

# Osteoarthritis of the Knee

Associate Professor

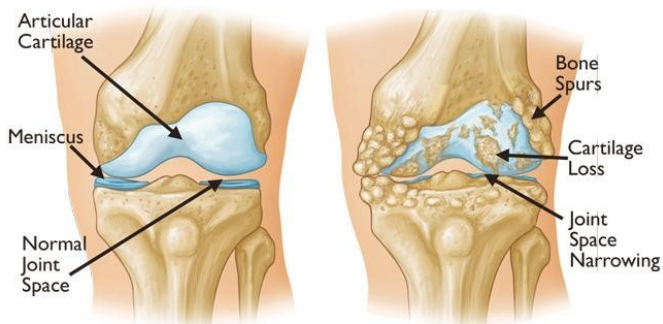
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## Introduction

Osteoarthritis is a common problem for many people after middle age. Osteoarthritis is the type of arthritis involving the cartilage of a joint. The cartilage of a joint is a tough, gristle-like material that is found on the ends of the bones. It forms the surface of the joint on either side. Cartilage is durable and somewhat elastic. Over time, the cartilage may become worn.

Eventually the cartilage may wear away entirely. This cartilage deterioration is what defines osteoarthritis. Osteoarthritis can develop as a natural process of aging or it may occur as a result of a traumatic injury.



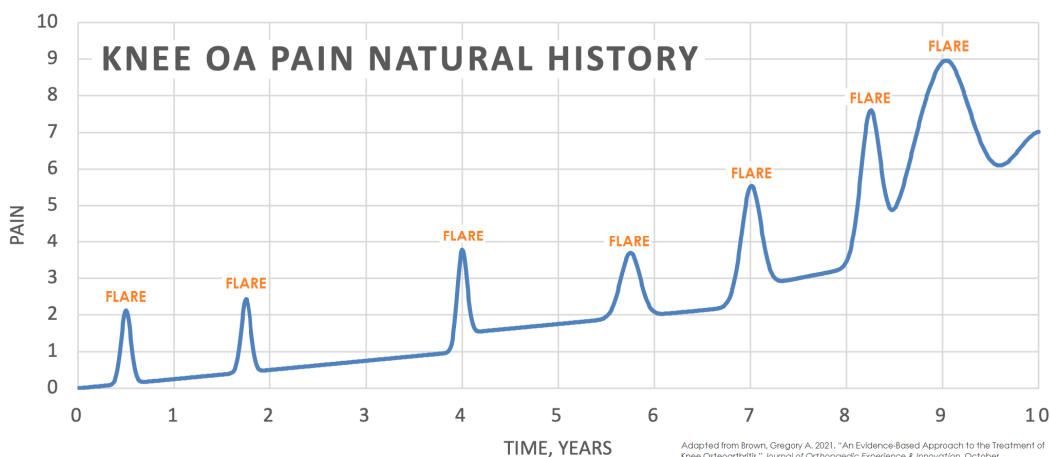
The normal knee is a complex joint consisting of bones and soft tissue structures that are designed to move and put up with forces of everyday activity. There are three main compartments in the knee and arthritis may effect one or many compartments. As the cartilage wears the knee may become swollen and develop an aching pain.

## Symptoms and Signs of Osteoarthritis:

The predominant symptoms of osteoarthritis of the knee are pain, swelling, stiffness and a decreased activity level. The pain generally worsens with activities and improves with rest. Locking and catching may also occur. Commonly, wasting of the thigh muscle occurs. This in turn may increase pain and may also cause symptoms of giving way. Xrays and MRI can be used to assess the thickness of remaining cartilage.

## Osteoarthritis Flares

The natural history of knee OA is one of slow and gradual deterioration of symptoms with periodic 'flares', characterised by episodes of increased pain, swelling and stiffness, often with rapid onset that can be disabling and distressing. Flares may endure for a few days initially, or longer periods as the OA progresses. Walking and sleeping may become difficult. Generally these episodes improve with time, (with and without treatment) and the pain returns to the baseline level.



Adapted from Brown, Gregory A. 2021. "An Evidence-Based Approach to the Treatment of Knee Osteoarthritis." Journal of Orthopaedic Experience & Innovation, October.

## What to do if you experience an Osteoarthritis Flare



When temporary flare ups occur these steps may help you manage your symptoms. These can be considered short term 'fast' flare management strategies to implement alongside "slower" management strategies over the longer term.

