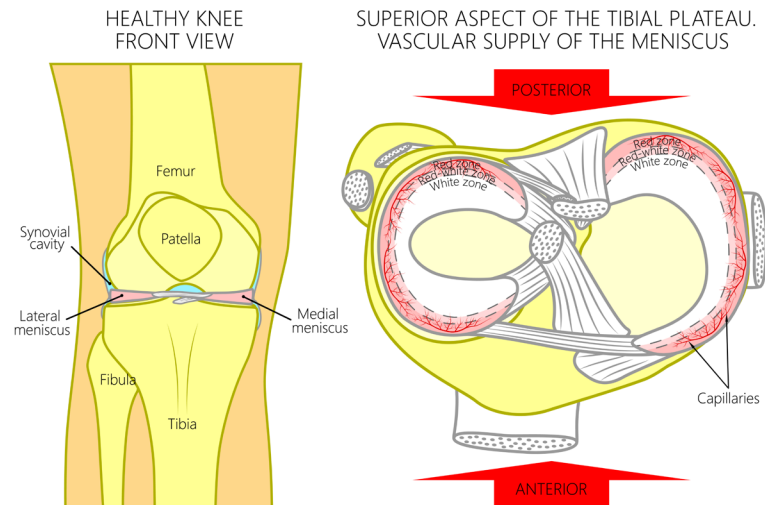
Knee arthroscopy

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Knee arthroscopy ('key-hole' surgery) is a common orthopaedic procedure that is used to treat a wide range of conditions that may affect the knee. These include injuries to the cartilage (lining of the knee), ligaments (soft tissue structures connecting the various bones) and the meniscus (shock absorbers of the knee).

In the treatment of cartilage and meniscal injuries, the operation is usually performed as a day surgery procedure. It is done under a general anaesthetic.

The procedure involves 2 or more stab incisions being made around the knee. The knee is then filled with fluid and distended, to allow the safe introduction of specialized instruments. An arthroscope (small telescope with a camera) is inserted into the knee and the structures within the knee are inspected and photographed. The pathology is directly visualized and treated.



Knee anatomy and blood supply of meniscus

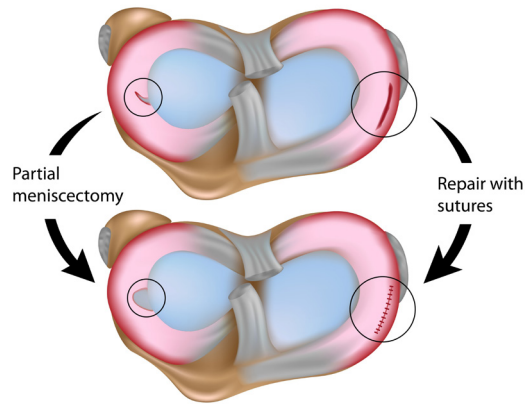
Meniscus injury

The menisci function as 'cushions' within the knee joint by dissipating the forces that pass through the joint during normal activities such as walking, running, jumping, squatting or climbing stairs. This in turn protects the underlying cartilage, which is the lining of the knee joint.

There are 2 menisci, the medial meniscus (inner compartment) and the lateral meniscus (outer compartment). In cross section, they are C-shaped. The blood supply of the meniscus is predominantly on the periphery and becomes less centrally. The blood supply to the meniscus also regresses after the second decade of life and the more central portion becomes avascular (no blood supply).

Broadly speaking, meniscal tears can be degenerative or traumatic. These can be further categorized based on the appearance of the tear. Degenerative tears generally occur from the fifth decade of life and are atraumatic. Traumatic tears commonly happen as a result of twisting injuries to the knee. This can happen during a simple stumble and fall or while playing sport.

A meniscal tear is usually painful. It can be localized along either the inner or outer aspect of the knee,



Meniscal tear treatment

depending on which meniscus is torn. There is often pain along the back of the knee also. The pain is activity related and made worse by certain activities, such as squatting, running and climbing stairs. The torn portion of the meniscus is basically 'squashed' between the femur (thigh bone) and tibia (shin bone) when the knee goes into deep flexion or when large forces go through the knee, causing pain. Certain tears may propagate and become larger. There may be 'clicking' in the knee and the knee may lock, if there is a large tear that becomes displaced.

Tears may be repaired or excised (partial meniscectomy), based on the type of tear. Traumatic tears in younger patients are generally repaired. The torn ends are stitched together using strong suture material. Some tears may require a separate and slightly larger incision to repair but most tears can be treated arthroscopically. Irreparable tears are excised. A portion of the meniscus is thus lost, but this excised area had already lost its function, due to the tear. Degenerative tears are irreparable.

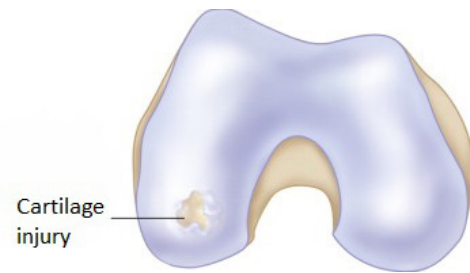
Knee arthroscopy for degenerative meniscal tears are now being done less frequently due to an increasing amount of scientific evidence suggesting that these type of tears often respond just as well to physiotherapy as they do to surgery. Thus generally speaking, for these types of tears, a good trial of physiotherapy should be the first line of therapy and surgery should only be considered if this fails.

The recovery from meniscal surgery depends on whether a partial meniscectomy or a repair was performed. With a partial meniscectomy, full weight bearing commences immediately. The knee is not braced and crutches are used for comfort only. These are discontinued as soon as possible. Deep squats are avoided for the first 6 weeks. Driving starts as soon as comfort allows. The recovery time is around 6 weeks. If a repair is performed, then a hinged knee brace is worn for up to 6 weeks. Crutches will have to be used for up to 6 weeks also, as the amount of weight that can be taken through the operated leg will be restricted, to protect the repair. The recovery time is 12 weeks, for a repair. In either scenario, physiotherapy commences straight away and continues for 6 to 12 weeks

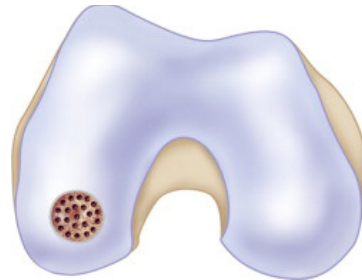
Cartilage injury

The knee is lined by cartilage. When cartilage is lost, the underlying bone is exposed. This is painful as the surfaces of the knee are no longer congruent throughout the range of motion. When there is widespread cartilage loss throughout the knee joint, the condition is known as arthritis. Generally speaking, knee arthroscopy is not indicated to treat pain arising from an arthritic knee.

A focal area of cartilage loss is known as an osteochondral injury if due to trauma or osteochondritis



Osteochondral injury



Microfracture

dissectans if atraumatic. This can be treated with arthroscopic surgery. Microfracture to the lesion is usually performed. Small holes are created in the base of the lesion. This causes bleeding into the defect. The blood contains stem cells that reside in the layer of bone just beneath the joint. The blood solidifies to form a clot which subsequently transforms into cartilage over a period of months. Biologic agents may also be injected into the defect at the same time to serve as a scaffold to help contain the blood clot. A knee brace is worn for up to 6 weeks after this form of surgery and crutches are used for the same period of time. Driving is generally discouraged for 6 weeks.

If the area of cartilage loss is too large for microfracture or if the microfracture fails, then other procedures such as cartilage or bone plug transplantation may need to be considered. Microfracture is generally the first line of surgical treatment for cartilage injury however.