



## Knee Osteoarthritis

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Osteoarthritis is a condition where the articular cartilage (the protective surface) and the Menisci (shock absorbers) of the knee breakdown to expose the underlying bone.

Loose fragments of articular cartilage cause the swelling as the knee releases inflammatory agents to absorb the cartilage while the pain is caused by the exposing the pain nerves in the bone.

This is a progressive condition that at present

there is no cure for however the speed at which it progresses is highly variable.

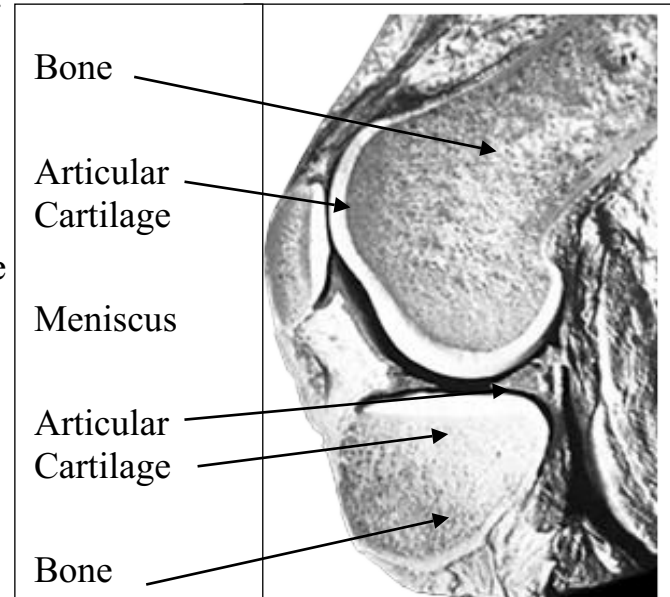
The factors that contribute to osteoarthritis are hereditary, increased weight which overloads your knee injury causing damage to the articular cartilage, menisci, ligaments and bone and your leg alignment. If you are bow legged you will put more load through the inside of your knee.

The initial treatment of knee osteoarthritis is non surgical. This consists of activity modification with low impact exercise, muscle strengthening, weight loss if required, medication and possibly injections

### **Activity Modification:**

The symptoms from your knee osteoarthritis can be highly variable. At times the arthritis can be very active with a lot of pain and swelling. This is due to the knee shedding a lot of articular cartilage exposing the bone nerves. At other times the arthritis goes it to remission with less pain and swelling.

Thus I advise you to listen to your knee. If it's sore and swollen rest it



**The saying “No pain , no gain” does not apply to your arthritic knee**

SO LET PAIN AND SWELLING GUIDE YOUR ACTIVITY LEVEL.

**Low Impact Exercise & Muscle Strengthening:**

It is important to maintain your muscle strength, fitness and flexibility if you have knee arthritis. Low impact exercise puts less load through your knee so this is advisable.

Cycling is probably the best as you put one third of the load through your knee than walking and one sixth than running. You don't want the seat to be too low as this will overload your kneecap. The correct position is to adjust your seat height so you can straighten your knee when your foot is on the pedal and you are able to tip the pedal down with your heel. You then pedal with your forefoot. You are better to pedal faster in a low gear as this puts less load through your knee than pedaling slower in a high gear.

Weight bearing exercises involving running and jarring is not encouraged as they will accelerate the arthritis. Swimming is better for the upper body but will not harm your knee. Aqua aerobics and pool running are beneficial

I will give you an exercise and strengthening regime for your arthritic knee. Seeing a physiotherapist to guide you is beneficial.

**Weight loss:**

The less load you put through your knee the less it will hurt and the longer it will last. For many the arthritis exercise can be difficult so go low impact as explained above.

Recent studies show that your weight is up to 90% dependent on what you eat rather than how much you exercise.

Reducing sugars and carbohydrates makes a difference as does intermittent fasting whereby you don't have breakfast with a 16 hour food break between dinner and lunch time.

It is worthwhile seeking guidance from your GP or a dietician.

### **Prescribed Medications:**

Simple painkillers such as paracetamol and anti-inflammatories can be a very effective way to reduce symptoms and improve function. The maximum paracetamol dose is 4g a day – eight 500mg tablets. Start with less and increase as required.

Anti-inflammatories are very effective in reducing both pain and swelling. Long-term use can result in significant side effects including indigestion, stomach ulcers, elevated blood pressure, heart disease and impaired kidney and liver function. These side effects are less with the COX 2 anti-inflammatories such as Celebrex.

Long-term use should be approved and monitored by your GP.

My experience is that they work well if taken before increased activity so take them the night before and/or the morning of such events.

### **Nutraceutical Medications**

These non-prescription medications such as glucosamine and chondroitin sulphate, fish oil, deer velvet and green lipped muscle extract (lyprinol) have become very popular. To date the studies comparing these with placebo have not shown good evidence that they make a difference but some people get relief and no significant side effects have been shown so can you try them if you like.

### **Injections:**

Cortisone, Hyaluronic acid (HA), Stem cells and Platelet rich plasma (PRP) are proposed treatments for knee osteoarthritis. They are often not needed.

**Cortisone** is an anti-inflammatory agent that has been used for a long time and has proved to be effective in reducing swelling.

**HA** is glycosaminoglycans injection which is a component of the synovial fluid (the lubricant of the knee joint) and the outer layer of the articular cartilage

**Stem Cells** are harvested from your bone marrow or fat (adipose tissue) then grown in the lab then injected into your knee. They secrete growth factors which reduce inflammation and reduce cartilage breakdown

**PRP** is your own blood centrifuged to extract the platelet rich plasma which when injected into your knee releases anti-inflammatory agents to reduce swelling and growth factors to reduce cartilage breakdown.

### **My injection approach**

Recent studies have shown that cortisone does accelerate the breakdown of articular cartilage so I don't use it. I did for a while use HA but found the results disappointing and recent randomized controlled studies have shown that PRP is superior to HA. I have found PRP effective in the patient with moderate arthritis. Our own study evaluating PRP at one and two years following the treatment shows the pain goes from 53/100 pre PRP to 31/100 at one year and 34/100 at two years. When asked how normal the knee feels it increases from 33/100 pre injections to 59/100 at one year and 68/100 at two years. Patient satisfaction is 79% at one year and 80% at two years. I describe this treatment as a "patch not a cure". It is likely to improve your symptoms but not resolve them.

Stem Cell studies have shown similar improvements to my PRP experience but have not shown that stem cells can reverse and restore the arthritic process in the knee.

In view of this I don't believe there is enough evidence to support the greater cost (\$1575 vs \$12,500) and more invasive nature of stem cells vs PRP.