



## Fact Sheet

This document is designed to help you understand about Osteoarthritis of the knee and hip and how to manage your arthritis on a day to day basis. Surgery is rarely the first line of treatment in managing your arthritis. Almost always a stepwise process of utilising a number of non-operative therapies should be utilised first, surgery is reserved when these techniques are no longer working. The following pages will describe what is useful and what is not so useful in managing your arthritis. This information is based on guidelines from the American Academy of Orthopaedic Surgeons, the Australian Orthopaedic Association, NHMRC as well as personal experience and numerous scientific articles.

### What is Osteoarthritis?

Osteoarthritis is a chronic slowly progressive disorder of the joints characterised by inflammation, loss of articular cartilage and bone growth around the edges of the joint resulting in change in the shape and alignment of the joint. It is often thought of as a wear and tear process, but more accurately should be considered as a problem of wear and repair of the joints. The most commonly affected joints are the knee then the hip followed by the hands and spine.

Osteoarthritis results in joint pain often made worse by impact and activity, stiffness after inactivity, swelling, change in alignment and reduced function over time. The cause of Osteoarthritis is usually due to a number of factors including previous injury, overuse, obesity, previous surgery to the joint, hereditary factors, gout, diabetes, corticosteroid use, alcoholism and hormonal disorders. It is not necessarily a process of ageing.

There is no cure for osteoarthritis with a gradual slow progression being most likely. The goals of treatment are to control pain primarily whilst improving function and maintaining motion and stability. Pain control is the main priority. Most patients can be managed without surgery. About 10% of patients with Osteoarthritis of the hip and knee will eventually need a joint replacement.

Joint replacement is used for end-stage joint failure with intractable pain and disability. Most patients can be managed without the need for surgery. Joint replacement surgery is major surgery with significant risks and if the arthritis isn't bad enough a joint replacement may be more painful than the arthritic joint was before surgery.

### The following treatments are helpful in treating Osteoarthritis

#### WEIGHT LOSS

There is pretty much unanimous support for weight loss as a treatment for Osteoarthritis in the overweight patient. Weight loss of 5% or greater has been shown to decrease pain and improve function. This should be maintained by a programme of dietary modification and exercise.

# Managing my Arthritis

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## LOW IMPACT AEROBIC EXERCISE PROGRAMME

There is very good evidence that participating in a low impact exercise programme is beneficial in treating Osteoarthritis of the knee and hip.

Exercises such as walking, swimming, aquarobics, dancing and cycling are useful. Light resistance exercises can be helpful. A water based programme may be tolerated better than a land based programme due to the effect of buoyancy taking the stress off the affected joint. High impact type activities are probably detrimental. A strenuous weights programme can create a shearing force across the joint and lead to further degeneration of the joint.

## RANGE OF MOTION/FLEXIBILITY EXERCISES

Often performed in conjunction with a physiotherapy programme, daily stretching and range of motion exercise are useful. In patients with hip Osteoarthritis pushing the joint to extremes of range may be detrimental especially in the impingement position of flexion, adduction and internal rotation.

## PHYSIOTHERAPY PROGRAMME

Muscle strengthening and conditioning exercises are useful in treating Osteoarthritis. In a well-balanced joint with good muscle conditioning the long muscles can act as shock absorbers around the joint transferring and absorbing impact across the joint. A quadriceps strengthening programme is recommended in managing osteoarthritis of the knee. Patella taping techniques have been shown to be of value in managing Osteoarthritis of the knee especially if pain at the front of the knee is present. Patella taping is useful for short term relief of Osteoarthritis of the knee. Hip arthritis can be helped by strengthening and balancing the muscles around the pelvis and buttock. A pool based hydrotherapy programme has been shown to be helpful in treating both the knee and hip. Some agents also recommend specific hands on manual therapy targeting the soft tissues and joint structure around the knee to reduce pain and improve function. Physiotherapists are helpful in designing a programme including range of motion and flexibility exercises as well as instructing on an appropriate exercise programme for you.