*Adapted from Thomas et al "Osteoarthritis Flares" in Clinics in Geriatric Medicine, David Hunter (ed) May 2022*

## Longer term management strategies for knee OA

When required conservative treatment consists of a four-week course of pain relievers or anti-inflammatory medications. We prefer the regular dosage of pain relief, such as paracetamol, because they are safe and effective. It is important to avoid high impact activities such as running and jumping. To maintain fitness, cycling and swimming is encouraged.

### A. Pain relievers or Anti-inflammatory Medicines

- Paracetamol (<4g/day) eg. Panadol Osteo (2 tabs 3x per day)
- Non-steroidal anti-inflammatory drugs (NSAIDs) eg.: Ibuprofen (Nurofen), Voltaren, Celebrex, Mobic, Arcoxia
- Glucosamine, chondroitin, dietary supplements (anecdotal evidence)

### B. Weight Loss

- Weight reduction is very important and can significantly slow the progression of OA.
- Sustained weight loss of a >5% of body weight through appropriate program of dietary modification and exercise
- Healthy Weight for Life Programme [www.healthyweightforlife.com.au](http://www.healthyweightforlife.com.au)

### C. Topical agents

- Cold or Heat
- Anti-inflammatory cream/gel eg.: Voltaren Gel

### D. Education

- My Joint Pain website features a range of on-line tools and in-depth information ([www.myjointpain.org.au/](http://www.myjointpain.org.au/))
- Arthritis Foundation ([www.arthritis.org](http://www.arthritis.org)) or Arthritis Australia ([www.arthritisaustralia.com.au](http://www.arthritisaustralia.com.au))
- "Treat Your Own Knee Arthritis" (Jim Johnson, Dog Ear Publishing, 2010)

### E. Injections

- Corticosteroids (evidence-based)
- Viscosupplementation (anecdotal evidence) eg.: Synvisc
- Acupuncture does have some evidence

### F. Mechanical aids

- Walking stick (opposite hand)
- Knee Taping or Bracing (neoprene sleeve, off-loader braces)

# Longer term management strategies for knee OA

## G. Exercises

- Exercise or physiotherapy can strengthen the muscles, which improves the knee joint and reduces the symptoms.
- Range of motion and flexibility exercises (incl. yoga and pilates)
- Quadriceps strengthening / Hamstring stretching
- Low impact aerobic fitness exercises (swimming, cycling, etc.)
- Avoid high impact activities such as running and jumping

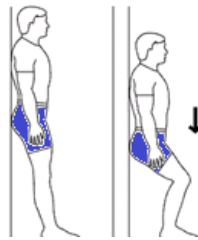
Recommended Exercises for OA knee:

### Exercise bike 20-60 minutes

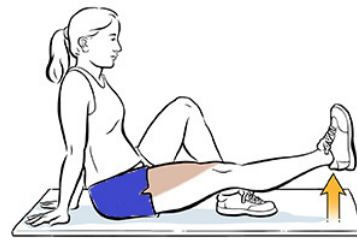


### Wall Squats.

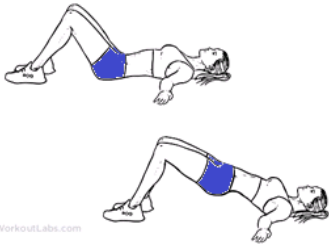
Avoid deep squats beyond 90 degrees of knee flexion



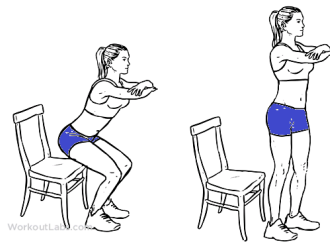
### Straight Leg Raises



### Bridging



### Sit to Stands

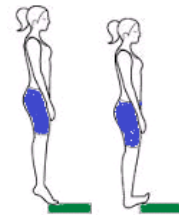


### Walking

30-60 minutes



### Calf raises on edge of step



## H. Orthopaedic Surgery

Ultimately the intensity becomes more frequent as the osteoarthritis progresses, and when this happens surgical treatment may be considered.

- Arthroscopic Debridement - poor evidence / NOT recommended
- High Tibial Osteotomy—unicompartmental disease in younger middle-aged patients
- Partial Knee Replacement—older patients with unicompartmental disease
- Total Knee Replacement—advanced knee osteoarthritis