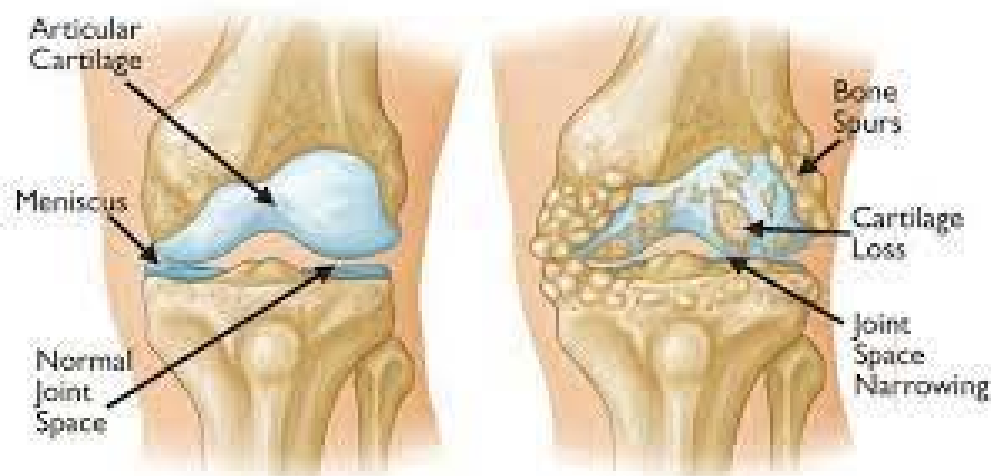




Osteoarthritis of the knee

What is osteoarthritis?

The surfaces of the knee joint are covered in cartilage. This cartilage provides a smooth articulating surface for when the knee joint bends and straightens. It also helps to distribute forces through the knee during weight bearing. Osteoarthritis is loss of these normal cartilage surfaces. Several factors contribute towards the development of osteoarthritis, including genetic susceptibility, previous injuries, general wear and tear over time, and the anatomical alignment of your leg.



What are the symptoms of osteoarthritis?

Pain: As your cartilage surfaces become thinner, knee function deteriorates. The normal force distribution through the knee is altered, creating excessive pressure in areas of cartilage loss. Eventually, the normal joint space between the femur and tibia narrows. This leads to **pain**, particularly with weight bearing activities. With increasing severity, the knee may become painful at

rest or in bed at night. The location and extent of cartilage loss may determine whether pain is felt in an isolated location (eg only on the inner aspect of the knee) or diffusely throughout the knee.

Crepitus: As cartilage thins, the underlying bone becomes exposed, creating an uneven surface for joint movement. This can create a grinding feeling with joint movement (crepitus).

Reduced range of motion: Bony spurs can form, which may lead to a reduced range of motion in the knee.

Reduced quality of life: All of the above symptoms may eventually diminish your quality of life and ability to comfortably do normal daily activities eg walking.

What are the treatment options?

There are numerous non-surgical options which should be trialled prior to considering surgery. Where these are unsuccessful, surgery may be appropriate.

Physical treatments:

- **Weight loss:** if you are overweight, diet and weight loss is an important way of reducing the forces going through your arthritic knee. It also helps to reduce your surgical risk if you end up requiring surgery.
- **Low-impact exercise:** helps to maintain your knee range of motion, strengthen the muscles around your knee and aids in weight loss. Cycling and swimming are excellent ways to exercise whilst minimising impact through your knees.
- **Physiotherapy:** helps to improve strength in the muscles around your knee.
- **Walking aids:** eg walking stick. May reduce the severity of symptoms with prolonged weight bearing.
- **Modification of your activities:** avoid activities which load your knees excessively eg jumping, squats, lunges.
- **Off-loading knee brace:** osteoarthritis is often associated with an abnormality in the alignment of your leg (eg excessively bow-legged or knock kneed). Where this is the case, custom-fitted specialised braces which aim to correct this malalignment may be useful. Unfortunately, these braces can be expensive (approx. \$1000).

Medications and injections:

- **Analgesia (pain-killers) and anti-inflammatories:** analgesics and anti-inflammatories will not reverse osteoarthritis, but may help to manage the symptoms. I would recommend at least trialling regular simple analgesia (eg 1g paracetamol 3-4 times daily) which is safe and inexpensive. If this is insufficient, anti-inflammatories (eg ibuprofen, voltaren, mobic, celebrex) may be appropriate for pain relief in the short term. Stronger pain-killers (eg tramadol, tapentadol, oxycodone) can be trialled, however these may have side-effects and some may cause dependence.
- **Vitamins and supplements:** there is no strong evidence to support the use of vitamins and supplements for osteoarthritis. Some studies suggest that glucosamine, chondroitin and capsaicin may provide some mild benefit with few side-effects.

- Knee joint injections: various knee joint injections are available. These include cortisone, hyaluronic acid (eg Durolane, Synvisc) and platelet-rich plasma (PRP). Each of these have been shown to have mild-moderate benefit in some (but not all) patients for up to 6 months. The evidence is not strong however (ie other studies have found minimal benefit). If you try one of these and find it effective, the injection can be repeated after 3-6 months. Unfortunately, hyaluronic acid and PRP may be expensive. In addition, if you are considering knee replacement surgery, you will need to wait 3-6 months since your last injection before proceeding with surgery.
- Stem-cell injections: there is NO evidence to suggest any benefit for knee osteoarthritis. Therefore, I would recommend against this.

Surgical options:

- Arthroscopy: although this was performed commonly in the past, keyhole surgery to do a “clean-up” of an arthritic knee is rarely beneficial. Some people with specific knee pathology may benefit, but arthroscopy will not reverse your arthritis.
- Osteotomy: refers to surgery that offloads the arthritic part of the knee by cutting the tibia (shin-bone) or femur (thigh-bone) and realigning the leg. This may be appropriate in a younger patient (usually < 50 years old) with arthritis localised to only one part of their knee.
- Unicompartmental knee replacement: may be a good option for older patients with arthritis localised to the inner aspect of their knee. In this operation, only 1 of the 3 compartments of the knee joint is replaced with a prosthesis, and patients tend to have more normal knee function than if they have a total knee replacement. Please note however, that only ~10% of patients with arthritis, fit the criteria for this procedure.
- Total knee replacement: the most common surgical procedure for treating osteoarthritis. The cartilage surfaces of the knee are removed, and replaced with a metal and polyethylene prosthesis.