TENS and/or interferential therapy may be useful for short term relief as part of a physiotherapy programme. Only short term relief occurs, about 4 weeks but this may be useful as part of a rehab programme.

## ACTIVITY MODIFICATION

As a joint deteriorates it is important to understand that you may not be able to be as active as you once were. As Osteoarthritis takes hold higher impact and strenuous activities become more difficult and will need to be reduced or curtailed if one is to expect the joint to become less painful. Persisting with painful activities may cause increased damage to an already compromised joint. This relates both to work and recreational/sporting activities. It can be very difficult to modify or change ones working environment due to individual circumstances, unfortunately other treatment options will only temporize matters if the offending activity can't be modified.

## HEAT AND COLD

Applied heat and or cold appears to be beneficial in relieving pain and improving stiffness in an irritated Osteoarthritic joint. Alternating the two can be beneficial, heat first then cold to prevent swelling from the dilated blood vessels secondary to heat application.

## PAIN RELIEVERS

Simple paracetamol type tablets are very useful in the treatment of osteoarthritis. Dosage should be no greater than 4 grams per day. Regular divided doses throughout the day is often better than taking them every now and then or when pain becomes great. Paracetamol products such as panadol, panadol Osteo, panamax etc. are the workhorses of pain management. Surgery should rarely be considered prior to using simple pain relief such as this.

## NON-STEROIDAL ANTI-INFLAMMATORY MEDICATIONS (NSAIDS)

These medications are very useful in relieving pain and inflammation associated with Osteoarthritis. These medications include Brufen, Voltaren, Nurofen, Naprosyn etc. They all work in a similar way but some patients appear to find some work better than others for no obvious reason. All NSAIDS have a small risk of complications mostly relating to Gastro-intestinal upset (heartburn, reflux, indigestion to more serious effects such as ulceration and bleeding). NSAIDS can also affect the kidneys and perhaps the heart. NSAIDS can interact with other medications such as blood pressure tablets for example. Rare but serious complications can occur such as bleeding from the gut, asthma and heart attack and stroke. NSAIDS are very useful but should be used after consultation with your general practitioner and perhaps your pharmacist.

For patients at increased risk of Gastro-intestinal side effects ( Age =>60yrs, associated medical conditions, history of peptic ulcer, history of GI bleeding, Patients on corticosteroid treatment, patients using anticoagulants) NSAIDS should be used with caution and one of the following medications should be considered:

- Paracetamol alone (no greater than 4grams per day)
- Topical NSAID creams e.g. voltaren gel
- Using a Non Selective NSAID (e.g. Naprosyn, Voltaren, Brufen etc.) in combination with a gastro-protective agent (medications to protect the stomach and small intestine from ulcers/ irritation e.g. Losec, Somac, omeprazole etc.
- Using a GI protective NSAID (cyclo-oxygenase inhibitor) e.g. Celebrex, Mobic

## INTRA-ARTICULAR INJECTIONS

Corticosteroid injections (cortisone type) are useful for short term pain relief in Osteoarthritic knees and hips. However cortisone can cause deterioration in the articular cartilage over the medium to long term. For this reason I reserve cortisone injections for the very elderly or infirm who surgery is unlikely ever to be an option. In the average patient cortisone will improve pain initially but may exacerbate and speed up arthritic change over time.

## VISCOSUPPLEMENTATION/HYALURONIC ACID INJECTIONS

Hyaluronic acid is the lubricating protein in normal hips and knees. It is said to be deficient in arthritic joints. Injecting Hyaluronic Acid into a joint is known as Viscosupplementation. Hyaluronic acid injections are available typically as second line treatment for Osteoarthritis of the knee. These injections are expensive about \$500 and there is only weak evidence for their use. Most research on their use is sponsored by the manufactures themselves. Hyaluronic acid injections are more useful in milder arthritic joints when other more simple treatments are going to be useful. It seems to have little benefit in more severely arthritic joints. Perhaps it can be used as an alternative to NSAIDS or in conjunction with NSAIDS as it has a different mechanism of action to NSAIDS. Some patients do report extended benefit from Hyaluronic acid injections. There is no evidence for repeated injections of Hyaluronic Acid and it has only been studied and approved for use in the knee. Currently the American Academy of Orthopaedic Surgeons does not recommend the use of Hyaluronic Acid injections due to a lack of supportive evidence.

