

Meniscal transplants

Anatomy & disease process

The meniscus is a cushioning cartilage in your knee. It has a function to protect the smooth cartilage lining the joint. It protects this cartilage by sharing the weight, acting as a cushion between the two sides of the joint and increasing the conformity of the joint.

Without a functioning meniscus there is an increase risk of developing wear and tear of that smooth joint surface cartilage. When this wear is significant it is called arthritis.

If a meniscus is defunctioned by a tear, then every attempt should be made to repair the torn meniscus to its functional state. Unfortunately this is not always possible, as some tears are irreparable, or fail attempted repair. In which case partial meniscectomy may be required to achieve symptom resolution.

Unfortunately, a small percentage of patients continue to experience pain after arthroscopic meniscectomy. Usually this can still be treated with a prolonged and focused course of physiotherapy, analgesia optimisation, weight control, gait patterning optimisation and compressive braces.

However, a meniscal deficient knee may still lead to increased contact pressures with the affected part of the knee. This in turn may lead to pain and swelling.

Investigation

X-rays, long leg alignment x-rays and MRI (of both knees) are required prior to operative treatment. Sometimes a bone scan is necessary.

Non-surgical treatment

A prolonged course of physiotherapy, strengthening (including core and hip muscles) and muscle patterning re-training are required prior to considering surgery. This usually involves over a year of rehabilitation. There are roles for braces, injections and other adjunctive treatments prior to surgery.

Surgical treatment

The ideal candidate for meniscal transplant has pain and swelling, with little arthritis, in an otherwise stable and well aligned knee, after an appropriate course of strengthening, physiotherapy and non-operative management. This situation is rare.

Often the knee is unstable or mal-aligned, in the meniscal deficient knee.

In such a case, knee stabilisation and re-alignment osteotomy may be required either concurrently with, or as a staged procedure, to meniscal transplant.

The aim of meniscal transplant is symptom (pain and swelling) resolution. Unfortunately, evidence does not exist to support the philosophy that meniscal transplant may avoid long term arthritis. Symptoms may also return with time.



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Meniscal transplant requires an organ donor derived bone and meniscus graft to be available. This needs to be size matched to each patient. Unfortunately this can lead to a long wait for an appropriately sized transplant.

The procedure is performed predominantly via key-hole surgery, with small open incisions required to tie some sutures deep to the skin. A bony core (around the root attachments of the transplanted meniscus) is inserted into bone tunnels in the tibial surface. Multiple meniscal sutures are required to hold the meniscus against its bony and soft tissue bed.

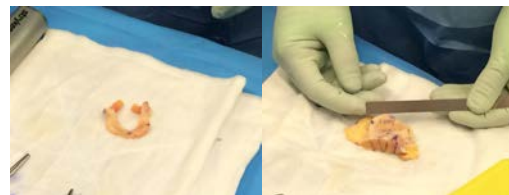
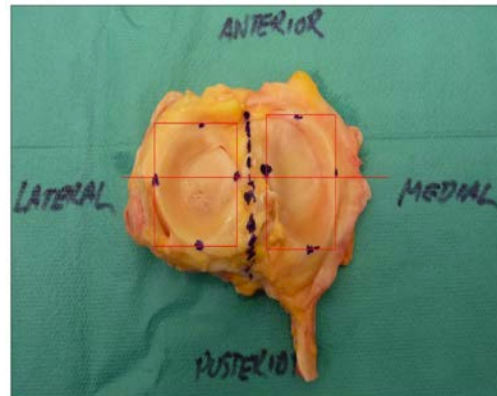
Unfortunately meniscal transplants have a limited lifespan before symptoms return. Arthritis is a likely progress.

Complications of meniscal transplant surgery can include infection, numbness, blood clots, rejection of the graft, failure to resolve pain, recurrent meniscal tears, and, (rarely) disease transmission such as HIV, Hepatitis B or C (1 in 8 million).

Rehabilitation / Recovery

The transplanted meniscus needs to heal to the patient's own bone and tissues. A prolonged healing and rehabilitation period is required. As such, a period of non-weight bearing for 6 weeks in a hinged knee brace is required. This is followed by a graduated return to weight-bearing and strengthening. After meniscal transplant a return

to impact or pivoting sports is not advised.



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