



Knee arthritis

What is it?

Arthritis of any joint is the loss of the smooth lubricating and shock absorbing cartilage of the joint. This joint cartilage is called articular cartilage. The cartilage can be damaged for many reasons, however the most common cause is **osteoarthritis**. This is not a “disease” in itself but it does result in pain and suffering.

Osteoarthritis is due to many factors including:

- genetic predisposition,
- previous injury to joint cartilage,
- damage to the surrounding ligaments resulting in instability at the joint,
- fracture of the bones on either side of the joint resulting in altered mechanical loading,
- previous surgery or injury to the meniscus,
- advanced age
- increased body mass

Some medical conditions (such as rheumatoid and psoriatic arthritis) also cause arthritis due to the body mounting an inflammatory reaction against the cartilage thereby damaging it.

As the thin cartilage is damaged, it can break off in small fragments resulting in mechanical symptoms such as locking, clicking or catching. As the cartilage is lost, the load on the bone itself is increased which is painful. The bone responds by laying down hard new bone and the tissues and ligaments around the joint get contracted and thickened resulting in stiffness. As the process continues, the bone itself is lost which can result in deformity of the limb.

Symptoms and signs

- pain
- stiffness
- clicking and catching (mechanical symptoms)
- difficulty in mobilising (due to pain and stiffness)
- night pain causing interrupted sleep
- start up pain (better once the joint “warms up”)
- difficulties with activities of daily living such putting on shoes, socks and pants, sitting for long periods with bent knees.

Natural history

The likely course of knee arthritis is slow progression. As the stiffness and pain worsens, activities of daily life become more difficult. The symptoms are often variable depending on activity level and seasonal changes. Despite the pain and discomfort, arthritis is not a life threatening condition and this needs to be understood with respect to surgical intervention.



Non-operative management

Non-surgical measures are the starting point for all patients with a diagnosis of arthritis. There is a large volume of scientific literature on non-operative management of arthritis, and factors with strong evidence of benefit include:

- medications:
 - **paracetamol** (regular)
 - anti-inflammatory medications (NSAIDs) eg Nurofen
 - tramadol (note that this is a very strong painkiller)
- weight loss
- **physiotherapy** and strengthening program
 - exercise bike or cycling
 - swimming and hydrotherapy

Other options to consider:

- lifestyle modification and avoidance of activities that worsen the pain
- use of walking aids such as a walking stick or trekking poles
- steroid injections
- artificial joint fluid injections

Surgical management

There are multiple surgical options for knee arthritis including:

1. Knee arthroscopy
2. Knee realignment surgery (osteotomy)
3. Knee replacement
 1. Partial
 2. Total

Knee arthroscopy has a limited role in arthritis. It's only indication is for relief of painful mechanical symptoms of catching or locking. Knee arthroscopy itself does not treat the underlying arthritis.

Knee realignment surgery is an excellent options for younger, active patients with arthritis. The basis of there surgery is to realign the knee joint by cutting the bone to change the way the force is transmitted across the joint thereby unloading the arthritic part of the joint thus reducing pain.

The mainstay of surgical treatment for knee arthritis is **joint replacement surgery**. The options include replacing the whole joint or, if the arthritis is only affecting one side of the joint, replacing only that region. Although knee replacement is major orthopaedic surgery with accompanying risks, the long term survival of modern implants and improvement in patient's quality of life are excellent. In most cases, Dr Roe utilises the accuracy of computer navigation and robotics to aim to further improve the outcome for his patients on an individualised basis.

In general terms, knee replacement surgery involves replacing the ends of the femur and tibia with metal implants that articulate together via a plastic interface. In most cases the back of the patella is also replaced with a plastic articulating button. By removing the worn cartilage and realigning the joint, there is an improvement in function with a reduction in pain.