## GLUCOSAMINE AND CHONDROITIN SULFATE TABLETS GS and CS

There is conflicting support for the use of these preparations. Glucosamine and chondroitin are molecules found in normal cartilage matrix. They are typically manufactured from shark and fish cartilage. Various preparations are available from pharmacies and supermarkets, their manufacture is not as closely regulated as prescription medications so there is probably significant variability between products. Side effects from GS and CS are rarely if ever reported apart from patients with are seafood allergy. It is widely accepted that these are safe to use but is debatable how useful they are. Currently the American Academy of Orthopaedic Surgeons does not recommend their use due to lack of evidence however other groups are more supportive. Perhaps there is more evidence to support the use of Glucosamine than Chondroitin sulfate but the evidence is conflicting. My experience is that they are useful in mild to moderate symptoms of Osteoarthritis in the knee.

## OPIATES

Sometimes stronger pain relief is needed than paracetamol, NSAIDS, GS and CS. Paracetamol with codeine e.g. panadiene , panadiene forte provides better pain relief than paracetamol alone. However adding codeine adds side effects such as nausea, vomiting, dizziness and constipation. Up to a third of patients need to stop these medications due to side effects. Stronger opiates which are morphine like medications natural or synthetic have a greater risk of side-effects, but may become necessary for patients with intractable pain especially if surgery is not able to be performed due to other medical reasons.

## MECHANICAL AIDS

It is widely considered that a walking stick used on the same side as an arthritic hip and the opposite side for an arthritic knee is helpful although there are no significant studies to support their use. A walking stick is one of those things that has been understood to be useful for a long period of time.

A simple neoprene knee sleeve is probably useful for an arthritic knee. It can help control swelling, may help with proprioception (position sense) and a sense of stability about the joint.

Various expensive braces are available for management of arthritic knees. Medial unloader braces can be used to take the strain of the inner aspect of the knee in varus (bowed) knees. There is little evidence to support their use in Osteoarthritis currently the American Academy of Orthopaedic Surgeons does not recommend their use. The same is true for patients with valgus knees ( knock knees).

## ACUPUNCTURE

The American Academy of Orthopaedic Surgeons reports that currently there is not enough evidence to support the use of acupuncture as an effective treatment for osteoarthritis. Other regions such as the Singapore Ministry Health are more supportive. Personally I haven't seen much benefit with acupuncture in the treatment of osteoarthritis.

## Techniques that are NOT recommended for treatment of Osteoarthritis

### FISH OILS (OMEGA 3)

Omega 3 Fish oils are commonly used for relief of pain in arthritic joints. There is some evidence that Omega 3 fish oils can reduce the inflammation in inflammatory arthritis conditions such as rheumatoid arthritis. However they have not been studied in any significant way in Osteoarthritis. Currently these medications cannot be recommended for the treatment of Osteoarthritis.

### NEEDLE LAVAGE

Needle lavage should not be used as a treatment for Osteoarthritis. This involves multiple punctures about the knee with a hypodermic needle

### LATERAL HEEL WEDGE

Putting a build-up on the outside of a shoe has been used as a treatment to unload the inside of the knee in the varus ( or bowed) knee intending to correct the bowed knee deformity and improve the mechanics of the arthritic knee. Unfortunately there is no evidence to support lateral heel wedges.

The same is true for medial heel edges in valgus deformity of the knee (knocked knee deformity).

In hip osteoarthritis there is no benefit in a shoe raise to treat a perceived short or long leg to help or prevent Osteoarthritis. A shoe raise may however improve the energy used when walking if one leg is shorter than the other.

### PROLOTHERAPY

Injection treatments such as hypertonic glucose injections, PRP platelet enriched plasma injections are not indicated in treatment of osteoarthritis. They may be useful in the treatment of chronic tendon type injuries but not for Osteoarthritis.

#### Orthokine

Orthokine is a new injection technique developed by a single surgeon in Germany which has been heavily marketed to elite athletes in the USA. It involves taking a sample of the patient's own blood and isolating a protein which blocks Interleukin 1 an important enzyme active in inflammation and injecting this into the knee on multiple separate occasions. It is claimed by the inventor to be the only cure for Osteoarthritis. At the time of writing there are no independent studies evaluating this technique but there is a large number of internet sites devoted to Orthokine most of which all lead back to the developer's Los Angeles clinic. Patients' should be very cautious about this technique, it is being offered in Australia often at very high cost for a technique that should require very little equipment. It is being marketed as a treatment for Osteoarthritis but its celebrity clients are elite athletes that would have traumatic defects not Osteoarthritis. Osteoarthritis is initially a disorder of damage to articular cartilage with abnormal repair mechanisms resulting in loss of articular cartilage, abnormal bone growth (osteophytes or spurs) and subsequent mal-alignment which results in inflammation, pain and irritability. Inflammation of the joint is a result of the Osteoarthritic process not the other way round, so it is difficult to see how blocking one enzyme involved in inflammation will prevent or cure Osteoarthritis. This is the same reason why PRP injections are not useful in the treatment of Osteoarthritis.

### MAGNET THERAPY/ LASER THERAPY

I am unaware of any good evidence or reasoning to suggest that these modalities are useful in the treatment of Osteoarthritis.

### SURGICAL INTERVENTION

Arthroscopic lavage or washing the knee out is not an effective treatment when dealing primarily with Osteoarthritis of the knee. Arthroscopy can be useful when dealing with mechanical symptoms arising from a torn meniscus or loose body in a patient with mild osteoarthritis of the knee as long as normal alignment is maintained and there are clear primary signs and symptoms of a torn meniscus or loose body.

## MECHANICAL BRACES

There is little evidence to support the use of expensive unloader type braces in hip or knee arthritis.

They are used to increase stability and support weak muscles and joints as well as redistribute weight across a mal-aligned joint. Studies have not shown any improvement in pain, stiffness or function with use of these braces.

## ELECTROMAGNETIC FIELDS (PULSED ELECTROMAGNETIC FIELDS OR ELECTRICAL STIMULATION)

PEMF therapy is a treatment using a specific device which delivers electromagnetic field pulses to a painful area. The therapy is said to reduce pain and inflammation but currently there is no evidence to support these claims.

## VITAMINS, HERBAL AND OTHER DIETARY EXTRACTS

There is no evidence to support the use of such herbal remedies as Rosa Canina, Salix, Vitamin E, ginger, Uncaria guianensis, cetyl myristoleate

There is very little evidence to support the use of New Zealand muscle powder, bromelain, Harpagophytum, procumbens, flavonoids, vitamin C, jisheng wan

There is limited poor quality evidence to support the use of SK1306X and MSM (methylsulfonylmethane)

## THERAPEUTIC ULTRASOUND

There is no good evidence to support the use of ultrasound in the treatment of osteoarthritis. It probably causes no harm however.

## CALCIUM AND VITAMIN D

These medications are not useful in the treatment of Osteoarthritis. They are for the treatment of Osteoporosis and problems with the mineralisation of bone. Osteoporosis is a decrease in the mineral content of bone which can lead to fracture. Osteoporosis is not common in patients with Osteoarthritis.

## Summary

Generally most cases of Osteoarthritis of the hip and knee will respond to simple measures.

Weight loss, activity modification, a gentle exercise programme, physiotherapy, regular paracetamol, anti-inflammatory medications, glucosamine and chondroitin sulfate are simple common techniques that should be employed to treat the vast majority of patients with Osteoarthritis of the hip and knee.

The goal of treatment is to manage pain and improve function, it is not to restore the joint back to normal, this is not possible.

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